

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21ARC14

First Semester B.Arch. Degree Examination, June/July 2025 History of Architecture – I

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 Explain the architectural features of Catal Huyuk. (20 Marks)

OR

- 2 Write short notes on any 2 of the following : (20 Marks)
- a. Oval Hut
 - b. Stone Henge
 - c. Passage Graves and Gallery Graves

Module-2

- 3 Explain the town planning of the city of Mohenjodaro with respect to street planning and housing. (20 Marks)

OR

- 4 With the help of neatly labelled diagram explain the funerary architecture of Nile Valley civilization. (20 Marks)

Module-3

- 5 Explain the key features of Chinese Architecture. (20 Marks)

OR

- 6 Explain the key features of Japanese Architecture. (20 Marks)

Module-4

- 7 With the help of neatly labelled sketches explain the following : (20 Marks)
- a. Lion Gate
 - b. Treasury of Atrous

OR

- 8 Explain the key features of Palace of Persepolis (20 Marks)

Module-5

- 9 Explain the features of spatial design of settlements in desert region. (20 Marks)

OR

- 10 Citing the example of any tribal culture, explain the influence of geography in their built environment. (20 Marks)

* * * * *

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21ARC24

Second Semester B.Arch. Degree Examination, June/July 2025 History of Architecture - II

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 Discuss the two phases of Buddhist architecture. Elaborate on the construction and history of rock cut caves during that era with examples. (20 Marks)

OR

- 2 Write short notes on :
i) Sanchi Stupa
ii) Chaitya halls at Karli
iii) Viharas at Elephanta caves.
iv) Stambha "Ashoka Pillar" (20 Marks)

Module-2

- 3 a. Discuss the evolution of temple with sketches. (10 Marks)
b. Why is the Gupta period referred to as the 'Golden Age' of Indian art and architecture. (10 Marks)

OR

- 4 a. Explain and sketch the rock cut temples of Udayagiri. (10 Marks)
b. Illustrate and explain the general architectural character of a typical Hindu temple of an early Hindu Gupta period. (10 Marks)

Module-3

- 5 Explain the space of Brihadeshwara Temple with sketches of plan and elevation, explain the architectural design features. (20 Marks)

OR

- 6 Discuss and sketch the plan and design of Meenakshi Temple. (20 Marks)

Module-4

- 7 What are the characteristics of Lingaraja temple. Explain and sketch the following:

- i) Layout
ii) Structure
iii) Decoration (20 Marks)

OR

- 8 Explain the features of Hoysala style temple architecture. Give examples of Keshvai Temple at Somnath. Explain its :

- i) Layout
ii) Structure
iii) Decoration (20 Marks)

Module-5

- 9 Explain the architectural style of Vijayanagara Dynasty. Elaborate salient features of Hazara Rama Temple, Hampi with sketches. (20 Marks)

OR

- 10 Illustrate with sketches "Surya Temple style at Modhera, Gujarat" Explain its architectural style, which is an example of Rajputana group. (20 Marks)

* * * * *

--	--	--	--	--	--	--	--	--	--

First/Second Semester B.E./B.Tech. Degree Examination, June/July 2025

Engineering Chemistry

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1
 - a. Explain the construction, working and applications of Li-ion batteries. (06 Marks)
 - b. Define 'Ion selective electrodes'. Explain the construction, working of glass electrode. (07 Marks)
 - c. For the cell $\text{Li}|\text{Li}^+(0.2\text{m})||\text{Zn}^{2+}(0.45\text{m})|\text{Zn}$, write the cell reactions and calculate the emf of the cell at 298 K, if standard electrode potentials of Zn and Li electrodes are -0.76 and -3.04V respectively. (07 Marks)

OR

- 2
 - a. Briefly explain the direct recycling of Li – ion batteries. (06 Marks)
 - b. What is a 'reference electrode' Describe the construction, working and applications of calomel electrode. (07 Marks)
 - c. Define 'Single Electrode Potential'. Calculate the electrode potential of Zn electrode at 28°C , dipped in ZnSO_4 solution of 0.055m . Given that standard electrode potential of Zn is -0.76 V . (07 Marks)

Module-2

- 3
 - a. Distinguish between electroplating and electroless plating. (06 Marks)
 - b. Define 'corrosion'. Explain the electro-chemical theory of corrosion taking iron metal as an example. (07 Marks)
 - c. What is 'Cathodic protection'? Briefly explain the sacrificial Anode method of cathodic protection. (07 Marks)

OR

- 4
 - a. What is 'Metal finishing'? mention any five technological importance. (06 Marks)
 - b. Explain the following factors affecting rate of corrosion :
 - i) Nature of corrosion product
 - ii) Ratio of anodic to cathodic areas
 - iii) Temperature. (07 Marks)
 - c. What is 'electroless plating'? explain the electroless plating of copper. (07 Marks)

Module-3

- 5
 - a. Explain the fullerenes with properties and applications. (06 Marks)
 - b. Write a note on synthesis, properties and applications of polyurethanes. (07 Marks)
 - c. What is a 'conducting polymer'? Explain the factors influencing the conduction in organic polymers. (07 Marks)

OR

- 6 a. Briefly explain the following size dependant properties of nano materials :
 i) Surface area (06 Marks)
 ii) Catalytic properties. (07 Marks)
 b. Define 'Biodegradable polymer'. Explain the synthesis and applications of polylactic acid. (07 Marks)
 c. What are 'Polymer composites'? Explain the synthesis and properties of Kevlar fibre. (07 Marks)

Module-4

- 7 a. Briefly explain any six basic principles of green chemistry. (06 Marks)
 b. Explain the production of hydrogen by photocatalytic water splitting method. (07 Marks)
 c. What are 'photovoltaic cells'? Brief on the construction, working and applications of photovoltaic cells. (07 Marks)

OR

- 8 a. Describe the construction and working of methanol – oxygen fuel cell with H_2SO_4 as electrolyte. (06 Marks)
 b. Explain the microwave synthesis with examples. (07 Marks)
 c. Describe the synthesis of paracetamol by conventional and green route from phenol. (07 Marks)

Module-5

- 9 a. In a COD experiment, 28.5cm^3 and 17.5cm^3 of 0.025N FAS solutions were required for blank and sample titration respectively. The volume of test sample used was 25 cm^3 , calculate the COD of the sample. (06 Marks)
 b. Explain the theory, instrumentation and applications of colorimetry. (07 Marks)
 c. Describe the principles and requirements of titrimetric analysis. (07 Marks)

OR

- 10 a. Define the following units of a standard solution :
 i) ppm (06 Marks)
 ii) Molarity (07 Marks)
 iii) Normality. (07 Marks)
 b. Explain the method of determination of hardness of water by EDTA titration. (07 Marks)
 c. Explain the theory, instrumentation and applications of potentiometry. (07 Marks)

* * * * *

First/Second Semester B.E./B.Tech. Degree Examination, June/July 2025 Elements of Civil Engineering and Mechanics

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Briefly explain the scope of following fields of civil engineering.
 i) Earthquake engineering ii) Transportation engineering. (10 Marks)
 b. Write the requirements of good building stones. Explain the factors causing deterioration of stone work. (10 Marks)

OR

- 2 a. Explain the role of civil engineers in the development of country. (10 Marks)
 b. Explain briefly the field test conducted on bricks. (10 Marks)

Module-2

- 3 a. List and explain concepts of idealization in engineering mechanics and explain the characteristics of force. (10 Marks)
 b. Explain : i) Angle of friction ii) Cone of friction. (04 Marks)
 c. Find the moment of force 300 N about A and B as shown in Fig.Q3(c).

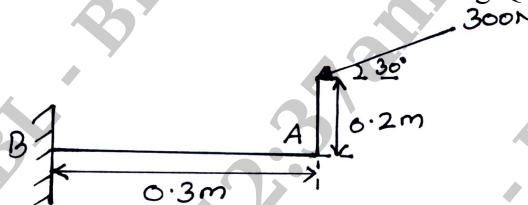


Fig.Q3(c)

(06 Marks)

OR

- 4 a. State and prove Parallelogram law of forces. (05 Marks)
 b. Determine the resultant force acting on the structure at point O both in magnitude and direction in Fig.Q4(b).

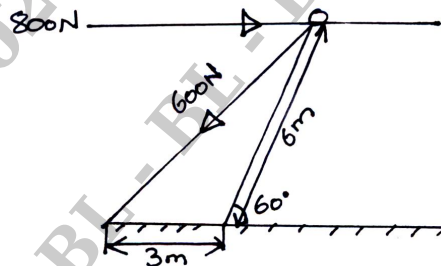


Fig.Q4(b)

(10 Marks)

- c. A block shown in Fig.Q4(c) is just moved by a force of 200N. The Weight of the block is 60N. Determine the co-efficient of static friction between the block and the floor. (05 Marks)

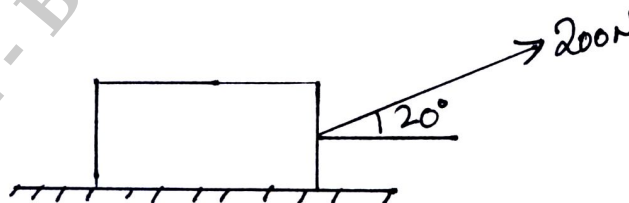


Fig.Q4(c)

Module-3

- 5 a. Derive an expression for centroid of a right angled triangle from top from first principles. (10 Marks)
- b. Find the moment of inertia along the horizontal axis and vertical axis passing through the centroid of section shown in Fig.Q5(b).

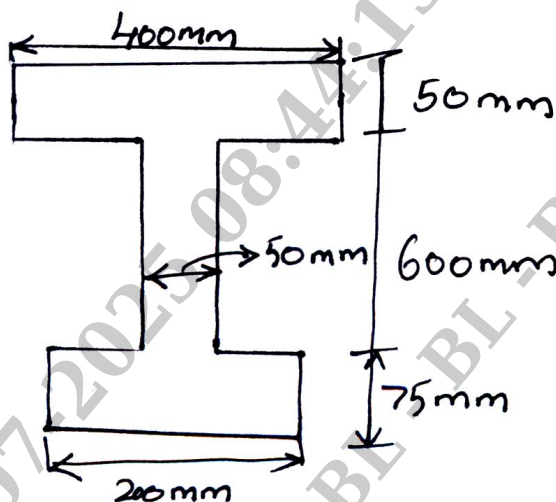


Fig.Q5(b)

(10 Marks)

OR

- 6 a. State and prove parallel axis theorem. (08 Marks)
- b. Calculate the centroid for Fig.Q6(b).

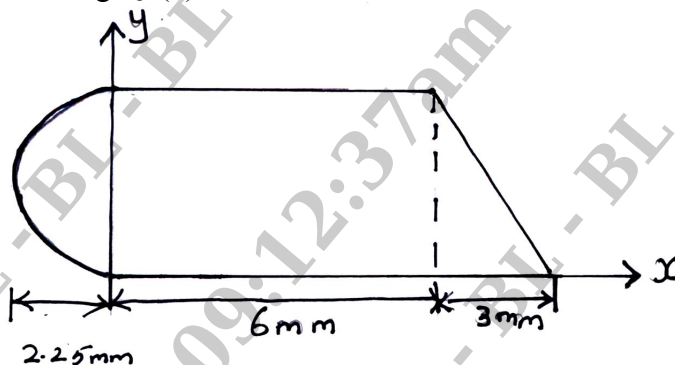


Fig.Q6(b)

(12 Marks)

Module-4

- 7 a. Explain different types of support system for beams with neat sketch. (08 Marks)
- b. Determine the internal forces in each of the members for the truss shown in Fig.Q7(b).

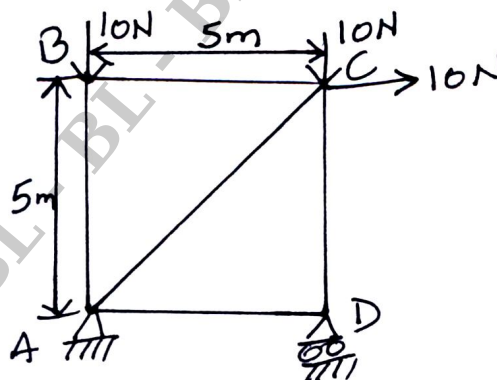


Fig.Q7(b)

(12 Marks)

OR

- 8 a. Determine the support reaction at A and E for the beam shown in Fig.Q8(a).

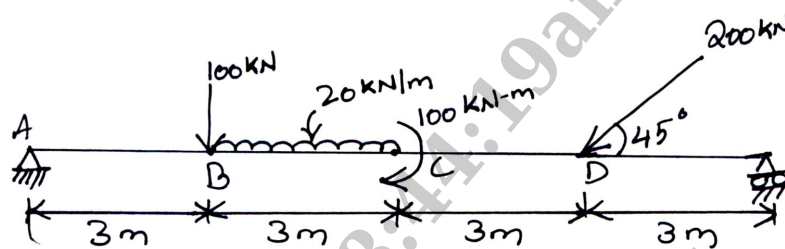


Fig.Q8(a)

(12 Marks)

- b. Explain the procedure for solving a truss by method of joints.

(08 Marks)

Module-5

- 9 a. State and explain D'Alembert's principle of forces. (08 Marks)
 b. A police officer observes a car approaching at the unlawful speed of 60 kmph. He gets on his motorcycle and starts chasing the car, just as it passes in front of him. After accelerating for 10 sec at a constant rate, the officer reaches his top speed of 75 kmph. How long does it take the officer to overtake the car from the time he started? (12 Marks)

OR

- 10 a. Explain :
 i) Displacement
 ii) Average velocity
 iii) Instantaneous velocity
 iv) Speed
 v) Acceleration. (10 Marks)
 b. A stone is dropped from the top of the tower 50 m high. At the same time another stone is thrown up from the foot of the tower with a velocity of 25 m/s. At what distance from the top and after how much time the 2 stones cross each other. (10 Marks)

First/Second Semester B.E./B.Tech. Degree Examination, June/July 2025 Elements of Civil Engineering and Mechanics

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Briefly explain the scope of following fields of civil engineering.
 i) Earthquake engineering ii) Transportation engineering. (10 Marks)
 b. Write the requirements of good building stones. Explain the factors causing deterioration of stone work. (10 Marks)

OR

- 2 a. Explain the role of civil engineers in the development of country. (10 Marks)
 b. Explain briefly the field test conducted on bricks. (10 Marks)

Module-2

- 3 a. List and explain concepts of idealization in engineering mechanics and explain the characteristics of force. (10 Marks)
 b. Explain : i) Angle of friction ii) Cone of friction. (04 Marks)
 c. Find the moment of force 300 N about A and B as shown in Fig.Q3(c).

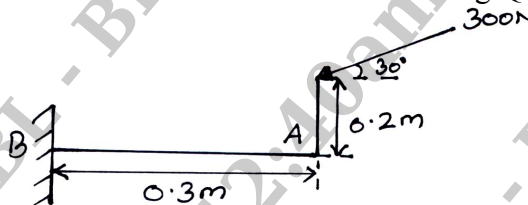


Fig.Q3(c)

(06 Marks)

OR

- 4 a. State and prove Parallelogram law of forces. (05 Marks)
 b. Determine the resultant force acting on the structure at point O both in magnitude and direction in Fig.Q4(b).

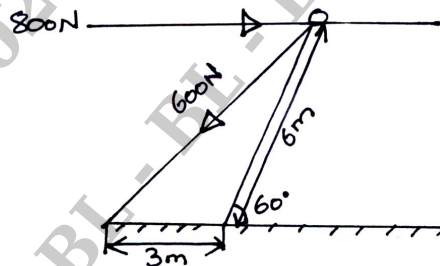


Fig.Q4(b)

(10 Marks)

- c. A block shown in Fig.Q4(c) is just moved by a force of 200N. The Weight of the block is 60N. Determine the co-efficient of static friction between the block and the floor. (05 Marks)

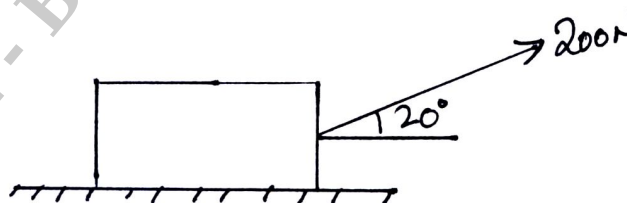


Fig.Q4(c)

Module-3

- 5 a. Derive an expression for centroid of a right angled triangle from top from first principles. (10 Marks)
- b. Find the moment of inertia along the horizontal axis and vertical axis passing through the centroid of section shown in Fig.Q5(b).

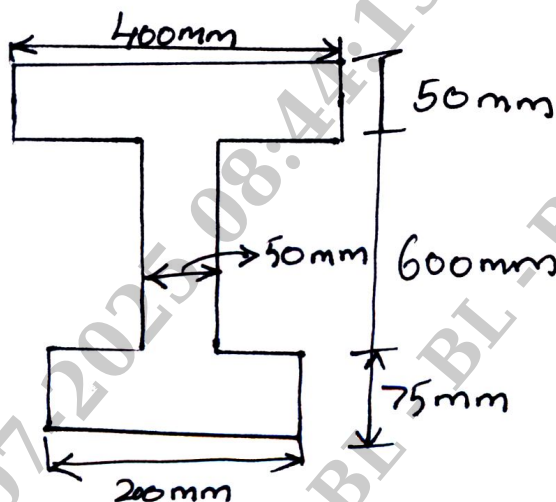


Fig.Q5(b)

(10 Marks)

OR

- 6 a. State and prove parallel axis theorem. (08 Marks)
- b. Calculate the centroid for Fig.Q6(b).

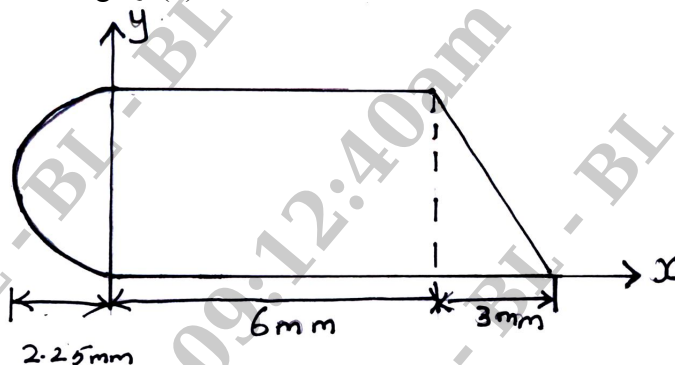


Fig.Q6(b)

(12 Marks)

Module-4

- 7 a. Explain different types of support system for beams with neat sketch. (08 Marks)
- b. Determine the internal forces in each of the members for the truss shown in Fig.Q7(b).

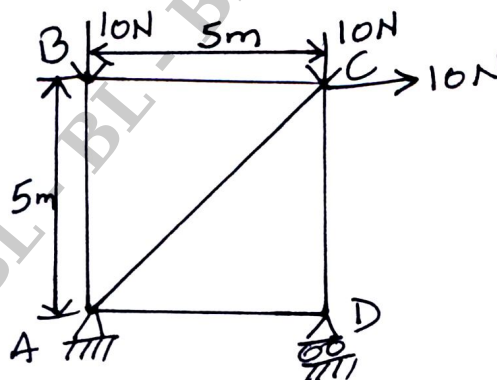


Fig.Q7(b)

(12 Marks)

OR

- 8 a. Determine the support reaction at A and E for the beam shown in Fig.Q8(a).

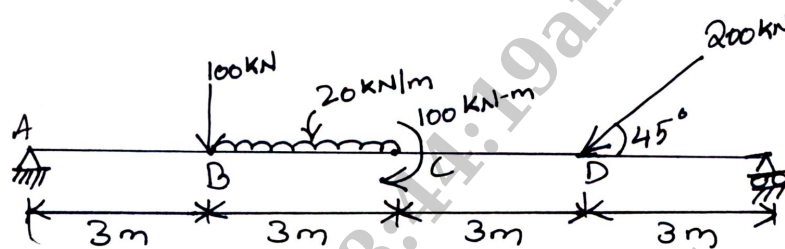


Fig.Q8(a)

(12 Marks)

- b. Explain the procedure for solving a truss by method of joints.

(08 Marks)

Module-5

- 9 a. State and explain D'Alembert's principle of forces. (08 Marks)
 b. A police officer observes a car approaching at the unlawful speed of 60 kmph. He gets on his motorcycle and starts chasing the car, just as it passes in front of him. After accelerating for 10 sec at a constant rate, the officer reaches his top speed of 75 kmph. How long does it take the officer to overtake the car from the time he started? (12 Marks)

OR

- 10 a. Explain :
 i) Displacement
 ii) Average velocity
 iii) Instantaneous velocity
 iv) Speed
 v) Acceleration. (10 Marks)
 b. A stone is dropped from the top of the tower 50 m high. At the same time another stone is thrown up from the foot of the tower with a velocity of 25 m/s. At what distance from the top and after how much time the 2 stones cross each other. (10 Marks)

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version: A

First Semester B.Arch./B.Plan. Degree Examination, June/July 2025
Communicative English

Time: 2 hr.]

[Max. Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **hundred** questions, each question carries one mark.
 2. Use only **Black ball point pen** for writing / darkening the circles.
 3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
 4. Darkening two circles for the same question makes the answer invalid.
 5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.
-
1. Which of the following is a benefit of effective intercommunication
a) Misunderstandings and conflicts b) Increased collaboration and innovation
c) Decreased productivity d) Decreased trust among team members
 2. Which communication skill is particularly important for resolving conflicts in intercommunication
a) Active listening b) Avoidance
c) Defensiveness d) Interrupting
 3. In intracommunication, what does effective self-management entail?
a) Ignoring personal emotions and biases
b) Expressing emotions without restraint
c) Controlling one's emotions and reactions
d) Reacting impulsively to situations
 4. Which of the following is a characteristic of effective intercommunication?
a) Lack of transparency
b) Power struggles
c) Openness and honesty
d) Misinterpretation of messages
 5. How does active listening contribute to both intercommunication and intracommunication?
a) By encouraging interrupting
b) By promoting understanding and empathy
c) By prioritizing speaking over listening
d) By discouraging collaboration

6. Which of the following is NOT a component of effective communication
 - a) Clarity
 - b) Active Listening
 - c) Interrupting
 - d) Empathy
7. What is the primary purpose of paraphrasing in communication?
 - a) To confuse the listener
 - b) To summarize the speaker's message in your own words
 - c) To ignore the speaker's message
 - d) To interrupt the conversation
8. Which communication skill involves the ability to understand and share the feelings of another person
 - a) Clarity
 - b) Assertiveness
 - c) Empathy
 - d) Nonverbal communication
9. When delivering a presentation, what is an effective way to engage the audience?
 - a) Speak in a monotone voice
 - b) Avoid eye contact
 - c) Use complex jargon
 - d) Tell stories and anecdotes
10. Which form of communication is most appropriate for delivering complex instructions to a large group of people
 - a) Verbal communication
 - b) Written communication
 - c) Nonverbal communication
 - d) Visual communication
11. Which type of communication barrier occurs when there is a misunderstanding due to different interpretations of words?
 - a) Physical barrier
 - b) Semantic barrier
 - c) Cultural barrier
 - d) Emotional barrier
12. What does the acronym "I-messages" refer to in communication?
 - a) Messages with incorrect information
 - b) Messages sent over the internet
 - c) Messages that express the speaker's feelings and thoughts
 - d) Messages delivered with anger or frustration
13. Which communication skill involves the ability to express oneself clearly and effectively?
 - a) Listening
 - b) Empathy
 - c) Clarity
 - d) Patience
14. What is the purpose of feedback in the communication process
 - a) To distract from the main message
 - b) To criticize the speaker
 - c) To provide a response to the message
 - d) To interrupt the conversation
15. Which nonverbal cue is often associated with confidence and authority?
 - a) Avoiding eye contact
 - b) Slouching posture
 - c) Firm handshake
 - d) Fidgeting
16. What is the primary purpose of communication
 - a) To persuade others
 - b) To exchange information and ideas
 - c) To entertain
 - d) To assert dominance
17. Which of the following is a crucial element of effective communication?
 - a) Speaking without listening
 - b) Using complex language
 - c) Being mindful of nonverbal cues
 - d) Avoiding eye contact
18. Which communication mode involves the sender encoding a message, transmitting it through a channel, and the receiver decoding it?
 - a) Linear model
 - b) Transactional model
 - c) Interactive model
 - d) Inferential model

19. What is feedback in the communication process?
 - a) The message transmitted by the sender
 - b) The noise in the environment that disrupts communication
 - c) The response or reaction to the message by the receiver
 - d) The medium through which the message is transmitted
20. Which of the following is a barrier to effective communication?
 - a) Active listening
 - b) Clarity in expression
 - c) Cultural differences
 - d) Openness and honesty
21. What is the study of speech sounds called?
 - a) Phonology
 - b) Syntax
 - c) Morphology
 - d) Semantics
22. Which term refers to the individual speech sounds that are the building blocks of spoken language?
 - a) Phonemes
 - b) Morphemes
 - c) Graphemes
 - d) Syntax
23. Which of the following represents the physical properties and articulation of speech sounds?
 - a) Phonology
 - b) Phonetics
 - c) Syntax
 - d) Semantics
24. What is the term for the smallest unit of sound in a language that can distinguish one word from another?
 - a) Phoneme
 - b) Allophone
 - c) Morpheme
 - d) Grapheme
25. Which of the following refers to the study of how sounds function within a particular language or languages?
 - a) Phonology
 - b) Morphology
 - c) Syntax
 - d) Semantics
26. What is the term for the sounds produced without significant constriction or closure in the vocal tract?
 - a) Vowels
 - b) Consonants
 - c) Nasals
 - d) Semivowels
27. What sound is commonly mispronounced in the word "February"?
 - a) The initial "F" sound
 - b) The "br" cluster
 - c) The medial "r" sound
 - d) The final "y" sound
28. Which sound is frequently mispronounced in the word "comfortable"?
 - a) The initial "c" sound
 - b) The "for" cluster
 - c) The medial "t" sound
 - d) The final "ble" cluster
29. What sound is often mispronounced in the word "library"?
 - a) The initial "l" sound
 - b) The "br" cluster
 - c) The medial "r" sound
 - d) The final "y" sound
30. Which sound is frequently mispronounced in the word "Wednesday"?
 - a) The initial "W" sound
 - b) The "dn" cluster
 - c) The medial "n" sound
 - d) The final "y" sound
31. What sound is commonly mispronounced in the word "nuclear"?
 - a) The initial "n" sound
 - b) The "cle" cluster
 - c) The medial "k" sound
 - d) The final "ar" cluster
32. How many syllables are in the word "elephant"?
 - a) 2
 - b) 3
 - c) 4
 - d) 5
33. Which of the following words has a closed syllable structure?
 - a) "Table"
 - b) "Open"
 - c) "Hidden"
 - d) "Rainbow"

34. What is the onset in the word “splash”
 a) “S” b) “Sp” c) “Spl” d) “Splash”
35. Which of the following words has a vowel digraph
 a) “Meet” b) “Goat” c) “Play” d) “Ball”
36. How many syllables are in the word “fantastic”
 a) 2 b) 3 c) 4 d) 5
37. In English, where is the primary stress typically placed in a word with more than one syllable?
 a) On the first syllable b) On the last syllable
 c) On the penultimate syllable d) On the antepenultimate syllable
38. Which word has the primary stress on the second syllable?
 a) “Refuse” (verb) b) “Refuse” (noun)
 c) “Present” (verb) d) “Present (noun)
39. What does intonation refer to in spoken language?
 a) The emphasis placed on certain syllables within words
 b) The rhythm and flow of speech
 c) The rise and fall of pitch in speech
 d) The clarity of pronunciation
40. Which intonation pattern typically indicates a question in English?
 a) Falling intonation b) Rising intonation
 c) Steady intonation d) No specific intonation patter for questions
41. In a sentence like “She’s going to the store,” where does the pitch typically rise to indicate the speaker’s uncertainty or hesitation
 a) On “She’s” b) On “going” c) On “store” d) At the end of the sentence
42. Which of the following is a part of speech used to name a person, place, thing, or idea?
 a) Verb b) Adjective c) Noun d) Adverb
43. What part of speech modifies a verb, adjective, or another adverb and usually answers the questions: how, when, where, why, or to what extent?
 a) Noun b) Pronoun c) Adverb d) Preposition
44. Which part of speech is used to join words, phrases, or clauses together?
 a) Conjunction b) Interjection c) Preposition d) Verb
45. What is the part of speech that replaces a noun and functions similarly in a sentence?
 a) Adjective b) Pronoun c) Adverb d) Verb
46. Which part of speech describes or modifies a noun or pronoun?
 a) Adjective b) Conjunction c) Interjection d) Verb
47. What part of speech expresses strong feelings or emotions and is often followed by an exclamation mark?
 a) Adjective b) Conjunction c) Interjection d) Noun
48. Which part of speech shows the action or state of being in a sentence?
 a) Noun b) Pronoun c) Verb d) Adverb

49. What is the part of speech that connects words or groups of words and usually shows the relationship between a noun (or pronoun) and other words in a sentence?
a) Verb b) Preposition c) Conjunction d) Interjection
50. Which part of speech modifies or describes a noun or pronoun
a) Adjective b) Adverb c) Preposition d) Conjunction
51. What part of speech is used to represent people, places, things, or ideas?
a) Verb b) Noun c) Adjective d) Adverb
52. Which article is used before a singular countable noun that begins with a consonant sound?
a) A b) An c) The d) No article needed
53. Which article is used before a singular countable noun that begins with a vowel sound?
a) A b) An c) The d) No article needed
54. Which article is used before a plural countable noun?
a) A b) An c) The d) No article needed
55. In the sentence, "She wants to buy ____ car," which article should fill the blank?
a) A b) An c) The d) No article needed
56. In the sentence, "I have ____ apple and ____ orange," which articles should fill the blanks?
a) A, an b) The, an c) An, the d) No articles needed
57. Which of the following is a preposition of place
a) On b) After c) During d) Between
58. Which preposition is used to indicate movement from one place to another
a) Of b) In c) To d) With
59. In the sentence, "She sat ____ the chair," which preposition should fill the blank
a) On b) In c) At d) Between
60. Which preposition is used to show the relationship between two events occurring simultaneously?
a) Since b) Before c) During d) Until
61. In the sentence, "The book is ____ the table," which preposition should fill the blank
a) In b) On c) At d) Under
62. What term refers to words that have similar meanings to each other
a) Synonyms b) Antonyms c) Homonyms d) Homophones
63. What type of vocabulary consists of words related to a specific field or subject area?
a) Academic vocabulary
b) Colloquial vocabulary
c) Technical vocabulary
d) Literary vocabulary
64. Which of the following refers to words that have opposite meanings
a) Synonyms b) Antonyms c) Homonyms d) Homophones

- 65 What term describes words that are spelled the same but have different meanings and sometimes different pronunciations?
a) Synonyms b) Antonyms c) Homonyms d) Homophones
- 66 What is the correct question tag for the statement; "You are coming to the party, ___?"
a) isn't it b) aren't you c) are you d) do you
- 67 What is the appropriate question tag for the sentence: "They haven't arrived yet, ___?"
a) have they b) haven't they c) did they d) didn't they
- 68 Which of the following is the correct question tag for the sentence: "He can speak Spanish, ___?"
a) does he b) isn't he c) can't he d) can he
- 69 Which question tag best fits the statement: "She is your friend, ___?"
a) isn't she b) is she c) does she d) isn't it
- 70 What is the appropriate question tag for the sentence: "You will be there on time, ___?"
a) won't you b) will you c) can't you d) would you
- 71 What is the term for "the study of ancient civilizations"?
a) Anthropology b) Archaeology
c) Paleontology d) Sociology
- 72 What is the term for "a sudden overthrow of a government by a small group of people"?
a) Anarchy b) Oligarchy c) Monarchy d) Coup
- 73 What is the term for "a person who is excessively enthusiastic or zealous"?
a) Lethargic b) Apathetic c) Fanatic d) Stoic
- 74 What is the term for "a written declaration that one's testimony given under oath is true"?
a) Affidavit b) Verdict c) Testimony d) Deposition
- 75 What is the term for "a person who pretends to be what he or she is not"?
a) Charlatan b) Imposter c) Liar d) Hypocrite
- 76 What is the contraction of "they have"?
a) they've b) they're c) they'd d) they'll
- 77 Which of the following is the contraction of "we will"?
a) we're b) we've c) we'd d) we'll
- 78 What is the contraction of "cannot"?
a) can't b) couldn't c) can've d) can't've
- 79 What does the abbreviation "etc." stand for?
a) estimate b) extra c) especially d) et cetera
- 80 What does the abbreviation "i.e." stand for
a) in essence b) for example c) that is d) for instance
- 81 Which of the following is not an abbreviation?
a) Mr b) etc c) i.e d) is

- 94 Which of the following sentences demonstrate correct sequence of tense?
a) She says that she went to the store yesterday
b) She said that she goes to the store yesterday
c) She says that she has gone to the store yesterday
d) She said that she went to the store yesterday
- 95 In reported speech, if the reporting verb is in the present tense, what tense is typically used to shift the verb in the reported speech?
a) Present tense b) Future tense c) Past tense d) Present perfect tense
- 96 Which sentence is in the correct order?
a) I yesterday went to the park
b) Yesterday I went to the park
c) Went I yesterday to the park
d) To the park I went yesterday
- 97 What is the subject of the sentence: "The cat chased the mouse"?
a) Cat b) Chased c) Mouse d) The
- 98 Which of the following is a pronoun?
a) Run b) Jump c) They d) House
- 99 What is the past tense of the verb "to swim"?
a) Swum b) Swam c) Swimmied d) Swimming
- 100 Which of the following is a preposition?
a) And b) But c) On d) Or

* * * * *

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : A

Second Semester B.Arch/B.Plan Degree Examination, June/July 2025 Professional Writing Skills in English

[Time: 2 hrs.]

[Max. Marks: 100]

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the hundred questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

Choose the suitable Verb to agree with the subjects :

1. Either my mother or my father _____ coming to the meeting.
a) is b) are c) has d) none of these
2. Everyone of those books _____ fiction.
a) are b) is c) was d) none of these
3. The leader as well as his brothers _____ to the tribe.
a) belongs b) belong c) belonging d) none of these
4. The students accompanied by the teacher _____ gone on a picnic.
a) has b) have c) were d) none of these
5. A large sum of money _____ stolen.
a) were b) was c) has d) none of these

Choose the suitable Pronoun to agree with the subjects :

6. Mr. Banks and Ms. Tukler are selling _____ stock in the construction company.
a) his b) theirs c) her d) their
7. Jane Roberts is my friend and mentor , _____ helps me at all times.
a) She's b) her c) she d) her's
8. A person needs to see _____ dentist twice a year.
a) his b) his / her c) her d) theirs

9. Both of the boys inherited _____ mother's red hair.
a) their b) them c) his d) theirs
10. The Washington team was opportunistic, _____ took advantage of every break.
a) It b) they c) them d) those

Fill in the blanks with suitable tenses :

11. Suddenly she gave a loud scream and _____ to the ground.
a) fell b) had fallen c) has fallen d) fell
12. After questioning he _____ to go home.
a) allowed b) was allowed c) had allowed d) allowing
13. Although they _____ defeated, they did not loose heart.
a) are b) has been c) were d) had
14. The teacher asked the boys whether they _____ the problems.
a) solved b) has solved c) solving d) had solved
15. The room _____ but the police failed to find anything suspicious.
a) searched b) was searched c) had searched d) searching

Fill in the blanks with suitable auxiliaries :

16. You must have been riding continuously. You _____ be tired.
a) must b) can c) ought d) were
17. That _____ be true. He wouldn't do something like that.
a) wouldn't b) can't c) shouldn't d) mustn't
18. _____ you mind standing up for a moment?
a) should b) could c) would d) can
19. I will go to Chicago after I _____ finished my work here.
a) has b) have c) had d) having
20. _____ you ever been to Kashmir?
a) Did b) Have c) Had d) Has

Choose the part of the sentence that has an error :

21. Suman could not went (A) to picnic , because (B) his mother was sick (C) no error (D)
a) (A) b) (B) c) (C) d) (D)
22. I couldn't find my tennis racket (A) so I asked (B) to use hers (C) no error (D)
a) (A) b) (B) c) (C) d) (D)

23. We discussed about the problem so thoroughly (A) on the eve of the examination (B) that I found very easy to work it out (C) no error (D).
a) (A) b) (B) c) (C) d) (D)

Fill in the blanks with the correct option :

24. His arrogance _____ his ruins.
a) brought about b) brought out c) brought over d) brought up
25. The publishers are planning to _____ a cheap edition of the book.
a) bring up b) bring out c) bring in d) bring down
26. Okay, see you _____ the concert.
a) at b) in c) for d) none of these
27. The children were _____ at having been informed about a trip.
a) thrilled b) thrilling c) thrills d) none of these
28. Don't narrate _____ stories, they scare me.
a) ghaskly b) ghostly c) ghosted d) all of these
29. Ten : Decimal : : _____
a) seven : septet b) Two : Binary c) Four : Quarter d) Five : Quince
30. A woman who lives unmarried throughout her life.
a) sophomore b) sparkan c) sphinx d) spinster
31. The synonym of the word 'Articulate' is
a) Express b) Agitate c) Coherent d) Adulate
32. Choose the correct spelling :
a) believe b) beleive c) beleave d) beeleeve
33. The tougher the situation, the greater need for you to prove your _____.
a) metal b) mettle c) metals d) all of these
34. We could not select the boy ; he wasn't really good _____ english.
a) with b) in c) at d) from
35. We could not attend the wedding _____ rained.
a) in spite of b) despite c) as it d) because of
36. A sentence that introduces the topic or the main idea to the readers is
a) Topic sentence b) Thesis statement c) Both (a) & (b) d) none of these
37. A paragraph which is written after analyzing a situation is called.
a) Descriptive b) Analytical c) Illustrative d) Narrative
38. An essay can be divided into _____ parts.
a) 3 b) 4 c) 5 d) 6

39. Reproducing the author's ideas in one's own words is called :
 a) Summarising b) Paraphrasing c) Essay writing d) None of these
40. A concluding paragraph should always introduce new points.
 a) True b) False
41. The important parts of an essay are :
 a) Introduction b) Body c) Conclusion d) All of these
42. _____ refers to the use of vocabulary and grammatical structures in a text.
 a) Coherence b) Cohesion c) Punctuation d) All of these
43. The following is not a punctuation mark.
 a) (&) b) (,) c) (“ ”) d) (;)
44. Which among the following should not be followed while writing a summary?
 a) Identifying a title b) Identifying the main points
 c) Gathering information d) Poor editing and revising
45. Which among the following is an informal report
 a) Letter b) Memo c) Business report d) Only (a) & (b)
46. Technical reports that are oral in nature are :
 a) permanent b) ephemeral c) formal d) written
47. This process of reading helps to connect with the background of the central idea.
 a) Pre - reading b) While reading c) During reading d) none of these
48. _____ is a reading strategy where the reader pays attention to each and every word for its meaning.
 a) Skimming b) Intensive reading c) Scanning d) Extensive reading
49. This proposal is drafted in response to an advertisement or demand.
 a) Solicited proposal b) Unsolicited proposal
 c) Super solicited proposal d) All of these
50. Choose the sentence that does not have an error :
 a) Does he have any idea where he is going?
 b) Does he have any idea what he is going?
 c) Does they have any idea what they us going?
 d) Does he have any idea where he is going?

Re – write the sentence :

51. The bus station was located by a river made of red brick.
 a) A river made of red brick, was located at the bus station.
 b) The red brick with a river was located at the bus station
 c) The bus station made of red brick was located by a river
 d) None of these

52. You've paid the rent for July, _____ you?
a) haven't b) have you c) wasn't d) was not
53. Hurray ! _____ completed the project.
a) we've b) I've c) they've d) all of these
54. You are _____ right in saying so.
a) quite b) quiet c) quick d) all of these
55. They are _____ of his newly acquired riches.
a) zealous b) jealous c) gealous d) none of these

Rearrange the sentence :

56. Our gratitude (a) / to show (b) / we have (c) / to them (d)
a) dabc b) cbad c) abcd d) adcb
57. If you park there, you will have to _____ a fine.
a) pay b) take c) have d) paid
58. Weight loss is a challenging task, not a bed of roses. The underlined idiom refers to
a) an easy option b) a difficult task c) a boring job d) none of these
59. He spends his time drinking and watching TV. His no _____ to man or beast.
a) rags b) use c) shoulders d) pie
60. Tippu became the heir to the throne
a) feminine b) masculine c) neuter d) none of these

Convert the following sentences from active to passive voice :

61. Who is creating this mess?
a) Who has been created this mess? b) By whom was this mess been created?
c) By whom that mess is being created? d) By whom is this mess being created?
62. You need to clean your shoes properly.
a) Your shoes are needed to clean properly
b) You are needed to clean your shoes properly
c) Your shoes need to be cleaned properly
d) Your shoes are needed by you to clean properly.
63. He is said to be very rich.
a) He said he is very rich b) He said it is very rich
c) People say he is very rich d) People say it is very rich
64. James Watt discovered the energy of steam.
a) The energy of steam discovered James Watt
b) The energy of steam was discovered by James Watt.
c) James Watt was discovered by the energy of steam
d) James Watt had been discovered energy by the steam.

65. I cannot accept your offer.
 a) Your offer cannot be accepted by me b) I cannot be accepted by your offer
 c) The offer can be accepted by me d) Your offer must be accepted

Convert the sentence from Direct to Indirect speech :

66. He said to his father, "Please increase my pocket – money".
 a) He told his father, please increase the pocket money.
 b) He pleaded his father to increase my pocket money
 c) He requested his father to increase his pocket – money
 d) All of these
67. She said to him, "why don't you go today"?
 a) She asked him why he did not go that day
 b) She asked him not to go that day
 c) She asked him why he went yesterday
 d) All of these
68. "Please don't go away", she said.
 a) She said to please her and go away b) She begged me not to go away
 c) She begged that I not go away d) All of these
69. "I am sorry", he said.
 a) He apologized that he was sorry b) He demanded that he was sorry
 c) He cried that he was to be sorry d) All of these
70. "I am feeling hungry", the little boy said to his mother.
 a) The mother told the boy that she was hungry
 b) The little boy said to his mother that he was hungry
 c) The little boy told his mother that he will be feeling hungry
 d) All of these

Choose the right option :

71. Childhood is a time when there are _____ responsibilities to make life difficult. If a child _____ good parents, he is fed , looked _____ and loved.
 a) many , had , up b) few , has , after c) little , have , at d) none of these
72. Life is always _____ new things to a child. A child finds _____ in playing in the rain or in the snow. His first visit _____ the seaside is a marvelous adventure.
 a) donating , sorrow , on b) presenting , happiness , to
 c) displaying , pain , in d) none of these
73. _____ fights against distractions and knows how to concentrate.
 a) Poor listener b) Low listener c) Effective listener d) None of these
74. Which among the following is a barrier to listening?
 a) Physical b) Emotional c) Psychological d) All of these

75. An active reader reads content with critical evaluation and questions in mind.
a) True b) False
76. The date on a business letter should appear after the salutation.
a) True b) False
77. In order to have the desired effect on the recipient, how should a formal letter be?
a) In proper format b) Grammatically correct
c) To the point and relevant d) All of these
78. In business letters a salutation is generally followed by a comma or a colon.
a) True b) False
79. This format of the letter has the heading, dateline, complementary closure and signature right aligned.
a) Block format b) Modified / semi block format
c) Informal letter d) None of these
80. Which among the following is not to be mentioned in a resume :
a) Educational qualification b) Strengths
c) Work experience d) Weakness
81. A resume is usually longer than a bio – data.
a) True b) False
82. The ____ format of resume lists your work history with dates, your most recent employer and job title listed first.
a) Historical b) Functional c) Chronological d) Combination
83. BCC in an email refers to :
a) British council b) Blind carbon copy
c) Brand copy carbon d) Booked carbon copy
84. This document is a brief written message circulated within an organization for quick and easy communication.
a) Memo b) Proposal c) Profile d) CV
85. A blog is an online journal where individuals or groups present a record of activities or thoughts.
a) True b) False
86. The police found a human body in the forest.
a) Corpse b) Carcass c) Caps d) No improvement
87. The teacher asked him to copy the material word for work.
a) after b) before c) by d) No improvement
88. A child has his pains ; he is not free to do as he wishes ; he is continually being ____ not to do things or is being _____. His life is therefore not perfectly happy.
a) restricted , punished b) forbidden , penalized
c) none of these d) all of these

89. Listening as a process involves
a) Listener b) Message c) Environment d) All of these
90. Which of the following should not be included in a cover letter?
a) The position for which you are applying
b) Skills, qualifications and experience
c) Your interest to work with the organization
d) Details of problems you have had with the employers in the past.
91. _____ communication is direct, written or oral communication that occurs between two or more persons.
a) Intrapersonal b) Interpersonal c) Extrapersonal d) None of these
92. Which among the following must not be followed while communicating within a group?
a) being arrogant b) no eye contract c) lack of gestures d) all of these
93. In a group discussion, one must communicate with _____
a) Hostility b) Ignorance c) Long sentences d) Knowledge
94. Which among the following should not be followed while appearing for an interview?
a) Arriving late for the interviews b) Knowing your resume
c) Being formally dressed d) Knowledge of the company
95. Which among the following should not be followed in an interview?
a) Lie b) Use slang c) Use profanity d) All of these
96. When giving a presentation in front of an audience you should do all of the following except
a) Speak loud and clear b) Provide handouts if needed
c) Dress professionally d) Do not look at the audience
97. Information in your presentation should be organized
a) True b) False
98. While presenting, it is important to articulate and use of loud , clear voice
a) True b) False
99. A GD checks and monitors
a) Leadership skills b) Listening ability c) Confidence d) All of these
100. Communication helps management to make accurate decisions and influence organizational performance positively.
a) True b) False

* * * * *

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : B

Second Semester B.Arch/B.Plan Degree Examination, June/July 2025 Professional Writing Skills in English

[Time: 2 hrs.]

[Max. Marks: 100]

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the hundred questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

Re – write the sentence :

1. The bus station was located by a river made of red brick.
 a) A river made of red brick, was located at the bus station.
 b) The red brick with a river was located at the bus station
 c) The bus station made of red brick was located by a river
 d) None of these
2. You've paid the rent for July, _____ you?
 a) haven't b) have you c) wasn't d) was not
3. Hurray ! _____ completed the project.
 a) we've b) I've c) they've d) all of these
4. You are _____ right in saying so.
 a) quite b) quiet c) quick d) all of these
5. They are _____ of his newly acquired riches.
 a) zealous b) jealous c) gealous d) none of these

Rearrange the sentence :

6. Our gratitude (a) / to show (b) / we have (c) / to them (d)
 a) dabcb b) cbad c) abcd d) adcb
7. If you park there, you will have to _____ a fine.
 a) pay b) take c) have d) paid

8. Weight loss is a challenging task, not a bed of roses. The underlined idiom refers to
 a) an easy option b) a difficult task c) a boring job d) none of these
9. He spends his time drinking and watching TV. His no _____ to man or beast.
 a) rags b) use c) shoulders d) pie
10. Tippu became the heir to the throne
 a) feminine b) masculine c) neuter d) none of these

Convert the following sentences from active to passive voice :

11. Who is creating this mess?
 a) Who has been created this mess? b) By whom was this mess been created?
 c) By whom that mess is being created? d) By whom is this mess being created?
12. You need to clean your shoes properly.
 a) Your shoes are needed to clean properly
 b) You are needed to clean your shoes properly
 c) Your shoes need to be cleaned properly
 d) Your shoes are needed by you to clean properly.
13. He is said to be very rich.
 a) He said he is very rich b) He said it is very rich
 c) People say he is very rich d) People say it is very rich
14. James Watt discovered the energy of steam.
 a) The energy of steam discovered James Watt
 b) The energy of steam was discovered by James Watt.
 c) James Watt was discovered by the energy of steam
 d) James Watt had been discovered energy by the steam.
15. I cannot accept your offer.
 a) Your offer cannot be accepted by me b) I cannot be accepted by your offer
 c) The offer can be accepted by me d) Your offer must be accepted

Convert the sentence from Direct to Indirect speech :

16. He said to his father, "Please increase my pocket – money".
 a) He told his father, please increase the pocket money.
 b) He pleaded his father to increase my pocket money
 c) He requested his father to increase his pocket – money
 d) All of these
17. She said to him, "why don't you go today"?
 a) She asked him why he did not go that day
 b) She asked him not to go that day
 c) She asked him why he went yesterday
 d) All of these

18. "Please don't go away", she said.
 a) She said to please her and go away b) She begged me not to go away
 c) She begged that I not go away d) All of these
19. "I am sorry", he said.
 a) He apologized that he was sorry b) He demanded that he was sorry
 c) He cried that he was to be sorry d) All of these
20. "I am feeling hungry", the little boy said to his mother.
 a) The mother told the boy that she was hungry
 b) The little boy said to his mother that he was hungry
 c) The little boy told his mother that he will be feeling hungry
 d) All of these

Choose the right option :

21. Childhood is a time when there are ____ responsibilities to make life difficult. If a child ____ good parents, he is fed , looked ____ and loved.
 a) many , had , up b) few , has , after c) little , have , at d) none of these
22. Life is always ____ new things to a child. A child finds ____ in playing in the rain or in the snow. His first visit ____ the seaside is a marvelous adventure.
 a) donating , sorrow , on b) presenting , happiness , to
 c) displaying , pain , in d) none of these
23. ____ fights against distractions and knows how to concentrate.
 a) Poor listener b) Low listener c) Effective listener d) None of these
24. Which among the following is a barrier to listening?
 a) Physical b) Emotional c) Psychological d) All of these
25. An active reader reads content with critical evaluation and questions in mind.
 a) True b) False
26. The date on a business letter should appear after the salutation.
 a) True b) False
27. In order to have the desired effect on the recipient, how should a formal letter be?
 a) In proper format b) Grammatically correct
 c) To the point and relevant d) All of these
28. In business letters a salutation is generally followed by a comma or a colon.
 a) True b) False
29. This format of the letter has the heading, dateline , complementary closure and signature right aligned.
 a) Block format b) Modified / semi block format
 c) Informal letter d) None of these

30. Which among the following is not to be mentioned in a resume :
- Educational qualification
 - Strengths
 - Work experience
 - Weakness
31. A resume is usually longer than a bio – data.
- True
 - False
32. The ____ format of resume lists your work history with dates, your most recent employer and job title listed first.
- Historical
 - Functional
 - Chronological
 - Combination
33. BCC in an email refers to :
- British council
 - Blind carbon copy
 - Brand copy carbon
 - Booked carbon copy
34. This document is a brief written message circulated within an organization for quick and easy communication.
- Memo
 - Proposal
 - Profile
 - CV
35. A blog is an online journal where individuals or groups present a record of activities or thoughts.
- True
 - False
36. The police found a human body in the forest.
- Corpse
 - Carcass
 - Caps
 - No improvement
37. The teacher asked him to copy the material word for work.
- after
 - before
 - by
 - No improvement
38. A child has his pains ; he is not free to do as he wishes ; he is continually being ____ not to do things or is being _____. His life is therefore not perfectly happy.
- restricted , punished
 - forbidden , penalized
 - none of these
 - all of these
39. Listening as a process involves
- Listener
 - Message
 - Environment
 - All of these
40. Which of the following should not be included in a cover letter?
- The position for which you are applying
 - Skills, qualifications and experience
 - Your interest to work with the organization
 - Details of problems you have had with the employers in the past.
41. ____ communication is direct, written or oral communication that occurs between two or more persons.
- Intrapersonal
 - Interpersonal
 - Extrapersonal
 - None of these
42. Which among the following must not be followed while communicating within a group?
- being arrogant
 - no eye contact
 - lack of gestures
 - all of these

43. In a group discussion, one must communicate with _____.
a) Hostility b) Ignorance c) Long sentences d) Knowledge
44. Which among the following should not be followed while appearing for an interview?
a) Arriving late for the interviews b) Knowing your resume
c) Being formally dressed d) Knowledge of the company
45. Which among the following should not be followed in an interview?
a) Lie b) Use slang c) Use profanity d) All of these
46. When giving a presentation in front of an audience you should do all of the following except
a) Speak loud and clear b) Provide handouts if needed
c) Dress professionally d) Do not look at the audience
47. Information in your presentation should be organized.
a) True b) False
48. While presenting, it is important to articulate and use of loud, clear voice
a) True b) False
49. A GD checks and monitors
a) Leadership skills b) Listening ability c) Confidence d) All of these
50. Communication helps management to make accurate decisions and influence organizational performance positively.
a) True b) False

Choose the suitable Verb to agree with the subjects :

51. Either my mother or my father _____ coming to the meeting.
a) is b) are c) has d) none of these
52. Everyone of those books _____ fiction.
a) are b) is c) was d) none of these
53. The leader as well as his brothers _____ to the tribe.
a) belongs b) belong c) belonging d) none of these
54. The students accompanied by the teacher _____ gone on a picnic.
a) has b) have c) were d) none of these
55. A large sum of money _____ stolen.
a) were b) was c) has d) none of these

Choose the suitable Pronoun to agree with the subjects :

56. Mr. Banks and Ms. Tukler are selling _____ stock in the construction company.
a) his b) theirs c) her d) their

57. Jane Roberts is my friend and mentor , ____ helps me at all times.
a) She's b) her c) she d) her's
58. A person needs to see ____ dentist twice a year.
a) his b) his / her c) her d) theirs
59. Both of the boys inherited ____ mother's red hair.
a) their b) them c) his d) theirs
60. The Washington team was opportunistic, ____ took advantage of every break.
a) It b) they c) them d) those

Fill in the blanks with suitable tenses :

61. Suddenly she gave a loud scream and ____ to the ground.
a) fell b) had fallen c) has fallen d) fell
62. After questioning he ____ to go home.
a) allowed b) was allowed c) had allowed d) allowing
63. Although they ____ defeated, they did not loose heart.
a) are b) has been c) were d) had
64. The teacher asked the boys whether they ____ the problems.
a) solved b) has solved c) solving d) had solved
65. The room ____ but the police failed to find anything suspicious.
a) searched b) was searched c) had searched d) searching

Fill in the blanks with suitable auxiliaries :

66. You must have been riding continuously. You ____ be tired.
a) must b) can c) ought d) were
67. That ____ be true. He wouldn't do something like that.
a) wouldn't b) can't c) shouldn't d) mustn't
68. ____ you mind standing up for a moment?
a) should b) could c) would d) can
69. I will go to Chicago after I ____ finished my work here.
a) has b) have c) had d) having
70. ____ you ever been to Kashmir?
a) Did b) Have c) Had d) Has

Choose the part of the sentence that has an error :

71. Suman could not went (A) to picnic , because (B) his mother was sick (C) no error (D)
a) (A) b) (B) c) (C) d) (D)

72. I couldn't find my tennis racket (A) so I asked (B) to use hers (C) no error (D)
a) (A) b) (B) c) (C) d) (D)
73. We discussed about the problem so thoroughly (A) on the eve of the examination (B) that I found very easy to work it out (C) no error (D).
a) (A) b) (B) c) (C) d) (D)

Fill in the blanks with the correct option :

74. His arrogance _____ his ruins.
a) brought about b) brought out c) brought over d) brought up
75. The publishers are planning to _____ a cheap edition of the book.
a) bring up b) bring out c) bring in d) bring down
76. Okay, see you _____ the concert.
a) at b) in c) for d) none of these
77. The children were _____ at having been informed about a trip.
a) thrilled b) thrilling c) thrills d) none of these
78. Don't narrate _____ stories, they scare me.
a) ghaskly b) ghostly c) ghosted d) all of these
79. Ten : Decimal : : _____
a) seven : septet b) Two : Binary c) Four : Quarter d) Five : Quince
80. A woman who lives unmarried throughout her life.
a) sophomore b) sparkan c) sphinx d) spinster
81. The synonym of the word 'Articulate' is
a) Express b) Agitate c) Coherent d) Adulate
82. Choose the correct spelling :
a) believe b) beleive c) beleave d) beeleeve
83. The tougher the situation, the greater need for you to prove your _____.
a) metal b) mettle c) metals d) all of these
84. We could not select the boy ; he wasn't really good _____ english.
a) with b) in c) at d) from
85. We could not attend the wedding _____ rained.
a) in spite of b) despite c) as it d) because of
86. A sentence that introduces the topic or the main idea to the readers is
a) Topic sentence b) Thesis statement c) Both (a) & (b) d) none of these
87. A paragraph which is written after analyzing a situation is called.
a) Descriptive b) Analytical c) Illustrative d) Narrative

88. An essay can be divided into _____ parts.
a) 3 b) 4 c) 5 d) 6
89. Reproducing the author's ideas in one's own words is called :
a) Summarising b) Paraphrasing c) Essay writing d) None of these
90. A concluding paragraph should always introduce new points.
a) True b) False
91. The important parts of an essay are :
a) Introduction b) Body c) Conclusion d) All of these
92. _____ refers to the use of vocabulary and grammatical structures in a text.
a) Coherence b) Cohesion c) Punctuation d) All of these
93. The following is not a punctuation mark.
a) (&) b) (,) c) (“ ”) d) (;)
94. Which among the following should not be followed while writing a summary?
a) Identifying a title b) Identifying the main points
c) Gathering information d) Poor editing and revising
95. Which among the following is an informal report
a) Letter b) Memo c) Business report d) Only (a) & (b)
96. Technical reports that are oral in nature are :
a) permanent b) ephemeral c) formal d) written
97. This process of reading helps to connect with the background of the central idea.
a) Pre - reading b) While reading c) During reading d) none of these
98. _____ is a reading strategy where the reader pays attention to each and every word for its meaning.
a) Skimming b) Intensive reading c) Scanning d) Extensive reading
99. This proposal is drafted in response to an advertisement or demand.
a) Solicited proposal b) Unsolicited proposal
c) Super solicited proposal d) All of these
100. Choose the sentence that does not have an error :
a) Does he have any idea where he is going?
b) Does he have any idea what he is going?
c) Does they have any idea what they us going?
d) Does he have any idea where he is going?

* * * * *

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : C

Second Semester B.Arch/B.Plan Degree Examination, June/July 2025 Professional Writing Skills in English

[Time: 2 hrs.]

[Max. Marks: 100]

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the hundred questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

Choose the right option :

1. Childhood is a time when there are ____ responsibilities to make life difficult. If a child ____ good parents, he is fed , looked ____ and loved.
a) many , had , up b) few , has , after c) little , have , at d) none of these
2. Life is always ____ new things to a child. A child finds ____ in playing in the rain or in the snow. His first visit ____ the seaside is a marvelous adventure.
a) donating , sorrow , on b) presenting , happiness , to
c) displaying , pain , in d) none of these
3. ____ fights against distractions and knows how to concentrate.
a) Poor listener b) Low listener c) Effective listener d) None of these
4. Which among the following is a barrier to listening?
a) Physical b) Emotional c) Psychological d) All of these
5. An active reader reads content with critical evaluation and questions in mind.
a) True b) False
6. The date on a business letter should appear after the salutation.
a) True b) False
7. In order to have the desired effect on the recipient, how should a formal letter be?
a) In proper format b) Grammatically correct
c) To the point and relevant d) All of these

21. _____ communication is direct, written or oral communication that occurs between two or more persons.
a) Intrapersonal b) Interpersonal c) Extrapersonal d) None of these
22. Which among the following must not be followed while communicating within a group?
a) being arrogant b) no eye contract c) lack of gestures d) all of these
23. In a group discussion, one must communicate with _____.
a) Hostility b) Ignorance c) Long sentences d) Knowledge
24. Which among the following should not be followed while appearing for an interview?
a) Arriving late for the interviews b) Knowing your resume
c) Being formally dressed d) Knowledge of the company
25. Which among the following should not be followed in an interview?
a) Lie b) Use slang c) Use profanity d) All of these
26. When giving a presentation in front of an audience you should do all of the following except
a) Speak loud and clear b) Provide handouts if needed
c) Dress professionally d) Do not look at the audience
27. Information in your presentation should be organized
a) True b) False
28. While presenting, it is important to articulate and use of loud , clear voice
a) True b) False
29. A GD checks and monitors
a) Leadership skills b) Listening ability c) Confidence d) All of these
30. Communication helps management to make accurate decisions and influence organizational performance positively.
a) True b) False

Re – write the sentence :

31. The bus station was located by a river made of red brick.
a) A river made of red brick, was located at the bus station.
b) The red brick with a river was located at the bus station
c) The bus station made of red brick was located by a river
d) None of these
32. You've paid the rent for July, _____ you?
a) haven't b) have you c) wasn't d) was not
33. Hurray ! _____ completed the project.
a) we've b) I've c) they've d) all of these
34. You are _____ right in saying so.
a) quite b) quiet c) quick d) all of these

35. They are ____ of his newly acquired riches.
 a) zealous b) jealous c) gealous d) none of these

Rearrange the sentence :

36. Our gratitude (a) / to show (b) / we have (c) / to them (d)
 a) dabc b) cbad c) abcd d) adcb
37. If you park there, you will have to ____ a fine.
 a) pay b) take c) have d) paid
38. Weight loss is a challenging task, not a bed of roses. The underlined idiom refers to
 a) an easy option b) a difficult task c) a boring job d) none of these
39. He spends his time drinking and watching TV. His no ____ to man or beast.
 a) rags b) use c) shoulders d) pie
40. Tippu became the heir to the throne
 a) feminine b) masculine c) neuter d) none of these

Convert the following sentences from active to passive voice :

41. Who is creating this mess?
 a) Who has been created this mess? b) By whom was this mess been created?
 c) By whom that mess is being created? d) By whom is this mess being created?
42. You need to clean your shoes properly.
 a) Your shoes are needed to clean properly
 b) You are needed to clean your shoes properly
 c) Your shoes need to be cleaned properly
 d) Your shoes are needed by you to clean properly.
43. He is said to be very rich.
 a) He said he is very rich b) He said it is very rich
 c) People say he is very rich d) People say it is very rich
44. James Watt discovered the energy of steam.
 a) The energy of steam discovered James Watt
 b) The energy of steam was discovered by James Watt.
 c) James Watt was discovered by the energy of steam
 d) James Watt had been discovered energy by the steam.
45. I cannot accept your offer.
 a) Your offer cannot be accepted by me b) I cannot be accepted by your offer
 c) The offer can be accepted by me d) Your offer must be accepted

Convert the sentence from Direct to Indirect speech :

46. He said to his father, "Please increase my pocket – money".
 a) He told his father, please increase the pocket money.
 b) He pleaded his father to increase my pocket money
 c) He requested his father to increase his pocket – money
 d) All of these
47. She said to him, "why don't you go today"?
 a) She asked him why he did not go that day
 b) She asked him not to go that day
 c) She asked him why he went yesterday
 d) All of these
48. "Please don't go away", she said.
 a) She said to please her and go away b) She begged me not to go away
 c) She begged that I not go away d) All of these
49. "I am sorry", he said.
 a) He apologized that he was sorry b) He demanded that he was sorry
 c) He cried that he was to be sorry d) All of these
50. "I am feeling hungry", the little boy said to his mother.
 a) The mother told the boy that she was hungry
 b) The little boy said to his mother that he was hungry
 c) The little boy told his mother that he will be feeling hungry
 d) All of these

Fill in the blanks with the correct option :

51. His arrogance _____ his ruins.
 a) brought about b) brought out c) brought over d) brought up
52. The publishers are planning to _____ a cheap edition of the book.
 a) bring up b) bring out c) bring in d) bring down
53. Okay, see you _____ the concert.
 a) at b) in c) for d) none of these
54. The children were _____ at having been informed about a trip.
 a) thrilled b) thrilling c) thrills d) none of these
55. Don't narrate _____ stories, they scare me.
 a) ghaskly b) ghostly c) ghosted d) all of these
56. Ten : Decimal : : _____
 a) seven : septet b) Two : Binary c) Four : Quarter d) Five : Quince
57. A woman who lives unmarried throughout her life.
 a) sophomore b) sparkan c) sphinx d) spinster

58. The synonym of the word 'Articulate' is
a) Express b) Agitate c) Coherent d) Adulate
59. Choose the correct spelling :
a) believe b) beleive c) beleave d) beeleeve
60. The tougher the situation, the greater need for you to prove your _____.
a) metal b) mettle c) metals d) all of these
61. We could not select the boy ; he wasn't really good _____ english.
a) with b) in c) at d) from
62. We could not attend the wedding _____ rained.
a) in spite of b) despite c) as it d) because of
63. A sentence that introduces the topic or the main idea to the readers is
a) Topic sentence b) Thesis statement c) Both (a) & (b) d) none of these
64. A paragraph which is written after analyzing a situation is called.
a) Descriptive b) Analytical c) Illustrative d) Narrative
65. An essay can be divided into _____ parts.
a) 3 b) 4 c) 5 d) 6
66. Reproducing the author's ideas in one's own words is called :
a) Summarising b) Paraphrasing c) Essay writing d) None of these
67. A concluding paragraph should always introduce new points.
a) True b) False
68. The important parts of an essay are :
a) Introduction b) Body c) Conclusion d) All of these
69. _____ refers to the use of vocabulary and grammatical structures in a text.
a) Coherence b) Cohesion c) Punctuation d) All of these
70. The following is not a punctuation mark.
a) (&) b) (,) c) (" ") d) (;)
71. Which among the following should not be followed while writing a summary? .
a) Identifying a title b) Identifying the main points
c) Gathering information d) Poor editing and revising
72. Which among the following is an informal report
a) Letter b) Memo c) Business report d) Only (a) & (b)
73. Technical reports that are oral in nature are :
a) permanent b) ephemeral c) formal d) written
74. This process of reading helps to connect with the background of the central idea.
a) Pre - reading b) While reading c) During reading d) none of these

75. _____ is a reading strategy where the reader pays attention to each and every word for its meaning.
 a) Skimming b) Intensive reading c) Scanning d) Extensive reading
76. This proposal is drafted in response to an advertisement or demand.
 a) Solicited proposal b) Unsolicited proposal
 c) Super solicited proposal d) All of these
77. Choose the sentence that does not have an error :
 a) Does he have any idea where he is going?
 b) Does he have any idea what he is going?
 c) Does they have any idea what they us going?
 d) Does he have any idea where he is going?

Choose the suitable Verb to agree with the subjects :

78. Either my mother or my father _____ coming to the meeting.
 a) is b) are c) has d) none of these
79. Everyone of those books _____ fiction.
 a) are b) is c) was d) none of these
80. The leader as well as his brothers _____ to the tribe.
 a) belongs b) belong c) belonging d) none of these
81. The students accompanied by the teacher _____ gone on a picnic.
 a) has b) have c) were d) none of these
82. A large sum of money _____ stolen.
 a) were b) was c) has d) none of these

Choose the suitable Pronoun to agree with the subjects :

83. Mr. Banks and Ms. Tukler are selling _____ stock in the construction company.
 a) his b) theirs c) her d) their
84. Jane Roberts is my friend and mentor , _____ helps me at all times.
 a) She's b) her c) she d) her's
85. A person needs to see _____ dentist twice a year.
 a) his b) his / her c) her d) theirs
86. Both of the boys inherited _____ mother's red hair.
 a) their b) them c) his d) theirs
87. The Washington team was opportunistic, _____ took advantage of every break.
 a) It b) they c) them d) those

Fill in the blanks with suitable tenses :

88. Suddenly she gave a loud scream and _____ to the ground.
a) fell b) had fallen c) has fallen d) fell
89. After questioning he _____ to go home.
a) allowed b) was allowed c) had allowed d) allowing
90. Although they _____ defeated, they did not loose heart.
a) are b) has been c) were d) had
91. The teacher asked the boys whether they _____ the problems.
a) solved b) has solved c) solving d) had solved
92. The room _____ but the police failed to find anything suspicious.
a) searched b) was searched c) had searched d) searching

Fill in the blanks with suitable auxiliaries :

93. You must have been riding continuously. You _____ be tired.
a) must b) can c) ought d) were
94. That _____ be true. He wouldn't do something like that.
a) wouldn't b) can't c) shouldn't d) mustn't
95. _____ you mind standing up for a moment?
a) should b) could c) would d) can
96. I will go to Chicago after I _____ finished my work here.
a) has b) have c) had d) having
97. _____ you ever been to Kashmir?
a) Did b) Have c) Had d) Has

Choose the part of the sentence that has an error :

98. Suman could not went (A) to picnic , because (B) his mother was sick (C) no error (D)
a) (A) b) (B) c) (C) d) (D)
99. I couldn't find my tennis racket (A) so I asked (B) to use hers (C) no error (D)
a) (A) b) (B) c) (C) d) (D)
100. We discussed about the problem so thoroughly (A) on the eve of the examination (B) that I found very easy to work it out (C) no error (D).
a) (A) b) (B) c) (C) d) (D)

* * * * *

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : D

Second Semester B.Arch/B.Plan Degree Examination, June/July 2025 Professional Writing Skills in English

[Time: 2 hrs.]

[Max. Marks: 100]

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the hundred questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

Fill in the blanks with the correct option :

1. His arrogance _____ his ruins.
a) brought about b) brought out c) brought over d) brought up
2. The publishers are planning to _____ a cheap edition of the book.
a) bring up b) bring out c) bring in d) bring down
3. Okay, see you _____ the concert.
a) at b) in c) for d) none of these
4. The children were _____ at having been informed about a trip.
a) thrilled b) thrilling c) thrills d) none of these
5. Don't narrate _____ stories, they scare me.
a) ghaskly b) ghostly c) ghosted d) all of these
6. Ten : Decimal :: _____
a) seven : septet b) Two : Binary c) Four : Quarter d) Five : Quince
7. A woman who lives unmarried throughout her life.
a) sophomore b) sparkan c) sphinx d) spinster
8. The synonym of the word 'Articulate' is
a) Express b) Agitate c) Coherent d) Adulate
9. Choose the correct spelling :
a) believe b) beleive c) beleave d) beeleve

10. The tougher the situation, the greater need for you to prove your _____.
a) metal b) mettle c) metals d) all of these
11. We could not select the boy ; he wasn't really good _____ english.
a) with b) in c) at d) from
12. We could not attend the wedding _____ rained.
a) in spite of b) despite c) as it d) because of
13. A sentence that introduces the topic or the main idea to the readers is
a) Topic sentence b) Thesis statement c) Both (a) & (b) d) none of these
14. A paragraph which is written after analyzing a situation is called.
a) Descriptive b) Analytical c) Illustrative d) Narrative
15. An essay can be divided into _____ parts.
a) 3 b) 4 c) 5 d) 6
16. Reproducing the author's ideas in one's own words is called :
a) Summarising b) Paraphrasing c) Essay writing d) None of these
17. A concluding paragraph should always introduce new points.
a) True b) False
18. The important parts of an essay are :
a) Introduction b) Body c) Conclusion d) All of these
19. _____ refers to the use of vocabulary and grammatical structures in a text.
a) Coherence b) Cohesion c) Punctuation d) All of these
20. The following is not a punctuation mark.
a) (&) b) (,) c) (" ") d) (;)
21. Which among the following should not be followed while writing a summary?.
a) Identifying a title b) Identifying the main points
c) Gathering information d) Poor editing and revising
22. Which among the following is an informal report
a) Letter b) Memo c) Business report d) Only (a) & (b)
23. Technical reports that are oral in nature are :
a) permanent b) ephemeral c) formal d) written
24. This process of reading helps to connect with the background of the central idea.
a) Pre - reading b) While reading c) During reading d) none of these
25. _____ is a reading strategy where the reader pays attention to each and every word for its meaning.
a) Skimming b) Intensive reading c) Scanning d) Extensive reading

28. Either my mother or my father _____ coming to the meeting.
a) is b) are c) has d) none of these

29. Everyone of those books _____ fiction.
a) are b) is c) was d) none of these

30. The leader as well as his brothers _____ to the tribe.
a) belongs b) belong c) belonging d) none of these

31. The students accompanied by the teacher _____ gone on a picnic.
a) has b) have c) were d) none of these

32. A large sum of money _____ stolen.
a) were b) was c) has d) none of these

33. Mr. Banks and Ms. Tukler are selling _____ stock in the construction company.
a) his b) theirs c) her d) their

34. Jane Roberts is my friend and mentor , _____ helps me at all times.
a) She's b) her c) she d) her's

35. A person needs to see _____ dentist twice a year.
a) his b) his / her c) her d) theirs

36. Both of the boys inherited _____ mother's red hair.
a) their b) them c) his d) theirs

37. The Washington team was opportunistic, _____ took advantage of every break.
a) It b) they c) them d) those

38. Suddenly she gave a loud scream and _____ to the ground.
a) fell b) had fallen c) has fallen d) fell

39. After questioning he _____ to go home.
a) allowed b) was allowed c) had allowed d) allowing
40. Although they _____ defeated, they did not loose heart.
a) are b) has been c) were d) had
41. The teacher asked the boys whether they _____ the problems.
a) solved b) has solved c) solving d) had solved
42. The room _____ but the police failed to find anything suspicious.
a) searched b) was searched c) had searched d) searching

Fill in the blanks with suitable auxiliaries :

43. You must have been riding continuously. You _____ be tired.
a) must b) can c) ought d) were
44. That _____ be true. He wouldn't do something like that.
a) wouldn't b) can't c) shouldn't d) mustn't
45. _____ you mind standing up for a moment?
a) should b) could c) would d) can
46. I will go to Chicago after I _____ finished my work here.
a) has b) have c) had d) having
47. _____ you ever been to Kashmir?
a) Did b) Have c) Had d) Has

Choose the part of the sentence that has an error :

48. Suman could not went (A) to picnic , because (B) his mother was sick (C) no error (D)
a) (A) b) (B) c) (C) d) (D)
49. I couldn't find my tennis racket (A) so I asked (B) to use hers (C) no error (D)
a) (A) b) (B) c) (C) d) (D)
50. We discussed about the problem so thoroughly (A) on the eve of the examination (B) that I found very easy to work it out (C) no error (D).
a) (A) b) (B) c) (C) d) (D)

Choose the right option :

51. Childhood is a time when there are _____ responsibilities to make life difficult. If a child _____ good parents, he is fed , looked _____ and loved.
a) many , had , up b) few , has , after c) little , have , at d) none of these
52. Life is always _____ new things to a child. A child finds _____ in playing in the rain or in the snow. His first visit _____ the seaside is a marvelous adventure.
a) donating , sorrow , on b) presenting , happiness , to
c) displaying , pain , in d) none of these

53. _____ fights against distractions and knows how to concentrate.
a) Poor listener b) Low listener c) Effective listener d) None of these
54. Which among the following is a barrier to listening?
a) Physical b) Emotional c) Psychological d) All of these
55. An active reader reads content with critical evaluation and questions in mind.
a) True b) False
56. The date on a business letter should appear after the salutation.
a) True b) False
57. In order to have the desired effect on the recipient, how should a formal letter be?
a) In proper format b) Grammatically correct
c) To the point and relevant d) All of these
58. In business letters a salutation is generally followed by a comma or a colon.
a) True b) False
59. This format of the letter has the heading, dateline, complementary closure and signature right aligned.
a) Block format b) Modified / semi block format
c) Informal letter d) None of these
60. Which among the following is not to be mentioned in a resume :
a) Educational qualification b) Strengths
c) Work experience d) Weakness
61. A resume is usually longer than a bio – data.
a) True b) False
62. The _____ format of resume lists your work history with dates, your most recent employer and job title listed first.
a) Historical b) Functional c) Chronological d) Combination
63. BCC in an email refers to :
a) British council b) Blind carbon copy
c) Brand copy carbon d) Booked carbon copy
64. This document is a brief written message circulated within an organization for quick and easy communication.
a) Memo b) Proposal c) Profile d) CV
65. A blog is an online journal where individuals or groups present a record of activities or thoughts.
a) True b) False
66. The police found a human body in the forest.
a) Corpse b) Carcass c) Caps d) No improvement

67. The teacher asked him to copy the material word for work.
a) after b) before c) by d) No improvement
68. A child has his pains ; he is not free to do as he wishes ; he is continually being ____ not to do things or is being _____. His life is therefore not perfectly happy.
a) restricted , punished b) forbidden , penalized
c) none of these d) all of these
69. Listening as a process involves
a) Listener b) Message c) Environment d) All of these
70. Which of the following should not be included in a cover letter?
a) The position for which you are applying
b) Skills, qualifications and experience
c) Your interest to work with the organization
d) Details of problems you have had with the employers in the past.
71. _____ communication is direct, written or oral communication that occurs between two or more persons.
a) Intrapersonal b) Interpersonal c) Extrapersonal d) None of these
72. Which among the following must not be followed while communicating within a group?
a) being arrogant b) no eye contract c) lack of gestures d) all of these
73. In a group discussion, one must communicate with _____.
a) Hostility b) Ignorance c) Long sentences d) Knowledge
74. Which among the following should not be followed while appearing for an interview?
a) Arriving late for the interviews b) Knowing your resume
c) Being formally dressed d) Knowledge of the company
75. Which among the following should not be followed in an interview?
a) Lie b) Use slang c) Use profanity d) All of these
76. When giving a presentation in front of an audience you should do all of the following except
a) Speak loud and clear b) Provide handouts if needed
c) Dress professionally d) Do not look at the audience
77. Information in your presentation should be organized
a) True b) False
78. While presenting, it is important to articulate and use of loud , clear voice
a) True b) False
79. A GD checks and monitors
a) Leadership skills b) Listening ability c) Confidence d) All of these
80. Communication helps management to make accurate decisions and influence organizational performance positively.
a) True b) False

Re – write the sentence :

81. The bus station was located by a river made of red brick.
 a) A river made of red brick, was located at the bus station.
 b) The red brick with a river was located at the bus station
 c) The bus station made of red brick was located by a river
 d) None of these
82. You've paid the rent for July, _____ you?
 a) haven't b) have you c) wasn't d) was not
83. Hurray ! _____ completed the project.
 a) we've b) I've c) they've d) all of these
84. You are _____ right in saying so.
 a) quite b) quiet c) quick d) all of these
85. They are _____ of his newly acquired riches.
 a) zealous b) jealous c) gealous d) none of these

Rearrange the sentence :

86. Our gratitude (a) / to show (b) / we have (c) / to them (d)
 a) dabc b) cbad c) abed d) adcb
87. If you park there, you will have to _____ a fine.
 a) pay b) take c) have d) paid
88. Weight loss is a challenging task, not a bed of roses. The underlined idiom refers to
 a) an easy option b) a difficult task c) a boring job d) none of these
89. He spends his time drinking and watching TV. His no _____ to man or beast.
 a) rags b) use c) shoulders d) pie
90. Tippu became the heir to the throne
 a) feminine b) masculine c) neuter d) none of these

Convert the following sentences from active to passive voice :

91. Who is creating this mess?
 a) Who has been created this mess? b) By whom was this mess been created?
 c) By whom that mess is being created? d) By whom is this mess being created?
92. You need to clean your shoes properly.
 a) Your shoes are needed to clean properly
 b) You are needed to clean your shoes properly
 c) Your shoes need to be cleaned properly
 d) Your shoes are needed by you to clean properly.

- 93.** He is said to be very rich.
a) He said he is very rich
c) People say he is very rich
b) He said it is very rich
d) People say it is very rich
- 94.** James Watt discovered the energy of steam.
a) The energy of steam discovered James Watt
b) The energy of steam was discovered by James Watt.
c) James Watt was discovered by the energy of steam
d) James Watt had been discovered energy by the steam.
- 95.** I cannot accept your offer.
a) Your offer cannot be accepted by me
c) The offer can be accepted by me
b) I cannot be accepted by your offer
d) Your offer must be accepted

Convert the sentence from Direct to Indirect speech :

96. He said to his father, "Please increase my pocket – money".
a) He told his father, please increase the pocket money.
b) He pleaded his father to increase my pocket money
c) He requested his father to increase his pocket – money
d) All of these
97. She said to him, "why don't you go today"?
a) She asked him why he did not go that day
b) She asked him not to go that day
c) She asked him why he went yesterday
d) All of these
98. "Please don't go away", she said.
a) She said to please her and go away
b) She begged me not to go away
c) She begged that I not go away
d) All of these
99. "I am sorry", he said.
a) He apologized that he was sorry
b) He demanded that he was sorry
c) He cried that he was to be sorry
d) All of these
100. "I am feeling hungry", the little boy said to his mother.
a) The mother told the boy that she was hungry
b) The little boy said to his mother that he was hungry
c) The little boy told his mother that he will be feeling hungry
d) All of these

* * * * *

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21ENG26

Second Semester B.Arch. Degree Examination, June/July 2025 Building Structure - I

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is concrete? What are properties of concrete. What are the advantages and disadvantages of concrete? (10 Marks)
- b. Explain briefly the various types of load act on a structure with neat sketch. (10 Marks)

OR

- 2 a. A RCC beam of size 300mm × 450mm and a length of 10m having unit weight of RCC 25 KN/m³, calculate the dead load. (06 Marks)
- b. Differentiate between wind load and seismic load. (06 Marks)
- c. Write important properties of wood, aluminium, glass and steel. (08 Marks)

Module-2

- 3 a. What is a force? What are the characteristics of force. (10 Marks)
- b. Determine the resultant in magnitude and direction for the forces shown in fig. Q.3(b).

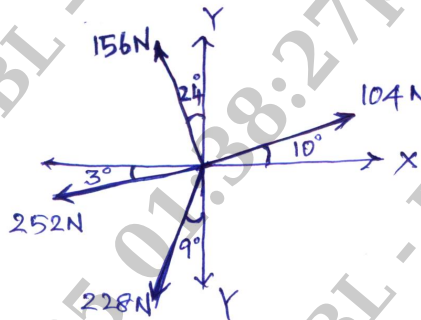


Fig. Q.3(b)

(10 Marks)

OR

- 4 a. Explain free body diagram with 3 examples. (10 Marks)
- b. A lamp weighing 5N is suspended from the ceiling by a chain. It is pulled aside by a horizontal cord until the chain makes an angle of 60° with ceiling as shown in fig. Q 4(b). Find the tensions in the chain and the cord.

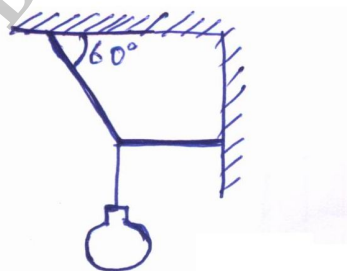


Fig. Q.4 (b)

(10 Marks)

Module-3

- 5 a. Explain a couple. List the characteristics of couple. (10 Marks)
 b. Find the resultant of the force system shown in fig. Q.5(b) in magnitude direction and position with respect to A.

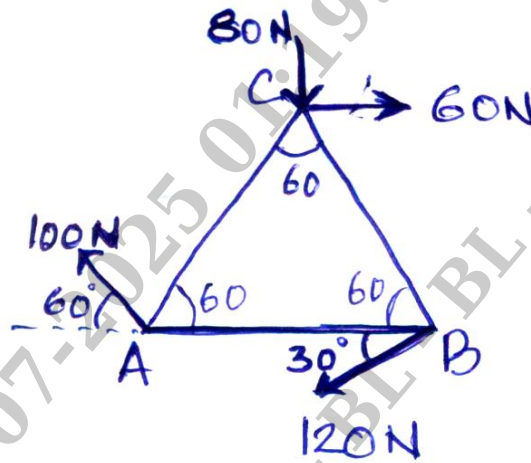


Fig. Q.5(b)

(10 Marks)

OR

- 6 a. Explain the different types of support, load and beam. (10 Marks)
 b. Determine the support reaction for the beam shown in fig. Q. 6(b)

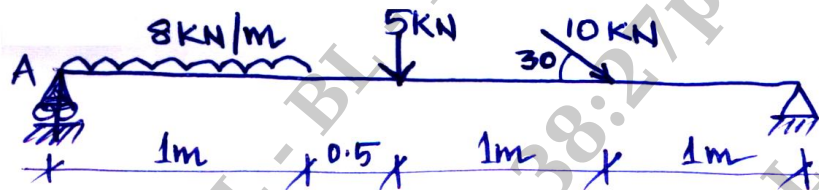


Fig. Q. 6(b)

(10 Marks)

Module-4

- 7 a. Explain the following terms
 i) Center of gravity
 ii) Centroid
 iii) Axis of symmetry
 iv) Radius of gyration (08 Marks)
 b. Find the centroid of T-section shown in fig. Q.7(b).

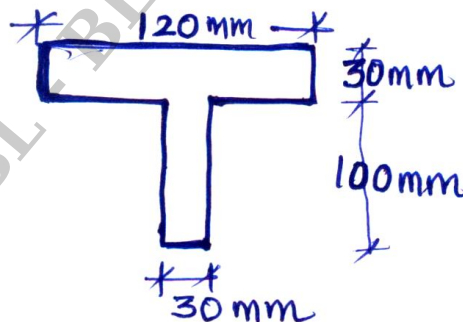


Fig. Q. 7 (b)

(12 Marks)

OR

- 8 a. State parallel axis theorem and perpendicular axis theorem with neat sketch and formula. (08 Marks)
- b. Find the moment of inertia of the given section about the horizontal centroidal axis.

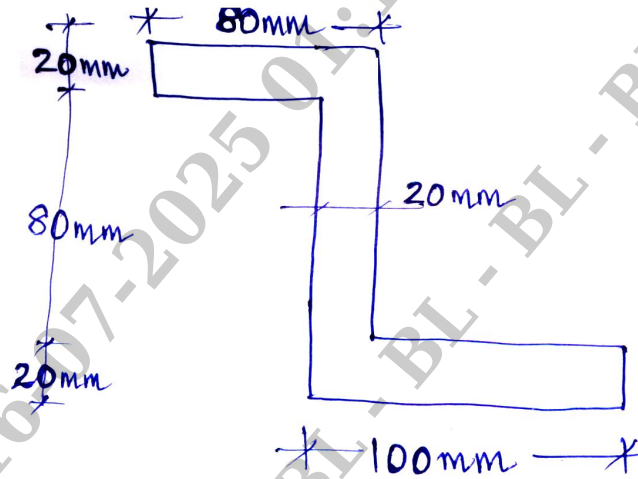


Fig. Q.8(b)

(12 Marks)

Module-5

- 9 a. Explain with neat sketch.
 i) Perfect frame
 ii) Deficient frame
 iii) Redundant frame (06 Marks)
- b. What are the assumptions made in the analysis of truss. (04 Marks)
- c. Find the forces in the members AB, AC, BC of truss shown in fig. Q.9(c)

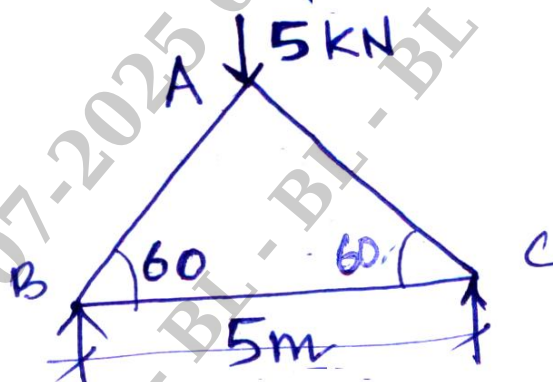


Fig. Q.9 (c)

(10 Marks)

OR

- 10 a. Explain with neat sketch method of joints. (10 Marks)
b. Determine the forces in all members of the truss shown in fig. Q. 10(b).

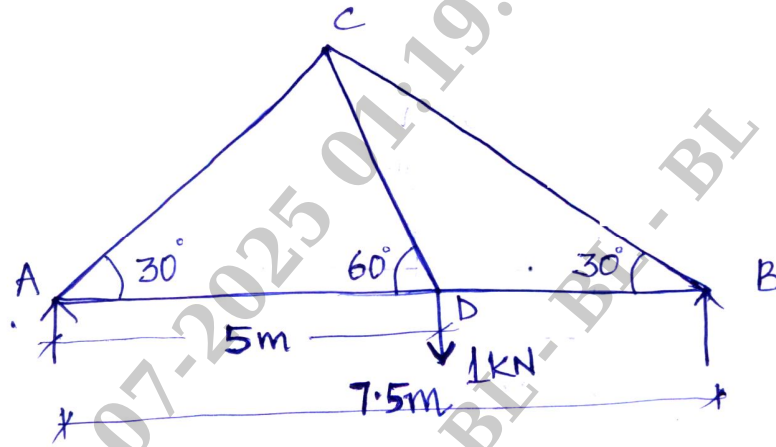


Fig. Q.10(b)

(10 Marks)

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : A

First Semester B.Arch./B.Plan. Degree Examination, June/July 2025
Innovation and Design Thinking

Time: 1 hr.]

[Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

-
1. Design thinking typically helps in
 - a) Innovation
 - b) Financial planning
 - c) Data analytics
 - d) Operational efficiency
 2. Design thinking is a process of ____
 - a) Thinking about design
 - b) Designing ways in which people think
 - c) Asking users to solve problems
 - d) Defining , framing and solving problems from users perspective.
 3. Which of the following is best suited to produce more innovative design solutions?
 - a) Mono disciplinary and untrained teams
 - b) Mono disciplinary and trained teams
 - c) Multidisciplinary and untrained teams
 - d) Multidisciplinary and trained teams
 4. To empathize, one has to
 - a) Observe
 - b) Engage
 - c) Listen
 - d) All of these
 5. When defining a problem, your problem statement should include a solution?
 - a) True
 - b) False
 - c) Do not know
 - d) None of these
 6. The second step in design thinking process is to ____
 - a) Test
 - b) Define
 - c) Ideate
 - d) Prototype
 7. The final step in design thinking process is to ____
 - a) Test
 - b) Define
 - c) Ideate
 - d) Prototype
 8. Design thinking involves
 - a) Result based approach
 - b) Solution based approach
 - c) Technology based approach
 - d) Business based approach

9. Which of the following is part of the tool kit of a Design Thinker?
a) Tabulation b) Story telling c) Derivation d) Calculation
10. Prototype can be built for
a) Products b) Financial services c) Urban projects d) All of these
11. Preparing and representing project information in the form of stories , map and image is
a) Journey mapping b) Visualization
c) Prototyping d) Value chain analysis
12. “Innovation begins with the eye” indicates which quality of Design Thinker.
a) Ability to draw b) Ability to think
c) Ability to observe d) Sharp eyesight
13. What does Teamwork indicates?
a) Collective ownership b) Collaborative efforts
c) Hierarchy in the system d) Both (a) & (b)
14. The first step of customer journey mapping is
a) Define b) Negotiate c) Compare d) Select
15. “Experience Economy” has resulted in
a) Passive consumption b) Active participation
c) Minimum consumption d) No participation
16. Innovation in an organization should be
a) Technology driven b) Customer driven
c) Organization driven d) Economics driven
17. Disruptive innovation results due to
a) Lack of technology application b) Substandard quality / service
c) Lack of human centered analysis d) Lack of investment
18. Agile methodology involved
a) Sprints b) No iteration c) Profit d) None of these
19. _____ approach is used for designing complex software systems.
a) Scenario based prototyping b) BPM
c) Both (a) & (b) d) None of these
20. _____ is type of collaboration where participants regardless of their location , work together to reach a certain GOAL.
a) Cloud computing b) Off – line class
c) Distributed collaboration d) None of these
21. Which of the following is not tools of Design thinking?
a) Co-creation b) Prototyping c) Mind mapping d) On-line marketing
22. Value chain analysis examines how an organization interacts with value chain partners to _____ new offerings.
a) Produce b) market c) distribute d) all of these

37. _____ needs a strategy and every strategy needs a story.
 a) Growth b) Sensing c) Humanization d) Value redefinition
38. Why does Business need strategic foresight?
 a) To help to prevent or prepare for surprises.
 b) To positively influence and support innovation
 c) To empower and engage
 d) All of these
39. Rapid prototyping is a unique technique to _____ for the development of new products.
 a) Reduce the lead time b) To reduce costs
 c) Both (a) & (b) d) None of these
40. Rapid prototyping encompasses of
 a) Prototype b) Review c) Refine and Iterate d) All of these
41. Expand TBPM.
 a) Tangible Business Process Modelling b) Towards Business Process Modelling
 c) None of these d) Both (a) & (b)
42. BPM replaced the organisations previous effective packages.
 a) Time and Movement Study b) Total Quality Management
 c) Both (a) and (b) d) None of these
43. Agile methods are so popular in
 a) Software Industry b) Textile Industry
 c) Manufacturing Industry d) Cement Industry
44. Which of the following is not an activity in the planning stage during the design thinking work shop?
 a) Learning Goals b) Pre - meeting c) Prototyping d) Development
45. Collecting _____ is an important portion of testing a prototype in the test stage of design thinking.
 a) Pictures b) Money c) Feedback d) E – mails
46. Which of the firm mentioned is associated the most with design thinking?
 a) I Kea b) Ideo c) Idea d) Ikei
47. Design thinking process can be applied in any profession / any area / any field.
 a) True b) False c) Cannot say d) None of these
48. Which of the following is an example of innovation?
 a) Paper Art b) Giant wheel c) Telephone d) All of these
49. What is design considerations not linked with?
 a) Products b) Services c) Business d) Computers
50. Design thinking supports in developing product features to improve the services to the customers.
 a) Yes b) No c) Can't say d) None of these

* * * * *

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21MAT11

First Semester B.E./B.Tech. Degree Examination, June/July 2025 Calculus and Differential Equations

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. With usual notations prove that $\tan \phi = r \frac{d\theta}{dr}$. (06 Marks)
- b. Show that the curves $r = a(1 + \sin \theta)$ and $r = a(1 - \sin \theta)$ intersect each other orthogonally. (07 Marks)
- c. Find the radius of curvature of the curve $\sqrt{x} + \sqrt{y} = 4$ at point (4, 4). (07 Marks)

OR

- 2 a. Find the angle between the radius vector and the tangent for the curve $r^m = a^m (\cos m\theta + \sin m\theta)$. (06 Marks)
- b. Find the pedal equation of the curve $\frac{2a}{r} = 1 + \cos \theta$. (07 Marks)
- c. Show that the radius of curvature of the curve $r^n = a^n \cos n\theta$. (07 Marks)

Module-2

- 3 a. Obtain the Maclaurin's expansion of " $\log(1 + e^x)$ " upto fourth degree terms. (06 Marks)
- b. If $u = f\left(xz, \frac{y}{z}\right)$ prove that $x \frac{\partial u}{\partial x} - y \frac{\partial u}{\partial y} - z \frac{\partial u}{\partial z} = 0$. (07 Marks)
- c. Show that $f(x, y) = x^3 y^2 (1 - x - y)$ for $x, y \neq 0$ is maximum at the point $\left(\frac{1}{2}, \frac{1}{3}\right)$ and find maximum value. (07 Marks)

OR

- 4 a. Evaluate : i) $\lim_{x \rightarrow 0} (1 + \sin x)^{\cot x}$ ii) $\lim_{x \rightarrow 0} \left(\frac{1}{x}\right)^{\tan x}$ (06 Marks)
- b. Find the total derivative of $u = xy + yz + zx$ where $x = t \cos t, y = t \sin t, z = t$. (07 Marks)
- c. If $u = x^2 + y^2 + z^2, v = xy + yz + zx, w = x + y + z$.
Find $\frac{\partial(u, v, w)}{\partial(x, y, z)}$. (07 Marks)

Module-3

- 5 a. Solve $\frac{dy}{dx} + \frac{y}{x} = y^2 x$. (06 Marks)
- b. Find the orthogonal trajectory of Cardioids $r = a(1 - \cos \theta)$. (07 Marks)
- c. Solve $p^2 + py - x(x + y) = 0$. (07 Marks)
- OR**
- 6 a. Solve $(6x^2 + 4y^3 + 12y)dx + 3x(1 + y^2) = 0$ (06 Marks)
- b. A cup of coffee at 80°C is placed in a room with temperature 20°C and it cools to 50°C in 5 minutes. Find its temperature after a further interval of 5 minutes. (07 Marks)
- c. Show that the equation $xp^2 + px - py + 1 - y = 0$ is Clairaut's equation and general solution. (07 Marks)

Module-4

- 7 a. Solve $\frac{d^3y}{dx^3} + 2\frac{d^2y}{dx^2} + \frac{dy}{dx} = 3e^{-x}$. (06 Marks)
- b. Solve $(D^2 + 4D + 8)y = x + 1$. (07 Marks)
- c. Using method of variation of parameters solve $y'' + y = \sec x$. (07 Marks)

OR

- 8 a. Solve $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = \cos 2x$ (06 Marks)
- b. Solve $4y'' - y = e^{2x}$. (07 Marks)
- c. Solve the Cauchy's differential equation $x^2y'' + xy' + 9y = \sin(3 \log x)$. (07 Marks)

Module-5

- 9 a. Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 & 4 \\ -2 & -3 & 1 & 2 \\ -3 & -4 & 5 & 8 \\ 1 & 3 & 10 & 14 \end{bmatrix}$ (06 Marks)
- b. Test for consistency and solve
 $5x_1 + x_2 + 3x_3 = 20$
 $2x_1 + 5x_2 + 2x_3 = 18$
 $3x_1 + 2x_2 + x_3 = 14$ (07 Marks)

- c. Solve the system of equations

$$5x + 2y + z = 12$$

$$x + 4y + 2z = 15$$

$$x + 2y + 5z = 20$$

Using Gauss – Seidel iteration method. Carryout four iterations taking (1, 0, 3) as initial approximate root. (07 Marks)

OR

- 10 a. Find the rank of the matrix

$$\begin{bmatrix} 1 & 0 & 2 & -2 \\ 2 & -1 & 0 & -1 \\ 1 & 0 & 2 & -1 \\ 4 & -1 & 3 & -1 \end{bmatrix}$$

(06 Marks)

- b. Solve the system of equations

$$2x + 5y + 7z = 52$$

$$2x + y - z = 0$$

$$x + y + z = 9$$

using Gauss – Jordan method. (07 Marks)

- c. Find the dominant eigen value and the corresponding eigen vector of $A = \begin{bmatrix} 2 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 2 \end{bmatrix}$

by using Rayleigh's power method, taking initial vector as $[1, 1, 1]^T$. (07 Marks)

* * * * *

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

21MAT21

Second Semester B.E./B.Tech. Degree Examination, June/July 2025 Advanced Calculus and Numerical Methods

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Evaluate :

$$\int_0^2 \int_0^6 \int_0^{4-x^2} dz \, dy \, dx$$

(06 Marks)

- b. Change the order of integration and hence evaluate $\int_0^1 \int_{\sqrt{x}}^1 (1+y) dy \, dx$

(07 Marks)

- c. Define Beta and Gama function. Prove that $\beta(\frac{1}{2}, \frac{1}{2}) = \pi$

(07 Marks)

OR

- 2 a. Find the area between the parabolas $y^2 = 4ax$ and $x^2 = 4ay$, using double integration.

(06 Marks)

- b. Derive the relation between Beta and Gama function.

(07 Marks)

- c. Find the volume of the tetrahedron in the first octant bounded by $4x + 2y + z = 8$, using double integration.

(07 Marks)

Module-2

- 3 a. A fluid motion is given by $\vec{v} = (y \sin z - \sin x)\hat{i} + (x \sin z + 2yz)\hat{j} + (xy \cos z + y^2)\hat{k}$ show that the motion is irrotational.

(06 Marks)

- b. Find $\text{div}(\vec{v})$ and $\text{curl}(\vec{v})$ of $\vec{v} = (xyz)\hat{i} + (3x^2y)\hat{j} + (xz^2 - y^2z)\hat{k}$ at $(2, -1, 1)$

(07 Marks)

- c. Find the directional derivative of the function $\phi = x^2 - y^2 + 2z^2$ at the point $P(1, 2, 3)$ in the direction of the vector $4\hat{i} - 2\hat{j} + \hat{k}$

(07 Marks)

OR

- 4 a. If a force $\vec{F} = 2x^2y\hat{i} + 3xy\hat{j}$ displays a particle in the xy-plane from $(0, 0)$ to $(1, 4)$ along the curve $y = 4x^2$. Find the work done.

(06 Marks)

- b. Using Green's theorem, evaluate $\int_C (xy - x^2)dx + x^2y \, dy$ where C is bounded by $y = 0$, $x = 1$ and $y = x$.

(07 Marks)

- c. Evaluate $\int_C \vec{F} \cdot d\vec{r}$ by Stoke's theorem, where $\vec{F} = (x^2 + y^2)\hat{i} - 2xy\hat{j}$ and C is the boundary of the rectangle $x = \pm a$, $y = 0$ and $y = b$.

(07 Marks)

Module-3

- 5 a. Form partial differential equation by eliminating the arbitrary function from $z = f(x^2 + y^2)$. (06 Marks)
- b. Solve $\frac{\partial^2 z}{\partial y^2} + \frac{\partial z}{\partial y} - 6z = 0$, given that $z = x$ and $\frac{\partial z}{\partial y} = 0$, when $y = 0$. (07 Marks)
- c. With usual notations derive a one-dimensional heat equation. (07 Marks)

OR

- 6 a. Solve : $z = yq - xp$ (06 Marks)
- b. Form the partial differential equation from $Z = f(y + 2x) + g(y - 3x)$ (07 Marks)
- c. Solve : $\frac{\partial^2 z}{\partial x \partial y} = x^2 y$ subject to the conditions $z(x, 0) = x^2$ and $z(1, y) = \cos y$. (07 Marks)

Module-4

- 7 a. Find a real root of $x \tan x = -1$ in $(2.5, 3)$ by Regula-Falsi method in four iterations. (06 Marks)
- b. Apply Newton's general interpolation formula to find u_x . Given that $u_0 = 8, u_1 = 11, u_4 = 68, u_5 = 123$. (07 Marks)
- c. Evaluate $\int_0^3 x^4 dx$ by Simpson's $\left(\frac{1}{3}\right)^{rd}$ rule. (take $n = 6$). (07 Marks)

OR

- 8 a. Using Newton-Raphson method, find real root of $4x - e^x = 0$ which is near to 2. (06 Marks)
- b. Using Simpson's $\left(\frac{3}{8}\right)^{th}$ rule, evaluate $\int_0^{0.3} \sqrt{1 - 8x^3} dx$ ($n = 6$) (07 Marks)
- c. In the following table, values of y are consecutive terms of a series of which 23.6 is the 6th term. Find the first and tenth terms of the series:

x	3	4	5	6	7	8	9
y	4.8	8.4	14.5	23.6	36.2	52.8	73.9

(07 Marks)

Module-5

- 9 a. Employ Taylor's series method, to find $y(0.1)$ from $\frac{dy}{dx} = y + e^{2x}$ with $y(0) = 1$ upto 3rd degree term. (06 Marks)
- b. Apply the Runge-Kutta method of 4th order find y at $x = 0.1$. Given that $\frac{dy}{dx} = y + x^3$; $y(0) = 1, (h = 0.1)$ (07 Marks)

- c. Find $y(0.4)$ using Milne's predictor-corrector method, given $y' = \frac{(1+x^2)y^2}{2}$; $y(0) = 1$,
 $y(0.1) = 1.06$, $y(0.2) = 1.12$, $y(0.3) = 1.21$ (07 Marks)

OR

- 10 a. Use Taylor's series method to find $y(0.1)$.

Given $\frac{dy}{dx} = y + \sin x$: $y(0) = 1$ up to the term containing x^3 . (06 Marks)

- b. Using Modified Euler's method find $y(0.1)$, taking $h = 0.05$, given that

$\frac{dy}{dx} = x^2 + y$: $y(0) = 1$ (07 Marks)

- c. Given $\frac{dy}{dx} = \frac{y-x}{y+x}$: $y(0) = 1$, find $y(0.2)$ taking $h = 0.2$, using Runge Kutta 4th order method. (07 Marks)

--	--	--	--	--	--	--	--	--	--

First/Second Semester B.E./B.Tech. Degree Examination, June/July 2025 Engineering Physics

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. Draw neat sketches wherever necessary.

3. Physical Constants: Speed of light $C = 3 \times 10^8 \text{ ms}^{-1}$,

Boltzmann constant $K = 1.38 \times 10^{-23} \text{ J/K}$, Planck's constant $h = 6.625 \times 10^{-34} \text{ JS}$,

Acceleration due to gravity $g = 9.8 \text{ m/s}$,

Permittivity of free space $\epsilon_0 = 8.854 \times 10^{-12} \text{ Fm}^{-1}$, $e = 1.6 \times 10^{-19} \text{ C}$

Module-1

- 1 a. Define simple harmonic motion and mention any two examples. Derive the differential equation using Hooke's law. (07 Marks)
- b. With a neat diagram, explain the construction and working of Reddy shock tube. Mention any three applications of shock waves. (09 Marks)
- c. For a particle executing SHM, its acceleration is found to be 15 cm/s^2 when it is at 3 cm from its mean position. Calculate time period. (04 Marks)

OR

- 2 a. What are damped oscillations? Discuss the theory of damped oscillations. (09 Marks)
- b. What is a shock wave? Mention the properties of shockwaves. (07 Marks)
- c. The distance between the two pressure sensors in a shock tube is 150 mm. The time taken by a shock wave to travel this distance is 0.3 ms. If the velocity of sound under the same condition is 340 m/s. Find the Mach number of the shock wave. (04 Marks)

Module-2

- 3 a. State the assumptions of Planck's radiation law. Show how Planck's law could be reduced to Wien's law and Rayleigh – Jeans law. (09 Marks)
- b. State Heisenberg's uncertainty principle. Show that electron doesn't exist inside the nucleus by this principle. (07 Marks)
- c. An electron is bound in an one dimensional potential well of width 1 \AA , but of infinite wall height. Find its energy values in the ground state also in the first two excited states. (04 Marks)

OR

- 4 a. Assuming the time independent Schrodinger's wave equation discuss the solution for a particle in one dimensional potential well of infinite height and hence obtain the normalized wave function. (10 Marks)
- b. Explain the nature of black body radiation spectrum with neat diagram. (06 Marks)
- c. A particle having mass 0.5 Mev/c^2 has a kinetic energy of 100 eV. Calculate the de-Broglie wavelength, where C is the velocity of light. (04 Marks)

Module-3

- 5 a. Explain the construction and working of semiconductor laser with the help of necessary neat diagram. (08 Marks)
- b. Describe different types of optical fibers with neat diagrams. Mention any two advantages of optical fiber communication. (08 Marks)
- c. The ratio of population of two energy levels is 1.059×10^{-30} . Find the wavelength of light emitted by spontaneous emissions at 330 K. (04 Marks)

OR

- 6 a. Derive an expression for energy density of radiation under equilibrium, in terms of Einstein's coefficients. (09 Marks)
- b. With neat diagram, explain the working of intensity based displacement sensor using optical fiber. (07 Marks)
- c. Estimate the attenuation in an optical fiber of length 500 m when a light signal of power 100 mW emerges out of fiber with a power 90 mW. (04 Marks)

Module-4

- 7 a. Mention any four assumptions of classical free electron theory and discuss the success of quantum free electron theory. (10 Marks)
- b. Describe in brief the various types of polarization mechanisms. (06 Marks)
- c. The intrinsic charge carrier concentration of germanium is $2.4 \times 10^{19}/\text{m}^3$, calculate its resistivity if mobility of electrons and holes respectively are $0.39\text{m}^2/\text{vs}$ and $0.19\text{m}^2/\text{vs}$. (04 Marks)

OR

- 8 a. What is Hall effect? Obtain the expression for the Hall coefficient. (08 Marks)
- b. Deduce the expression for electrical conductivity of a conductor using the quantum free electron theory of metals. (08 Marks)
- c. The dielectric constant of sulphur is 3.4. Assuming a cubic lattice for its structure, calculate the electronic polarizability of sulphur (given, density of sulphur = $2.079/\text{cc}$ and atomic weight = 32.07). (04 Marks)

Module-5

- 9 a. Explain the construction and working of X-ray diffractometer. Mention the applications. (10 Marks)
- b. Explain briefly nanocomposite with example and applications. (05 Marks)
- c. Determine the wave length of X-rays for crystal size of $1.188 \times 10^{-6}\text{m}$, peak width is 0.5° and peak position 30° for a cubic crystal. Given Scherrer's constant $K = 0.92$. (05 Marks)

OR

- 10 a. With a neat diagram, explain the principle construction and working of atomic force microscope. (10 Marks)
- b. Define nano material and classify the nanomaterials on the dimensional constraints. (05 Marks)
- c. First order Bragg reflection occurs when a monochromatic beam of X-rays of wavelength 0.675\AA is incident on a crystal at a glancing angle of $4^\circ 51'$. What is the glancing angle for third order Bragg reflection to occur? (05 Marks)

* * * * *

--	--	--	--	--	--	--	--	--	--

First/Second Semester B.E./B.Tech. Degree Examination, June/July 2025 Engineering Physics

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. Draw neat sketches wherever necessary.

3. Physical Constants: Speed of light $C = 3 \times 10^8 \text{ ms}^{-1}$,

Boltzmann constant $K = 1.38 \times 10^{-23} \text{ J/K}$, Planck's constant $h = 6.625 \times 10^{-34} \text{ JS}$,

Acceleration due to gravity $g = 9.8 \text{ m/s}$,

Permittivity of free space $\epsilon_0 = 8.854 \times 10^{-12} \text{ Fm}^{-1}$, $e = 1.6 \times 10^{-19} \text{ C}$

Module-1

- 1 a. Define simple harmonic motion and mention any two examples. Derive the differential equation using Hooke's law. (07 Marks)
- b. With a neat diagram, explain the construction and working of Reddy shock tube. Mention any three applications of shock waves. (09 Marks)
- c. For a particle executing SHM, its acceleration is found to be 15 cm/s^2 when it is at 3 cm from its mean position. Calculate time period. (04 Marks)

OR

- 2 a. What are damped oscillations? Discuss the theory of damped oscillations. (09 Marks)
- b. What is a shock wave? Mention the properties of shockwaves. (07 Marks)
- c. The distance between the two pressure sensors in a shock tube is 150 mm. The time taken by a shock wave to travel this distance is 0.3 ms. If the velocity of sound under the same condition is 340 m/s. Find the Mach number of the shock wave. (04 Marks)

Module-2

- 3 a. State the assumptions of Planck's radiation law. Show how Planck's law could be reduced to Wien's law and Rayleigh – Jeans law. (09 Marks)
- b. State Heisenberg's uncertainty principle. Show that electron doesn't exist inside the nucleus by this principle. (07 Marks)
- c. An electron is bound in an one dimensional potential well of width 1 \AA , but of infinite wall height. Find its energy values in the ground state also in the first two excited states. (04 Marks)

OR

- 4 a. Assuming the time independent Schrodinger's wave equation discuss the solution for a particle in one dimensional potential well of infinite height and hence obtain the normalized wave function. (10 Marks)
- b. Explain the nature of black body radiation spectrum with neat diagram. (06 Marks)
- c. A particle having mass $0.5 \text{ Mev}/c^2$ has a kinetic energy of 100 eV. Calculate the de-Broglie wavelength, where C is the velocity of light. (04 Marks)

Module-3

- 5 a. Explain the construction and working of semiconductor laser with the help of necessary neat diagram. (08 Marks)
- b. Describe different types of optical fibers with neat diagrams. Mention any two advantages of optical fiber communication. (08 Marks)
- c. The ratio of population of two energy levels is 1.059×10^{-30} . Find the wavelength of light emitted by spontaneous emissions at 330 K. (04 Marks)

OR

- 6 a. Derive an expression for energy density of radiation under equilibrium, in terms of Einstein's coefficients. (09 Marks)
- b. With neat diagram, explain the working of intensity based displacement sensor using optical fiber. (07 Marks)
- c. Estimate the attenuation in an optical fiber of length 500 m when a light signal of power 100 mW emerges out of fiber with a power 90 mW. (04 Marks)

Module-4

- 7 a. Mention any four assumptions of classical free electron theory and discuss the success of quantum free electron theory. (10 Marks)
- b. Describe in brief the various types of polarization mechanisms. (06 Marks)
- c. The intrinsic charge carrier concentration of germanium is $2.4 \times 10^{19}/\text{m}^3$, calculate its resistivity if mobility of electrons and holes respectively are $0.39\text{m}^2/\text{vs}$ and $0.19\text{m}^2/\text{vs}$. (04 Marks)

OR

- 8 a. What is Hall effect? Obtain the expression for the Hall coefficient. (08 Marks)
- b. Deduce the expression for electrical conductivity of a conductor using the quantum free electron theory of metals. (08 Marks)
- c. The dielectric constant of sulphur is 3.4. Assuming a cubic lattice for its structure, calculate the electronic polarizability of sulphur (given, density of sulphur = $2.079/\text{cc}$ and atomic weight = 32.07). (04 Marks)

Module-5

- 9 a. Explain the construction and working of X-ray diffractometer. Mention the applications. (10 Marks)
- b. Explain briefly nanocomposite with example and applications. (05 Marks)
- c. Determine the wave length of X-rays for crystal size of $1.188 \times 10^{-6}\text{m}$, peak width is 0.5° and peak position 30° for a cubic crystal. Given Scherrer's constant $K = 0.92$. (05 Marks)

OR

- 10 a. With a neat diagram, explain the principle construction and working of atomic force microscope. (10 Marks)
- b. Define nano material and classify the nanomaterials on the dimensional constraints. (05 Marks)
- c. First order Bragg reflection occurs when a monochromatic beam of X-rays of wavelength 0.675\AA is incident on a crystal at a glancing angle of $4^\circ 51'$. What is the glancing angle for third order Bragg reflection to occur? (05 Marks)

* * * * *

CBCS SCHEME

21SFH29

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : A

Second Semester B.Arch./B.Plan. Degree Examination, June/July 2025 Scientific Foundation of Health

Time: 1 hr.

Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

-
1. Obesity is caused by an increase in _____
a) adiposity b) epidosity c) ediposity d) apidosity
 2. Which of the following health compromising style makes use of the patient's knowledge and experience?
a) Doctor – centered communication
b) Patient centered communication
c) Practitioner – centered communication
d) None of these
 3. Which year did the world health organization first expresses the right to health as a fundamental human right?
a) 1946 b) 1952 c) 1987 d) 2000
 4. The world health day is celebrated on _____
a) 1st March b) 7th April c) 6th October d) 10th December
 5. Cleanliness, physical exercise, rest and sleep are part of _____
a) Hygiene b) Physical hygiene c) Social hygiene d) Personal hygiene
 6. Which one of the following is an unhealthy habit?
a) Sharing food b) Bathing twice a day
c) Drinking boiled water d) Eating without washing hands
 7. Which of the following components are major nutrients in our food?
a) Carbohydrates b) Lipids and proteins
c) Vitamins and minerals d) All of these

8. Which of the following food components is required for the growth and maintenance of the human body?
a) Proteins b) Vitamins c) Minerals d) Both a and b
9. Which of the following food products are the best sources of animal proteins?
a) Milk b) Egg c) Cheese d) All of these
10. Egg is a rich source of _____
a) Proteins b) Minerals c) Vitamins d) All of these
11. Guava, Lemon, Orange and Tomato are rich in _____
a) Vitamin A b) Vitamin B c) Vitamin C d) Vitamin D
12. The most significant and essential mineral required for our body is _____
a) Iron b) Sodium c) Calcium d) All of these
13. Alcohol consumption has been linked to
a) Liver cirrhosis b) High blood pressure
c) Stroke d) All of these
14. Which of the following processes are important in explaining obesity?
a) Food environment b) Physical activity
c) Individual psychology d) All of these
15. Communication is a part of _____ skills
a) Soft b) Hard c) Rough d) Technical
16. Having good mental health means that you
a) Can deal appropriately with sadness
b) Can deal and solve problems with little trouble
c) Show respect for other people always
d) Share your true feelings with your friends always
17. Mindfulness is the only technique that increases
a) Mental health b) Physical health c) Social health d) All of these
18. Health enables people to
a) Achieve physical fitness
b) Enjoy life and feel comfortable
c) Fight with diseases
d) All of these
19. Health plays an important role in feeling _____
a) Sad b) Happy c) Anger d) Ok
20. Mindfulness simply means playing attention to _____
a) Past b) Present c) Future d) all of these
21. The term _____ means keeping clean to prevent the spread of disease.
a) Social health b) Wellness c) Hygiene d) Refusal skills
22. To achieve good health and well being one should do
a) Regular exercises
b) Consume appropriate amount of water
c) Eat regularly health meals
d) All of these

23. BMI stand for _____
 a) Body Material Index
 c) Body Mass Indicator
 b) Body Mass Index
 d) None of these
24. Eating disorders are _____
 a) Anorexia Nervoasa
 c) Binge Eating Disorder
 b) Bulimia Nerevoasa
 d) All of these
25. Fruits are rich in
 a) More sugar more fibre
 c) Less sugar more fibre
 b) Less sugar less fibre
 d) More sugar less fibre
26. Advantages of using more water is _____
 a) Regulating body temperature
 b) Maintaining electrolyte balance
 c) Carrying nutrients and oxygen to your cells
 d) All of these
27. Body mass index is calculated by taking
 a) Height and Weight of the body
 b) Only weight of the body
 c) Only height of the body
 d) None of these
28. Reasons for lung cancer is _____
 a) Drinking Alcohol b) Smoking c) Sleeping d) Exercise
29. Health is a goal and _____ is the active process of achieving it
 a) Health b) Wellness c) Fitness d) Physical
30. "WHO" stands for _____
 a) World Hormany Organization
 b) Wellness and Health Organization
 c) Wellness and Health Office
 d) World Health Organization
31. Fill a quarter of your plate with _____ foods for good health
 a) Junk b) Gobi-Manchuri c) Proteins d) Species
32. What helps to build and maintain bones, muscles and skin?
 a) Food b) Water c) Air d) Proteins
33. Eating of at least _____ grams of fruits and vegetables per day reduces the risk of NCD's (Non Communicable Diseases) and helps to ensure an adequate daily intake of dietary fibre.
 a) 200 b) 300 c) 400 d) 500
34. Salt intake to the recommended level of less than _____ grams per day
 a) 5 b) 10 c) 15 d) 20
35. An apple a day _____
 a) Keeps the doctor away
 b) Keeps all your trouble away
 c) Keeps your family away
 d) Keeps you awake whole day

36. Which vitamin is good for eyes?
a) Vitamin D b) Vitamin K c) Vitamin A d) Vitamin B
37. The interpretation of the message is ____
a) Coding b) Decoding c) Recoding d) Encoding
38. Which Vitamin is good for bones?
a) Vitamin A b) Vitamin C c) Vitamin K d) Vitamin D
39. Wearing seat belts, banning of smoking, avoiding drugs, heroin, cocaine, alcohol are examples for
a) Social Engineering b) Civil Engineering
c) Software Engineering d) Hardware Engineering
40. All addictions are part of ____ disorders
a) Physical b) Personal c) Mental d) General
41. SUD's means
a) Substance Use Disorders b) Social Disorders
c) Societal Used Disorders d) Substance Under Diseases
42. Addiction is a complex, but treatable disease that affects ____ function and behaviour
a) Lungs b) Heart c) Kidney d) Brain
43. Anxiety, depression, schizophrénias, organic mental disorders due to substance abuse, cognitive dysfunction, personality disorder etc are the ____ health issues
a) Physical b) Social c) Mental d) General
44. ____ are one celled organisms that can be seen only with a microscope
a) Virus b) Bacteria c) Fungi d) All of these
45. ____ diseases are defined broadly as conditions that last for one year or more and require ongoing medical attention
a) Acute b) Chronic c) Short term d) General
46. Physical functioning, psychological status, social functioning and disease or treatment are the components of ____
a) Quality of life b) Quantity of life c) Chronic life d) Acute life
47. Health is a state of ____
a) Well being b) Good for nothing c) Well for none d) disease
48. Alcohol and drugs reduce ____ and increase risky behaviours
a) Self – control b) dependency c) disease d) failure
49. What measures the value of all the assets of worth owned by a person, community, company or country
a) Health b) Wellness c) Wealth d) Fitness
50. Which diseases are called as inborn diseases?
a) Inherited b) Infected c) Contagious d) Congenital

* * * * *

CBCS SCHEME

21SFH29

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : B

Second Semester B.Arch./B.Plan. Degree Examination, June/July 2025 Scientific Foundation of Health

Time: 1 hr.

Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

-
- 1 Fill a quarter of your plate with _____ foods for good health
a) Junk b) Gobi-Manchuri c) Proteins d) Species
 - 2 What helps to build and maintain bones, muscles and skin?
a) Food b) Water c) Air d) Proteins
 - 3 Eating of at least _____ grams of fruits and vegetables per day reduces the risk of NCD's (Non Communicable Diseases) and helps to ensure an adequate daily intake of dietary fibre.
a) 200 b) 300 c) 400 d) 500
 - 4 Salt intake to the recommended level of less than _____ grams per day
a) 5 b) 10 c) 15 d) 20
 - 5 An apple a day _____
a) Keeps the doctor away
b) Keeps all your trouble away
c) Keeps your family away
d) Keeps you awake whole day
 - 6 Which vitamin is good for eyes?
a) Vitamin D b) Vitamin K c) Vitamin A d) Vitamin B
 - 7 The interpretation of the message is _____
a) Coding b) Decoding c) Recoding d) Encoding
 - 8 Which Vitamin is good for bones?
a) Vitamin A b) Vitamin C c) Vitamin K d) Vitamin D

- 9 Wearing seat belts, banning of smoking, avoiding drugs, heroin, cocaine, alcohol are examples for
 a) Social Engineering b) Civil Engineering
 c) Software Engineering d) Hardware Engineering
- 10 All addictions are part of _____ disorders
 a) Physical b) Personal c) Mental d) General
- 11 Obesity is caused by an increase in _____
 a) adiposity b) epidosity c) ediposity d) apidosity
- 12 Which of the following health compromising style makes use of the patient's knowledge and experience?
 a) Doctor – centered communication
 b) Patient centered communication
 c) Practitioner – centered communication
 d) None of these
- 13 Which year did the world health organization first expresses the right to health as a fundamental human right?
 a) 1946 b) 1952 c) 1987 d) 2000
- 14 The world health day is celebrated on _____
 a) 1st March b) 7th April c) 6th October d) 10th December
- 15 Cleanliness, physical exercise, rest and sleep are part of _____
 a) Hygiene b) Physical hygiene c) Social hygiene d) Personal hygiene
- 16 Which one of the following is an unhealthy habit?
 a) Sharing food b) Bathing twice a day
 c) Drinking boiled water d) Eating without washing hands
- 17 Which of the following components are major nutrients in our food?
 a) Carbohydrates b) Lipids and proteins
 c) Vitamins and minerals d) All of these
- 18 Which of the following food components is required for the growth and maintenance of the human body?
 a) Proteins b) Vitamins c) Minerals d) Both a and b
- 19 Which of the following food products are the best sources of animal proteins?
 a) Milk b) Egg c) Cheese d) All of these
- 20 Egg is a rich source of _____
 a) Proteins b) Minerals c) Vitamins d) All of these
- 21 SUD's means
 a) Substance Use Disorders b) Social Disorders
 c) Societal Used Disorders d) Substance Under Diseases
- 22 Addiction is a complex, but treatable disease that affects _____ function and behaviour
 a) Lungs b) Heart c) Kidney d) Brain
- 23 Anxiety, depression, schizoprenias, organic mental disorders due to substance abuse, cognitive dysfunction, personality disorder etc are the _____ health issues
 a) Physical b) Social c) Mental d) General

- 24 _____ are one celled organisms that can be seen only with a microscope
 a) Virus b) Bacteria c) Fungi d) All of these
- 25 _____ diseases are defined broadly as conditions that last for one year or more and require ongoing medical attention
 a) Acute b) Chronic c) Short term d) General
- 26 Physical functioning, psychological status, social functioning and disease or treatment are the components of _____
 a) Quality of life b) Quantity of life c) Chronic life d) Acute life
- 27 Health is a state of _____
 a) Well being b) Good for nothing c) Well for none d) disease
- 28 Alcohol and drugs reduce _____ and increase risky behaviours
 a) Self – control b) dependency c) disease d) failure
- 29 What measures the value of all the assets of worth owned by a person, community, company or country
 a) Health b) Wellness c) Wealth d) Fitness
- 30 Which diseases are called as inborn diseases?
 a) Inherited b) Infected c) Contagious d) Congenital
- 31 The term _____ means keeping clean to prevent the spread of disease.
 a) Social health b) Wellness c) Hygiene d) Refusal skills
- 32 To achieve good health and well being one should do
 a) Regular exercises
 b) Consume appropriate amount of water
 c) Eat regularly health meals
 d) All of these
- 33 BMI stand for _____
 a) Body Material Index b) Body Mass Index
 c) Body Mass Indicator d) None of these
- 34 Eating disorders are _____
 a) Anorexia Nervoasa b) Bulimia Nervoasa
 c) Binge Eating Disorder d) All of these
- 35 Fruits are rich in
 a) More sugar more fibre b) Less sugar less fibre
 c) Less sugar more fibre d) More sugar less fibre
- 36 Advantages of using more water is _____
 a) Regulating body temperature
 b) Maintaining electrolyte balance
 c) Carrying nutrients and oxygen to your cells
 d) All of these
- 37 Body mass index is calculated by taking
 a) Height and Weight of the body
 b) Only weight of the body
 c) Only height of the body
 d) None of these

- 38 Reasons for lung cancer is _____
 a) Drinking Alcohol b) Smoking c) Sleeping d) Exercise
- 39 Health is a goal and _____ is the active process of achieving it
 a) Health b) Wellness c) Fitness d) Physical
- 40 "WHO" stands for _____
 a) World Hormany Organization
 b) Wellness and Health Organization
 c) Wellness and Health Office
 d) World Health Organization
- 41 Guava, Lemon, Orange and Tomato are rich in _____
 a) Vitamin A b) Vitamin B c) Vitamin C d) Vitamin D
- 42 The most significant and essential mineral required for our body is _____
 a) Iron b) Sodium c) Calcium d) All of these
- 43 Alcohol consumption has been linked to
 a) Liver cirrhosis b) High blood pressure
 c) Stroke d) All of these
- 44 Which of the following processes are important in explaining obesity?
 a) Food environment b) Physical activity
 c) Individual psychology d) All of these
- 45 Communication is a part of _____ skills
 a) Soft b) Hard c) Rough d) Technical
- 46 Having good mental health means that you
 a) Can deal appropriately with sadness
 b) Can deal and solve problems with little trouble
 c) Show respect for other people always
 d) Share your true feelings with your friends always
- 47 Mindfulness is the only technique that increases
 a) Mental health b) Physical health c) Social health d) All of these
- 48 Health enables people to
 a) Achieve physical fitness
 b) Enjoy life and feel comfortable
 c) Fight with diseases
 d) All of these
- 49 Health plays an important role in feeling _____
 a) Sad b) Happy c) Anger d) Ok
- 50 Mindfulness simply means playing attention to _____
 a) Past b) Present c) Future d) all of these

* * * * *

CBCS SCHEME

21SFH29

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : C

Second Semester B.Arch./B.Plan. Degree Examination, June/July 2025 Scientific Foundation of Health

Time: 1 hr.

Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

-
- 1 The term _____ means keeping clean to prevent the spread of disease.
a) Social health b) Wellness c) Hygiene d) Refusal skills
 - 2 To achieve good health and well being one should do
a) Regular exercises
b) Consume appropriate amount of water
c) Eat regularly health meals
d) All of these
 - 3 BMI stand for _____
a) Body Material Index b) Body Mass Index
c) Body Mass Indicator d) None of these
 - 4 Eating disorders are _____
a) Anorexia Nervoasa b) Bulimia Nervoasa
c) Binge Eating Disorder d) All of these
 - 5 Fruits are rich in
a) More sugar more fibre b) Less sugar less fibre
c) Less sugar more fibre d) More sugar less fibre
 - 6 Advantages of using more water is _____
a) Regulating body temperature
b) Maintaining electrolyte balance
c) Carrying nutrients and oxygen to your cells
d) All of these

- 7 Body mass index is calculated by taking
 - a) Height and Weight of the body
 - b) Only weight of the body
 - c) Only height of the body
 - d) None of these
- 8 Reasons for lung cancer is _____
 - a) Drinking Alcohol
 - b) Smoking
 - c) Sleeping
 - d) Exercise
- 9 Health is a goal and _____ is the active process of achieving it
 - a) Health
 - b) Wellness
 - c) Fitness
 - d) Physical
- 10 "WHO" stands for _____
 - a) World Hormany Organization
 - b) Wellness and Health Organization
 - c) Wellness and Health Office
 - d) World Health Organization
- 11 SUD's means
 - a) Substance Use Disorders
 - b) Social Disorders
 - c) Societal Used Disorders
 - d) Substance Under Diseases
- 12 Addiction is a complex, but treatable disease that affects _____ function and behaviour
 - a) Lungs
 - b) Heart
 - c) Kidney
 - d) Brain
- 13 Anxiety, depression, schizophrenias, organic mental disorders due to substance abuse, cognitive dysfunction, personality disorder etc are the _____ health issues
 - a) Physical
 - b) Social
 - c) Mental
 - d) General
- 14 _____ are one celled organisms that can be seen only with a microscope
 - a) Virus
 - b) Bacteria
 - c) Fungi
 - d) All of these
- 15 _____ diseases are defined broadly as conditions that last for one year or more and require ongoing medical attention
 - a) Acute
 - b) Chronic
 - c) Short term
 - d) General
- 16 Physical functioning, psychological status, social functioning and disease or treatment are the components of _____
 - a) Quality of life
 - b) Quantity of life
 - c) Chronic life
 - d) Acute life
- 17 Health is a state of _____
 - a) Well being
 - b) Good for nothing
 - c) Well for none
 - d) disease
- 18 Alcohol and drugs reduce _____ and increase risky behaviours
 - a) Self – control
 - b) dependency
 - c) disease
 - d) failure
- 19 What measures the value of all the assets of worth owned by a person, community, company or country
 - a) Health
 - b) Wellness
 - c) Wealth
 - d) Fitness
- 20 Which diseases are called as inborn diseases?
 - a) Inherited
 - b) Infected
 - c) Contagious
 - d) Congenital
- 21 Fill a quarter of your plate with _____ foods for good health
 - a) Junk
 - b) Gobi-Manchuri
 - c) Proteins
 - d) Species

- 22 What helps to build and maintain bones, muscles and skin?
a) Food b) Water c) Air d) Proteins
- 23 Eating of at least _____ grams of fruits and vegetables per day reduces the risk of NCD's (Non Communicable Diseases) and helps to ensure an adequate daily intake of dietary fibre.
a) 200 b) 300 c) 400 d) 500
- 24 Salt intake to the recommended level of less than _____ grams per day
a) 5 b) 10 c) 15 d) 20
- 25 An apple a day _____
a) Keeps the doctor away b) Keeps all your trouble away
c) Keeps your family away d) Keeps you awake whole day
- 26 Which vitamin is good for eyes?
a) Vitamin D b) Vitamin K c) Vitamin A d) Vitamin B
- 27 The interpretation of the message is _____
a) Coding b) Decoding c) Recoding d) Encoding
- 28 Which Vitamin is good for bones?
a) Vitamin A b) Vitamin C c) Vitamin K d) Vitamin D
- 29 Wearing seat belts, banning of smoking, avoiding drugs, heroin, cocaine, alcohol are examples for
a) Social Engineering b) Civil Engineering
c) Software Engineering d) Hardware Engineering
- 30 All addictions are part of _____ disorders
a) Physical b) Personal c) Mental d) General
- 31 Guava, Lemon, Orange and Tomato are rich in _____
a) Vitamin A b) Vitamin B c) Vitamin C d) Vitamin D
- 32 The most significant and essential mineral required for our body is _____
a) Iron b) Sodium c) Calcium d) All of these
- 33 Alcohol consumption has been linked to
a) Liver cirrhosis b) High blood pressure
c) Stroke d) All of these
- 34 Which of the following processes are important in explaining obesity?
a) Food environment b) Physical activity
c) Individual psychology d) All of these
- 35 Communication is a part of _____ skills
a) Soft b) Hard c) Rough d) Technical
- 36 Having good mental health means that you
a) Can deal appropriately with sadness
b) Can deal and solve problems with little trouble
c) Show respect for other people always
d) Share your true feelings with your friends always

- 37 Mindfulness is the only technique that increases
a) Mental health b) Physical health c) Social health d) All of these
- 38 Health enables people to
a) Achieve physical fitness
b) Enjoy life and feel comfortable
c) Fight with diseases
d) All of these
- 39 Health plays an important role in feeling _____
a) Sad b) Happy c) Anger d) Ok
- 40 Mindfulness simply means playing attention to _____
a) Past b) Present c) Future d) all of these
- 41 Obesity is caused by an increase in _____
a) adiposity b) epidosity c) ediposity d) apidosity
- 42 Which of the following health compromising style makes use of the patient's knowledge and experience?
a) Doctor – centered communication
b) Patient centered communication
c) Practitioner – centered communication
d) None of these
- 43 Which year did the world health organization first expresses the right to health as a fundamental human right?
a) 1946 b) 1952 c) 1987 d) 2000
- 44 The world health day is celebrated on _____
a) 1st March b) 7th April c) 6th October d) 10th December
- 45 Cleanliness, physical exercise, rest and sleep are part of _____
a) Hygiene b) Physical hygiene c) Social hygiene d) Personal hygiene
- 46 Which one of the following is an unhealthy habit?
a) Sharing food b) Bathing twice a day
c) Drinking boiled water d) Eating without washing hands
- 47 Which of the following components are major nutrients in our food?
a) Carbohydrates b) Lipids and proteins
c) Vitamins and minerals d) All of these
- 48 Which of the following food components is required for the growth and maintenance of the human body?
a) Proteins b) Vitamins c) Minerals d) Both a and b
- 49 Which of the following food products are the best sources of animal proteins?
a) Milk b) Egg c) Cheese d) All of these
- 50 Egg is a rich source of _____
a) Proteins b) Minerals c) Vitamins d) All of these

* * * * *

USN

--	--	--	--	--	--	--	--	--	--

Question Paper Version : D

Second Semester B.Arch./B.Plan. Degree Examination, June/July 2025 Scientific Foundation of Health

Time: 1 hr.

Max. Marks: 50

INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.
2. Use only **Black ball point pen** for writing / darkening the circles.
3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**
4. Darkening two circles for the same question makes the answer invalid.
5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

- 1 SUD's means
 a) Substance Use Disorders b) Social Disorders
 c) Societal Used Disorders d) Substance Under Diseases
- 2 Addiction is a complex, but treatable disease that affects _____ function and behaviour
 a) Lungs b) Heart c) Kidney d) Brain
- 3 Anxiety, depression, schizophrenias, organic mental disorders due to substance abuse, cognitive dysfunction, personality disorder etc are the _____ health issues
 a) Physical b) Social c) Mental d) General
- 4 _____ are one celled organisms that can be seen only with a microscope
 a) Virus b) Bacteria c) Fungi d) All of these
- 5 _____ diseases are defined broadly as conditions that last for one year or more and require ongoing medical attention
 a) Acute b) Chronic c) Short term d) General
- 6 Physical functioning, psychological status, social functioning and disease or treatment are the components of _____
 a) Quality of life b) Quantity of life c) Chronic life d) Acute life
- 7 Health is a state of _____
 a) Well being b) Good for nothing c) Well for none d) disease
- 8 Alcohol and drugs reduce _____ and increase risky behaviours
 a) Self – control b) dependency c) disease d) failure
- 9 What measures the value of all the assets of worth owned by a person, community, company or country
 a) Health b) Wellness c) Wealth d) Fitness

- 10 Which diseases are called as inborn diseases?
a) Inherited b) Infected c) Contagious d) Congenital
- 11 Fill a quarter of your plate with _____ foods for good health
a) Junk b) Gobi-Manchuri c) Proteins d) Species
- 12 What helps to build and maintain bones, muscles and skin?
a) Food b) Water c) Air d) Proteins
- 13 Eating of at least _____ grams of fruits and vegetables per day reduces the risk of NCD's (Non Communicable Diseases) and helps to ensure an adequate daily intake of dietary fibre.
a) 200 b) 300 c) 400 d) 500
- 14 Salt intake to the recommended level of less than _____ grams per day
a) 5 b) 10 c) 15 d) 20
- 15 An apple a day _____
a) Keeps the doctor away
b) Keeps all your trouble away
c) Keeps your family away
d) Keeps you awake whole day
- 16 Which vitamin is good for eyes?
a) Vitamin D b) Vitamin K c) Vitamin A d) Vitamin B
- 17 The interpretation of the message is _____
a) Coding b) Decoding c) Recoding d) Encoding
- 18 Which Vitamin is good for bones?
a) Vitamin A b) Vitamin C c) Vitamin K d) Vitamin D
- 19 Wearing seat belts, banning of smoking, avoiding drugs, heroin, cocaine, alcohol are examples for
a) Social engineering b) Civil Engineering
c) Software Engineering d) Hardware Engineering
- 20 All addictions are part of _____ disorders
a) Physical b) Personal c) Mental d) General
- 21 Guava, Lemon, Orange and Tomato are rich in _____
a) Vitamin A b) Vitamin B c) Vitamin C d) Vitamin D
- 22 The most significant and essential mineral required for our body is _____
a) Iron b) Sodium c) Calcium d) All of these
- 23 Alcohol consumption has been linked to
a) Liver cirrhosis b) High blood pressure
c) Stroke d) All of these
- 24 Which of the following processes are important in explaining obesity?
a) Food Environment b) Physical activity
c) Individual psychology d) All of these

- 25 Communication is a part of _____ skills
a) Soft b) Hard c) Rough d) Technical
- 26 Having good mental health means that you
a) Can deal appropriately with sadness
b) Can deal and solve problems with little trouble
c) Show respect for other people always
d) Share your true feelings with your friends always
- 27 Mindfulness is the only technique that increases
a) Mental health b) Physical health c) Social health d) All of these
- 28 Health enables people to
a) Achieve physical fitness
b) Enjoy life and feel comfortable
c) Fight with diseases
d) All of these
- 29 Health plays an important role in feeling _____
a) Sad b) Happy c) Anger d) Ok
- 30 Mindfulness simply means playing attention to _____
a) Past b) Present c) Future d) all of these
- 31 Obesity is caused by an increase in _____
a) adiposity b) epidosity c) ediposity d) apidosity
- 32 Which of the following health compromising style makes use of the patient's knowledge and experience?
a) Doctor – centered communication
b) Patient centered communication
c) Practitioner – centered communication
d) None of these
- 33 Which year did the world health organization first expresses the right to health as a fundamental human right?
a) 1946 b) 1952 c) 1987 d) 2000
- 34 The world health day is celebrated on _____
a) 1st March b) 7th April c) 6th October d) 10th December
- 35 Cleanliness, physical exercise, rest and sleep are part of _____
a) Hygiene b) Physical hygiene
c) Social hygiene d) Personal hygiene
- 36 Which one of the following is an unhealthy habit?
a) Sharing food
b) Bathing twice a day
c) Drinking boiled water
d) Eating without washing hands
- 37 Which of the following components are major nutrients in our food?
a) Carbohydrates b) Lipids and proteins
c) Vitamins and minerals d) All of these

- 38 Which of the following food components is required for the growth and maintenance of the human body?
a) Proteins b) Vitamins c) Minerals d) Both a and b
- 39 Which of the following food products are the best sources of animal proteins?
a) Milk b) Egg c) Cheese d) All of these
- 40 Egg is a rich source of _____.
a) Proteins b) Minerals c) Vitamins d) All of these
- 41 The term _____ means keeping clean to prevent the spread of disease.
a) Social health b) Wellness c) Hygiene d) Refusal skills
- 42 To achieve good health and well being one should do
a) Regular exercises
b) Consume appropriate amount of water
c) Eat regularly health meals
d) All of these
- 43 BMI stand for _____.
a) Body Material Index b) Body Mass Index
c) Body Mass Indicator d) None of these
- 44 Eating disorders are _____.
a) Anorexia Nervoasa b) Bulimia Nerevoasa
c) Binge Eating Disorder d) All of these
- 45 Fruits are rich in
a) More sugar more fibre b) Less sugar less fibre
c) Less sugar more fibre d) More sugar less fibre
- 46 Advantages of using more water is _____.
a) Regulating body temperature
b) Maintaining electrolyte balance
c) Carrying nutrients and oxygen to your cells
d) All of these
- 47 Body mass index is calculated by taking
a) Height and Weight of the body b) Only weight of the body
c) Only height of the body d) None of these
- 48 Reasons for lung cancer is _____.
a) Drinking Alcohol b) Smoking c) Sleeping d) Exercise
- 49 Health is a goal and _____ is the active process of achieving it
a) Health b) Wellness c) Fitness d) Physical
- 50 "WHO" stands for _____.
a) World Hormany Organization
b) Wellness and Health Organization
c) Wellness and Health Office
d) World Health Organization

USN

--	--	--	--	--	--	--	--	--	--

REF ID: A105H

First Semester B.E./B.Tech. Degree Examination, June/July 2025
Introduction to Internet of Things (IoT)

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks, L: Bloom's level, C: Course outcomes.

Module – 1				M	L	C
Q.1	a.	With necessary sketches, explain the classification of computer networks with respect to the following parameters. i) Type of connections ii) Physical Topology	10	L2	CO1	
	b.	Illustrate networked communication between two hosts with a neat diagram. Also explain seven layers of OSI model.	10	L3	CO1	
OR						
Q.2	a.	Explain six broad categories of IOT networking components along with a neat diagram.	10	L2	CO1	
	b.	Differentiate between following: i) M2M versus IoT ii) IoT versus CPS iii) IoT versus WoT	10	L3	CO1	
Module – 2						
Q.3	a.	Explain the classification of sensor based on the following: i) Power requirements ii) Sensor output iii) Property to be measured	10	L2	CO2	
	b.	Describe the different sensing types divided in to four different categories.	10	L2	CO2	
OR						
Q.4	a.	Define Actuator and its mechanism. Explain different types of actuators.	10	L2	CO2	
	b.	Discuss the major factors that influence the choice of sensors in IOT based sensing solution.	10	L3	CO2	
Module – 3						
Q.5	a.	Explain the types of data involved in IoT systems based on the following parameters. i) Based on data Format ii) Based on processing urgency	10	L2	CO3	
	b.	In detail explain the two types processing topologies mentioned below: i) Onsite processing ii) Off site processing	10	L2	CO3	
OR						
Q.6	a.	With a typical outline diagram of an IoT deployment, briefly explain the classification of offload location types.	10	L2	CO3	
	b.	Explain the important factors considered for IOT device design and selection considerations.	10	L2	CO3	

Module – 4

Q.7	a.	Define virtualization. Discuss the advantages of virtualization from the perspective of end-user and CSP with suitable examples.	10	L3	CO4
	b.	Explain service model and deployment model with respect to cloud model.	10	L2	CO4

OR

Q.8	a.	What is service level agreement? Explain the importance of SLA with its different metrics.	10	L2	CO4
	b.	Write a short note on : i) Cloud Sim ii) Cloud Analyst	10	L2	CO4

Module – 5

Q.9	a.	Explain the architecture of vehicular IOT and its sublayers and components.	10	L2	CO5
	b.	Briefly explain the architectural layers and components of healthcare IoT.	10	L2	CO5

OR

Q.10	a.	Discuss the advantages and challenge of machine learning.	10	L2	CO5
	b.	With a neat sketch, explain the architecture of Ambusens system and its hardware.	10	L2	CO5

--	--	--	--	--	--	--	--	--	--

First Semester B.E./B.Tech. Degree Examination, June/July 2025
Introduction to Python Programming

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M : Marks, L: Bloom's level, C: Course outcomes.

Module – 1		M	L	C
Q.1	a. Explain the different data types supported in Python with syntax and examples.	6	L2	CO1
	b. Develop a program in Python to find the sum of n natural numbers. Read the number from user.	6	L3	CO1
	c. Define Exception and illustrate the concept of exception handling in Python using suitable example.	8	L2	CO1
OR				
Q.2	a. Define the rules to develop a user-defined function in Python and define a function called exchange() to swap two numbers, show the output.	6	L2	CO1
	b. Develop a program to find the largest among the three numbers.	6	L3	CO1
	c. Explain the syntax and example of the following statements i) for loop ii) While loop iii) if-elif-else.	8	L2	CO1
Module – 2				
Q.3	a. List out the augmented operators and give the examples to illustrate the same.	7	L1	CO2
	b. Write a program to show the traversing of key-value pairs in dictionaries.	7	L3	CO2
	c. Explain the random choice and random shuffle function with lists.	6	L2	CO2
OR				
Q.4	a. Describe Lists in Python and examples to create list, list concatenation and replication.	7	L1	CO2
	b. Write a function named displayInventory() that would take any possible "inventory" and display it like the following : Inventory : 12 arrow, 42 gold coin, 1 rope, 6 torch, 1 dagger, Total number of items : 62.	7	L3	CO2
	c. Explain with an example slicing, in and not in operator with strings.	6	L2	CO2
Module – 3				
Q.5	a. Write a program to accept string and display total number of alphabets.	8	L3	CO3

	b.	Discuss various methods available to remove the white spaces in a string with examples.	6	L2	CO3
	c.	Differentiate between absolute and relative paths in specifying file paths.	6	L2	CO3
OR					
Q.6	a.	Write a program in Python to perform reading and writing operations on files.	8	L3	CO3
	b.	List the string methods to analyze strings. Explain any four with syntax and examples.	6	L2	CO3
	c.	Explain how to save and retrieve variables with the Shelve module.	6	L2	CO3
Module – 4					
Q.7	a.	Discuss how shutil module helps to perform the operations such as copy, move, rename and delete files.	8	L2	CO3
	b.	What is logging? Explain the logging levels to categorize the log messages in Python.	6	L2	CO3
	c.	Write an algorithm for implementation of multi clipboard functionality.	6	L3	CO3
OR					
Q.8	a.	Explain the backing up a folder into a zip, with a program code.	8	L2	CO3
	b.	Describe how Raise exception is done using an example.	6	L2	CO3
	c.	Differentiate between Step over, Step In and Step Out buttons in the debugger.	6	L3	CO3
Module – 5					
Q.9	a.	Differentiate between the class method and instance method with suitable program examples.	8	L3	CO4
	b.	Define a function which takes TWO objects representing complex numbers and returns new complex number with a addition of two complex numbers. Define a suitable class 'Complex' to represent the complex number. Develop a program to read N ($N \geq 2$) complex numbers and to compute the addition of N complex numbers.	8	L3	CO4
	c.	Write a <code>_str_</code> method for the Point class. Create a Point object and print it.	4	L2	CO4
OR					
Q.10	a.	Write a class with following criteria Class name : Flower Objects : Lilly, Rose, Hibiscus Attributes : price, color, smell Methods : <code>get()</code> , <code>display()</code>	8	L3	CO4
	b.	Develop a program that uses class Student which prompts the user to enter marks in three subjects and calculates total marks, percentage and displays the score card details. [Hint : Use list to store the marks in three subjects and total marks. Use <code>_init_()</code> method to initialize name, USN and the list to store marks and total. Use <code>getMarks()</code> method to read marks into the list, and <code>display()</code> method to display the score card details.	8	L3	CO4
	c.	Describe poly morphism with example.	4	L2	CO4

USN

--	--	--	--	--	--	--	--	--	--

First Semester B.E/B.Tech. Degree Examination, June/July 2025

Introduction C Programming

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
 2. M : Marks , L: Bloom's level , C: Course outcomes.

Module – 1			M	L	C
1	a.	Discuss classification and application of computers.	6	L1	CO1
	b.	Explain structure of C program with example.	7	L2	CO2
	c.	Write a program to find the largest of three numbers.	7	L3	CO2
OR					
2	a.	Discuss the types of input and output devices used in computers.	6	L1	CO1
	b.	Explain printf() and scanf() functions of C with examples.	8	L2	CO2
	c.	Write a program to calculate the grade for students with your sample grades.	6	L3	CO2
Module – 2					
3	a.	Explain operator precedence and associativity with examples.	6	L2	CO2
	b.	Write a program to calculate average of given numbers using for loops.	6	L3	CO2
	c.	Explain looping statements in C language with syntax and example.	8	L2	CO2
OR					
4	a.	Discuss if and switch statement syntax in C language and give examples.	10	L2	CO2
	b.	Explain the usage of break, continue and go to statements in C language with examples.	10	L2	CO2
Module – 3					
5	a.	Explain function definition, function calls, function declaration. Give suitable examples.	6	L2	CO5
	b.	Explain implementation of recursive functions with complete C program.	6	L3	CO5
	c.	Discuss call by value and call by reference in parameter passing with suitable illustrations.	8	L2	CO5
OR					
6	a.	Explain declaration and initialization of one dimensional array with examples.	10	L3	CO5
	b.	Implement matrix multiplication and validate the rules of multiplication of matrix.	10	L2	CO3
Module – 4					
7	a.	Explain declaration and initialization of two dimensional array with example.	10	L2	CO3
	b.	Write a C program to sort the given N numbers using the bubble sort algorithm.	10	L3	CO3

OR			
8	a.	Explain the declaration, initialization of strings in C and arrays of strings with examples.	10 L2 C
	b.	Implement structure to read, write and compute average marks of the students scoring. Display students scoring above and below the average marks for a class of N students.	10 L4 C
Module – 5			
9	a.	Using suitable code, discuss the working of the following string functions : (i) Strcat() (ii) Strlen() (iii) Strcmp()	6 L2 C
	b.	Write a program to transpose the elements of a 3×3 matrix.	8 L3 C
	c.	Implement a structure of student with elements NAME, USN and GRADE. Write functions to read and display student structure.	6 L4 C
OR			
10	a.	Explain structures with syntax and example.	6 L2 C
	b.	Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of N real numbers.	7 L4 C
	c.	Explain the passing of pointer variables to a function with examples.	7 L2 C

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

BESCK104C

First Semester B.E./B.Tech. Degree Examination, June/July 2025 Introduction to Electronics and Communication

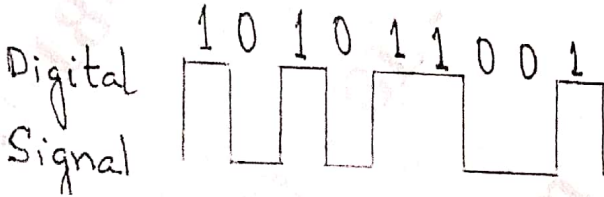
Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	Define the term rectifier. Explain the principle of working of full-wave bridge rectifier using a neat circuit diagram and waveforms.	7	L2	CO1
	b.	Discuss why negative feedback is used in amplifiers. Derive an expression for overall gain of an amplifier with negative feedback.	7	L2	CO1
	c.	A mains transformer having a turns ratio 44 : 1 is connected to a 220 V rms mains supply. If the secondary output is applied to a half wave rectifier, determine the peak voltage that will appear across a load.	6	L3	CO1
OR					
Q.2	a.	With a block diagram explain the working of a d.c. power supply. Also mention the major components used in each block.	7	L2	CO1
	b.	Explain with circuit diagram, the working of, (i) Voltage doubler (ii) Voltage tripler systems.	7	L2	CO1
	c.	An amplifier produces an output voltage of 2V for an input of 50 mV. If the input and output currents in this condition are, respectively, 4 mA and 200 mA, determine : (i) Voltage gain (ii) Current gain (iii) Power gain.	6	L3	CO1
Module – 2					
Q.3	a.	Draw the neat circuit diagram and accompanying waveforms of the following circuits using operational amplifier : (i) Voltage follower (ii) Differentiator (iii) Integrator	6	L1	CO2
	b.	Mention the conditions for sustained oscillations in an oscillator. Draw the circuit and provide the equations for output frequency of phase shift oscillator.	7	L2	CO2
	c.	With a neat circuit diagram and waveform, describe the operation of crystal controlled oscillator.	7	L2	CO2
OR					
Q.4	a.	What is an operational amplifier? Write a note on ideal characteristics of op-amp.	7	L2	CO2

	b.	Explain the operation of single stage astable oscillator with its circuit diagram.	7	L2	CO2
	c.	Determine the frequency of oscillations of a three stage ladder network in which $C = 10 \text{ nF}$ and $R = 10 \text{ K}\Omega$.	6	L3	CO2
Module – 3					
Q.5	a.	Mention different theorems and postulates of Boolean algebra and prove each of them with truth table.	7	L2	CO3
	b.	With the help of truth table, explain the operation of half adder with its circuit diagram and expressions for sum and carry.	5	L2	CO3
	c.	(i) Minimize the function : $F(x, y, z) = xy + x'z + yz$ (ii) Find the complement of : $F_1(x, y, z) = x'yz' + x'y'z$ $F_2(x, y, z) = x(y'z' + yz')$ (iii) Compute the 1's complement of : $11101.0110_{(2)}$	8	L3	CO3
OR					
Q.6	a.	With the help of truth table, explain the operation of full adder with its circuit diagram and expressions for sum and carry.	8	L2	CO3
	b.	State and prove De-Morgan's theorem with its truth table.	6	L2	CO3
	c.	Convert the following : (i) $(673.124)_{(8)} = (?)_{(16)}$ (ii) Subtract using (r-1)'s complement method : $72532_{(10)} - 3250_{(10)}$ (iii) Subtract using r's complement method : $1010100_{(2)} - 1000100_{(2)}$	6	L3	CO3
Module – 4					
Q.7	a.	What is an embedded system? Compare embedded systems and general purpose computing systems.	7	L2	CO4
	b.	Which component forms the core of an embedded system? Compare a microcontroller and a microprocessor used in an embedded system.	6	L2	CO4
	c.	Define the term transducer, with a representative diagram, explain the working of any one type of sensor and an actuator.	7	L2	CO4
OR					
Q.8	a.	Write a brief note on a semiconductor LED. With a neat diagram explain how a 7-segment LED can be used to display the data.	7	L2	CO4
	b.	Using different features, describe the classification of embedded systems.	7	L2	CO4
	c.	With a block diagram, explain briefly about the different elements of an embedded system.	6	L2	CO4

Module – 5					
Q.9	a.	What is meant by modulation in communication systems? Briefly describe each type of modulation.	8	L2	CO5
	b.	Brief about basic communication system with its block diagram.	7	L2	CO5
	c.	Compare analog communication with digital communication systems.	5	L2	CO5
OR					
Q.10	a.	Explain with a neat diagram, the concept of Radio Wave propagation and its different types.	7	L2	CO5
	b.	Describe about radio signal transmission and multiple access techniques.	7	L2	CO5
	c.	Consider the following binary data and sketch the ASK, FSK and PSK modulated waveforms.	6	L3	CO5
<p>Digital Signal</p>  <p>Fig. Q10 (c)</p>					

First Semester B.E./B.Tech. Degree Examination, June/July 2025 Introduction to Electrical Engineering

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. VTU Formula Hand Book is permitted.
3. M : Marks, L: Bloom's level, C: Course outcomes.*

Module - 1			M	L	C
Q.1	a.	List the differences between conventional and non-conventional energy sources.	04	L1	CO1
	b.	What is the purpose of single line diagrams? Explain a typical power system with the help of a labelled single line diagram.	10	L2	CO5
	c.	Two resistors are connected in parallel and a voltage of 200 V is applied to the terminals. The total current is 25 A and the power dissipated in one of the resistors is 1500 W. What is the resistance of each?	06	L3	CO2
OR					
Q.2	a.	State and explain Ohm's law. List the limitations of Ohm's law.	06	L3	CO2
	b.	With the help of a block diagram explain nuclear power generation.	06	L2	CO1
	c.	A circuit consists of two parallel resistors having resistances 20 Ω and 30 Ω , connected in series with 15 Ω . If the current through 15 Ω resistor is 3 A, find i) Current in 20 Ω and 30 Ω ii) Voltage across the whole circuit iii) Total power and power consumed in all resistances.	08	L3	CO2 6 10
Module - 2					
Q.3	a.	Define the following terms with reference to a sinusoidally a.c. quantity: i) RMS value ii) Average value iii) Form factor iv) Frequency v) Peak factor vi) Phase difference	06	L3	CO2
	b.	An alternating current varying sinusoidally with a frequency of 50 Hz has RMS value of 20 A. Write down the equation for the instantaneous value and find this value 0.0025 seconds after passing through a positive maximum value.	06	L2	CO2
	c.	Show that the current through a pure inductor lags the applied voltage by 90° and the average power consumed is zero. Draw the waveforms of voltage, current and power.	08	L3	CO2
OR					
Q.4	a.	Define the following terms with reference to a.c. quantity: i) Active power ii) Reactive power iii) Apparent power	06	L3	CO2
	b.	List the advantages of 3 phase system over single phase system.	05	L2	CO2
	c.	Three identical coils, each of resistance 20 Ω and inductance 0.5 H are connected in (i) Star (ii) Delta, to a 3 phase, 400 V, 50 Hz supply. Determine in each case (a) the line current (b) total power consumed.	09	L2	CO2

Module – 3

Q.5	a.	With a neat sketch, explain the principle and working of a DC motor.	08	L2	CO
	b.	Starting from basic principles, derive the EMF equation of a DC generator.	06	L3	CO
	c.	A 4-pole DC generator has 564 conductors on its armature and is driven at 800 rpm, the flux per pole is 20 mWb. The current in each conductor is 60 A. Calculate the total current emf and power generated in the armature is (i) wave-wound (ii) lap-wound.	06	L3	CO

OR

Q.6	a.	Define back-emf and explain its significance.	06	L2	CO
	b.	Starting from fundamentals, derive the torque equation of a DC motor.	08	L3	CO
	c.	A 4-pole, lap wound DC motor has 40 slots each having 20 conductors on its armature. It runs at 360 rpm and takes an armature current of 40 A, with a flux/pole of 45 mWb. Calculate the torque and mechanical power developed.	06	L3	CO

Module – 4

Q.7	a.	Starting from fundamentals, derive the emf equation of a transformer.	06	L3	CO
	b.	With a neat sketch, explain the squirrel cage and wound rotors of a 3 phase induction motor.	06	L2	CO
	c.	A 50 KVA transformer has an efficiency of 98% at full load, 0.8 p.f and has an efficiency of 96.9% at $\frac{1}{4}$ full load, 0.8 p.f. Determine the iron loss and full load copper loss.	08	L3	CO

OR

Q.8	a.	With the help of neat vector diagrams, explain the production of a rotating magnetic field in a 3 phase induction motor.	08	L2	CO
	b.	Derive the condition for maximum efficiency of a transformer.	06	L2	CO
	c.	An 8-pole alternator runs at 750 rpm and supplied power to a 6-pole induction motor which has a full load slip of 3%. Find the full load speed of the motor and the frequency of the rotor emf.	06	L3	CO

Module – 5

Q.9	a.	Explain two-way and three way control of lamps with the help of circuit diagram and switching table.	08	L2	CO
	b.	What is earthing? With the help of a neat diagram, explain pipe earthing.	06	L2	CO
	c.	Explain the working principle of fuse. List the requirements of a good fuse.	06	L2	CO

OR

Q.10	a.	What is electric shock? List the measures to be taken to prevent electric shock.	06	L2	CO
	b.	What is tariff? Explain 2 part tariff with its advantages and disadvantages.	08	L2	CO
	c.	Explain the different types of domestic wiring.	06	L2	CO

[illegible]

BETCK105I

Introduction to Cyber Security

Max. Marks: 100

2. **M** : Marks , **L**: Bloom's level , **C**: Course outcomes.

Module – 1			M	L	C
1	a.	Discuss the classification of cyber crime. Explain the different types of cyber crime towards an individual and property.	10	L2	CO1
	b.	Explain the Botnet Menace with diagram.	6	L2	CO2
	c.	Elaborate two types of Attacks in cyber security.	4	L2	CO1
OR					
2	a.	Discuss the purpose of hacking. Explain hacking with examples.	10	L2	CO2
	b.	Explain Spamming. Mention its types.	6	L2	CO2
	c.	Who are Cybercriminals? Explain its types.	4	L2	CO2
Module – 2					
3	a.	What is Cyber-stalking? Discuss how it is a crime under Indian IT Act.	8	L3	CO1
	b.	How cybercafés are creating paths for cybercrimes.	6	L4	CO2
	c.	Discuss the four different hat concept in cyber security.	6	L2	CO2
OR					
4	a.	What is social engineering? Explain with example. Also discuss dumpster diving and shoulder surfing concepts in social engineering.	10	L2	CO1
	b.	Explain how Botnets can be used as fuel to cyber crime. With neat diagram, discuss Botnet uses for gainful purpose.	6	L2	CO2
	c.	Explain the real-life incident of cyber stalking example.	4	L2	CO2
Module – 3					
5	a.	What are the different ways of password cracking methods?	10	L1	CO3
	b.	List and discuss the classification of DoS attack.	6	L1	CO3
	c.	Discuss the difference between Trojan Horses and Backdoors.	4	L2	CO3
OR					
6	a.	Explain the following : i) Software keyloggers ii) Hardware keylogger iii) Anti keylogger iv) Spywares.	10	L2	CO3
	b.	Discuss the proxy server and Anonymizers in the cyber security.	6	L2	CO3
	c.	Differentiate between virus and worm.	4	L3	CO3
Module – 4					
7	a.	Discuss the various types of phishing scams [Any five].	10	L2	CO4
	b.	Explain the different types of identity theft [any five].	10	L2	CO4

1 of 2

OR

8	a.	Discuss the various techniques used by phishers to launch phishing attacks.	10	L2	CC
	b.	What is spear phishing? Explain with example.	5	L1	CC
	c.	Explain how to prevent being a victim of identify theft in cyber security.	5	L4	CC

Module – 5

9	a.	Discuss the following phases of Forensics life cycles : i) Preparation and identification ii) Collection and recording.	10	L2	CC
	b.	Differentiate between Forensic policy and Security policy.	6	L2	CC
	c.	Briefly explain RFC2822.	4	L1	CC

OR

10	a.	Discuss the following phases of forensics life cycles: i) Storing and transporting ii) Examination / Investigation iii) Analysis, interpretation and attribution.	10	L2	CC
	b.	Discuss the need for concept of Computer Forensics.	6	L2	CC
	c.	Briefly explain wireless Forensics.	4	L1	CC

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

First Semester B.E./B.Tech. Degree Examination, June/July 2025
Renewable Energy Sources

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
 2. M : Marks, L: Bloom's level, C: Course outcomes.*

Module – 1			M	L	C
Q.1	a.	What are the principles of Renewable Energy? Explain the causes of Energy scarcity.	06	L2	CO1
	b.	Classify the Renewable Energy Sources. What are the factors affecting energy resource development.	08	L2	CO1
	c.	Discuss the Indian Energy availability.	06	L2	CO1
OR					
Q.2	a.	What are the advantages and limitations of Renewable Energy Sources?	06	L2	CO1
	b.	Explain briefly the energy sources based on : i) Wind energy ii) Tidal energy iii) Biomass energy iv) Ocean thermal energy.	10	L2	CO1
	c.	Write a note on Internet of Energy (IOE).	04	L2	CO1
Module – 2					
Q.3	a.	What are the devices used for the measurement of Solar Radiation? With a neat figure explain the working of Angstrom type Pyrheliometer.	06	L2	CO2
	b.	Explain the advantages of Solar Pond. Discuss the operation of solar pond electric power generation.	06	L2	CO2
	c.	Briefly explain any four solar thermal energy applications.	08	L2	CO2
OR					
Q.4	a.	With a neat sketch, discuss the operation of solar flat plate collector with main parts.	07	L2	CO2
	b.	Explain the principle of Solar photovoltaic power generation. What are the main components?	07	L2	CO2
	c.	What are the advantages and applications of Solar PV cells?	06	L2	CO2
Module – 3					
Q.5	a.	Explain the working principle of Wind Energy. What are the classifications of Wind Energy systems?	6	L2	CO3
	b.	Explain with structure of Wind Energy Conversion System (WECS) with functions of each part.	8	L2	CO3

	c.	Derive an expression for power available in the wind.	6	L3	CO
OR					
Q.6	a.	Classify the biomass conversion technologies. Explain clearly the factors affecting the biogas generation.	8	L2	CO3
	b.	Explain with block diagram of Urban Waste Recovery Management Scheme.	6	L2	CO3
	c.	What are the applications of Gassifiers? Explain with neat sketch, the working of downdraft Gassifiers.	6	L2	CO3
Module – 4					
Q.7	a.	What is the working principle of Tidal energy conversion? Explain the single basin type tidal power plant.	7	L2	CO4
	b.	What are the advantages and limitations of wave energy? Explain the various devices for harnessing wave energy.	8	L2	CO4
	c.	Write a note on the tidal power generation in India.	5	L2	CO4
OR					
Q.8	a.	What is the working principle of OTEC plants? Explain the OTEC system based on open cycle plant.	7	L2	CO4
	b.	State the merits and demerits of OTEC plants. Describe the closed cycle OTEC plants.	7	L2	CO4
	c.	State the types of Tidal energy schemes. Discuss the relative merits and demerits of Tidal power.	6	L2	CO4
Module – 5					
Q.9	a.	What is fuel cell? Explain the basic principle of fuel cell with reference to $H_2 - O_2$.	7	L2	CO5
	b.	What are classification of fuel cells? Explain the Hydrogen energy storage and applications.	8	L2	CO5
	c.	Write a note on Zero energy concepts.	5	L2	CO5
OR					
Q.10	a.	Explain the different hydrogen production technologies.	8	L2	CO5
	b.	Explain the advantages and disadvantages of fuel cells.	6	L2	CO5
	c.	Explain the problems associated with hydrogen energy.	6	L2	CO5

CBCS SCHEME

USN

--	--	--	--	--	--	--	--	--	--

BMATC101

First Semester B.E/B.Tech. Degree Examination, June/July 2025

Mathematics – I for Civil Engineering Stream

Time: 3 hrs.

Max. Marks:100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M : Marks , L: Bloom's level , C: Course outcomes.

3. VTU Formula Hand Book is permitted.

		Module – 1	M	L	C
1	a.	With usual notation, prove that $\tan \phi = \frac{r}{\left(\frac{d_r}{d_\theta}\right)}$.	7	L3	CO1
	b.	Find the pedal equation for the curve $r^m = a^m \sec m\theta$.	7	L1	CO1
	c.	Find the radius of curvature for the curve $y = 4 \sin x - \sin 2x$ at $x = \pi/2$.	6	L1	CO1
OR					
2	a.	Find the angle between the curves $r = a \log \theta$ and $r = \frac{a}{\log \theta}$.	7	L1	CO1
	b.	Derive an expression for radius of curvature for polar curve $r = f(\theta)$.	7	L1	CO1
	c.	Using modern mathematical tool, write a programme to plot the sine and cosine curves.	6	L3	CO5
Module – 2					
3	a.	Obtain the Maclaurin's series expansion of $y(x) = \sqrt{1 + \sin 2x}$.	7	L3	CO2
	b.	Find $\frac{df}{dt}$ by using partial differentiation, given that $f = x^3 + y^3 + z^3$, when $x = e^{-t}$, $y = e^{-t}$ and $z = e^{-t} \cos t$.	7	L2	CO2
	c.	If $u = x + 3y^2 - z^2$, $v = 4x^2yz$, $w = 2z^2 - xy$, find $\frac{\partial(u,v,w)}{\partial(x,y,z)}$ at $(1, -1, 0)$.	6	L2	CO2
OR					
4	a.	Evaluate : i) $\lim_{x \rightarrow 0} \left(\frac{a^x + b^x + c^x}{3} \right)^{1/x}$ ii) $\lim_{x \rightarrow \pi/4} (\tan x)^{\tan 2x}$.	7	L1	CO2
	b.	Find the extreme values of the function : $x^3 + y^3 - 3x - 12y + 20 = 0$.	7	L2	CO2
	c.	Use modern mathematical tool, write a programme to show that $u_{xx} + u_{yy} = 0$, given $u = e^x \{ x \cos y - y \sin y \}$	6	L3	CO5
Module – 3					
5	a.	Solve $x \frac{dy}{dx} + y = x^3 y^6$.	7	L3	CO3
	b.	Solve that the family of parabolas $y^2 = 4a(x + a)$ are self orthogonal.	7	L3	CO3
	c.	Solve $\frac{dy}{dx} - \frac{dx}{dy} = \frac{x}{y} - \frac{y}{x}$.	6	L2	CO3
OR					
6	a.	Solve $(y \log y) dx + (x - \log y) dy = 0$.	7	L3	CO3
	b.	A body originally at 80°C cools down to 60°C in 20 minutes in the surrounding temperature 40°C . Find the temperature of the body after 40 minutes.	7	L2	CO3
	c.	Find the general and singular solutions of $p = \log(px - y)$.	6	L2	CO3

Module – 4					BATCH		
7	a.	Solve $(D^3 - 7D^2 + 14D - 8)y = 0$.	7	L2	C		
	b.	Solve $(D^2 + 1)y = \operatorname{cosec} x \cdot \cot x$ by the method of variation of parameters.	7	L3	C		
	c.	Solve $x^3 y'' + 4xy' + 2y = x^2$.	6	L3	C		
OR							
8	a.	Solve $[(D^2 + 6D + 9)D^2]y = 0$.	7	L2	C		
	b.	Solve $(D^3 + 4D)y = \sin 2x$.	7	L3	C		
	c.	Solve $(1+x)^2 y'' + (1+x)y' + y = 2 \sin [\log (1+x)]$.	6	L3	C		
Module – 5							
9	a.	Find the rank of the matrix $\begin{bmatrix} 1 & 2 & 3 & 4 \\ -2 & -3 & 1 & 2 \\ -3 & -4 & 5 & 8 \\ 1 & 3 & 10 & 14 \end{bmatrix}$.	7	L1	C		
	b.	Solve the system of equations : $x + 0y + 2z = 2$ $0x + y + z = 3$ $2x + y + 0z = 1$ By Gauss elimination method.	7	L3	C		
	c.	Using Rayleigh's power method, find the largest eigen value and the corresponding eigen vector of the matrix $\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & 1 & 3 \end{bmatrix}$, taking $x^{(0)} = [1, 1, 1]^T$.	6	L3	C		
OR							
10	a.	Apply Gauss-Seidel method to solve the equations : $10x + 2y + z = 9$ $2x + 20y - 2z = -44$ $-2x + 3y + 10z = 22$.	7	L2	C		
	b.	Find for what values of α and β , so that the equations : $x + y + z = 6$ $x + 2y + 3z = 10$ $x + 2y + \alpha z = \beta$ have : i) no solution ii) many solutions iii) unique solution.	7	L2	C		
	c.	Using modern mathematical tools, write a programme to test consistency of the equations : $x + 2y - z = 1$ $2x + y + 4z = 2$ $3x + 3y + 4z = 1$.	6	L3	C		

--	--	--	--	--	--	--	--	--	--

First Semester B.E./B.Tech. Degree Examination, June/July 2025
Mathematics - I for ME Stream

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.*
2. M : Marks, L: Bloom's level, C: Course outcomes.
3. VTU Mathematics formula Handbook is permitted.

Module – 1				M	L	C
Q.1	a.	Derive an expression for Angle between radius vector and tangent.		6	L2	CO1
	b.	Find the pedal equation for the curve $r^2 = a^2 \sec 2\theta$.		7	L2	CO1
	c.	Find the radius of curvature of the curve $x^3 + y^3 = 2a^3$ at the point (a, a).		7	L3	CO1
OR						
Q.2	a.	With usual notation prove that $\rho = \frac{(1 + y_1^2)^{3/2}}{y_2}$		7	L2	CO1
	b.	Prove that the pair of polar curves intersect orthogonally $r^n = a^n \cos n\theta$, $r^n = b^n \sin n\theta$.		8	L2	CO1
	c.	Using modern mathematical tool, write a programme code to plot sine and cosine curves.		5	L3	CO5
Module – 2						
Q.3	a.	Expand $\cos x$ by Maclaurin's series upto the containing x^4 .		6	L2	CO2
	b.	If $u = \tan^{-1} \left(\frac{y}{x} \right)$ where $x = e^t - e^{-t}$ and $y = e^t + e^{-t}$, find $\left(\frac{du}{dt} \right)$.		7	L2	CO2
	c.	Show that $f(x, y) = x^3 + y^3 - 3xy + 1$ is minimum at the point (1, 1).		7	L3	CO2
OR						
Q.4	a.	Evaluate $\lim_{x \rightarrow 0} \left(\frac{\sin x}{x} \right)^{1/x^2}$.		8	L2	CO2
	b.	If $U = x + y + z$, $V = y - z$, $W = z$, find $\frac{\partial(u, v, w)}{\partial(x, y, z)}$.		7	L2	CO2
	c.	Using modern mathematical tool, write a program to prove $u_{xx} + u_{yy} = 0$. If $u = e^x [x \cos y - y \sin y]$.		5	L3	CO5

AMERICAN MATHEMATICAL SOCIETY
 1111 MARKET STREET, N.W.
 WASHINGTON, D.C. 20005
 (202) 338-6100

Module - 3

Q.5	a.	Solve : $\frac{dy}{dx} + \frac{y}{x} = y^2x$.	6	L2	CC
	b.	Solve $(5x^4 + 3x^2y^2 - 2xy^3) dx + (2x^3y - 3x^2y^2 - 5y^4)dy = 0$.	7	L2	CC
	c.	Solve $yp^2 + (x-y)p - x = 0$.	7	L2	CC

OR

Q.6	a.	Obtain the General and Singular solution of the equation $p = \log (px - y)$.	6	L2	CC
	b.	Define Newton's law of cooling. A body in air at 25°C cools from 100°C to 75 °C in 1 minute. Find the temperature of the body at the end of 3 minutes.	7	L3	CC
	c.	Solve the equation $(px - y) (py+x) = 2p$ by reducing into Clairaut's form taking the substitution $X = x^2$, $Y = y^2$.	7	L2	CC

Module - 4

Q.7	a.	Solve : $y''' + 6y'' + 11y' + 6y = 0$.	6	L2	CC
	b.	Solve : $y'' + 2y' + y = 2x + x^2$.	7	L2	CC
	c.	Solve : $y'' + 4y = 4 \sec^2 2x$ by the method of variation of parameter.	7	L2	CC

OR

Q.8	a.	Solve : $(6 D^2 + 17D + 12) y = e^{-x}$.	6	L2	CC
	b.	Solve : $x^2 y'' + xy' + 9y = \sin (3 \log x)$.	7	L2	CC
	c.	Solve : $(1 + x)^2 y'' + (1 + x) y' + y = 2 \cos[\log (1 + x)]$.	7	L2	CC

Module - 5

Q.9	a.	Find the rank of the matrix $\begin{bmatrix} 0 & 2 & 3 & 4 \\ 2 & 3 & 5 & 4 \\ 4 & 8 & 13 & 12 \end{bmatrix}$	6	L2	CC
	b.	Solve the system of equations $x + y + z = 9$; $x - 2y + 3z = 8$; $2x + y - z = 3$ by Gauss Elimination method.	7	L3	CC
	c.	Solve the following system of equations by Gauss - Seidal method : $10x + y + z = 12$; $x + 10y + z = 12$; $x + y + 10z = 12$ for 4 iterations.	7	L3	CC

OR

Q.10	a.	Test for consistency and solve : $x - 4y + 7z = 14$, $3x + 8y - 2z = 13$; $7x - 8y + 26z = 5$.	7	L2	CO4
	b.	Find the largest eigen value and corresponding eigen vector of matrix $\begin{pmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{pmatrix}$ by power method, by taking initial eigen vector $(1, 1, 1)^T$ carryout upto 5 Iteration.	8	L3	CO4
	c.	Using modern mathematical tool write a programme to solve the system of equations $5x - y - z = -3$; $x - 5y + z = -9$; $2x + y - 4z = 15$ by Gauss Siedal method.	5	L3	CO5

--	--	--	--	--	--	--	--	--	--

First Semester B.E./B.Tech. Degree Examination, June/July 2025

Mathematics-I for EEE Stream

Time: 3 hrs.

Max. Marks: 100

- Note:** 1. Answer any FIVE full questions, choosing ONE full question from each module.
 2. M : Marks, L: Bloom's level, C: Course outcomes.
 3. VTU Formula Hand Book is permitted

Module - 1				M	L	C
Q.1	a.	With usual notation prove that $\frac{1}{p^2} = \frac{1}{r^2} + \frac{1}{r^4} \left(\frac{dr}{d\theta} \right)^2$		6	L2	CO1
	b.	Find the angle between the curves $r = a(1 - \cos\theta)$ and $r = 2a \cos\theta$.		7	L2	CO1
	c.	Find the radius of curvature of the curve $\sqrt{x} + \sqrt{y} = \sqrt{a}$ at the point where it cuts the line $y = x$.		7	L2	CO1
OR						
Q.2	a.	Derive an expression for the radius of curvature for a Cartesian curve.		8	L2	CO1
	b.	Find the pedal equation of the curve $r^n = a^n \cdot \sec\theta$.		7	L2	CO1
	c.	Using modern mathematical tool write a programme code to plot sine and cosine curve.		5	L3	CO5
Module - 2						
Q.3	a.	Expand $\sqrt{1+\sin 2x}$ by Maclaurin's series upto the term containing x^4 .		6	L2	CO1
	b.	If $u = f\left(\frac{y-x}{xy}, \frac{z-x}{zx}\right)$ then find the value of $x^2 \frac{\partial u}{\partial x} + y^2 \frac{\partial u}{\partial y} + z^2 \frac{\partial u}{\partial z}$.		7	L2	CO1
	c.	Find the maximum and minimum value of the function $x^3 + 3xy^2 - 15x^2 - 15y^2 + 72x$.		7	L3	CO2
OR						
Q.4	a.	If $u = x + 3y^2 - z^3$, $v = 4x^2yz$, $w = 2z^2 - xy$ then find $J = \frac{\partial(u,v,w)}{\partial(x,y,z)}$ at $(1, -1, 0)$		8	L3	CO2
	b.	Evaluate $\lim_{x \rightarrow 0} \left(\frac{a^x + b^x + c^x}{3} \right)^{1/x}$.		7	L2	CO2
	c.	Using modern mathematical tool, write a programs/code. Show that $u_{xx} + u_{yy} = 0$, given $u = e^x [x \cos y - y \sin y]$		5	L3	CO5

Module - 3				
Q.5	a.	Solve $\frac{dy}{dx} + y \cdot \tan x = y^3 \sec x$.	6	L2
	b.	Find the orthogonal trajectories of the family of curves $\frac{x^2}{a^2} + \frac{y^2}{b^2 + \lambda} = 1$ Where λ is the parameter?	7	L3
	c.	Solve $\frac{dy}{dx} - \frac{dx}{dy} = \frac{x}{y} - \frac{y}{x}$.	7	L2
OR				
Q.6	a.	Solve $(xy + y^2 + y)dx + (x^2 + 3xy + 2x)dy = 0$.	6	L2
	b.	An inductance of 2 henries and resistance of 20 ohms are connected in series with an emf E Volts. If the current is zero when $t = 0$, find the current at the end of 0.01 secs if $E = 100$ volts.	7	L3
	c.	Find the general and singular solution of the Clairaut's equation. $(y - px)(p - 1) = p$.	7	L2
Module - 4				
Q.7	a.	Evaluate $\int_{-1}^{+1} \int_0^z \int_{x-z}^{x+z} (x + y + z) dy dx dz$.	6	L2
	b.	Prove that $\beta(m, n) = \frac{\sqrt{m} \cdot \sqrt{n}}{\sqrt{m+n}}$.	7	L2
	c.	Change the order of integration and evaluate $\int_0^a \int_y^a \frac{x}{x^2 + y^2} dx dy$.	7	L2
OR				
Q.8	a.	Evaluate $\int_0^\infty \int_0^\infty e^{-(x^2+y^2)} dx dy$ by changing into polar coordinates.	6	L2
	b.	Using double integration find the area bounded between the circle $x^2 + y^2 = a^2$ and the line $x + y = a$.	7	L2
	c.	Prove that $\int_0^{\frac{\pi}{2}} \sqrt{\sin \theta} d\theta \times \int_0^{\frac{\pi}{2}} \frac{d\theta}{\sqrt{\sin \theta}} = \pi$.	7	L2
Module - 5				
Q.9	a.	Find the Rank of the matrix $A = \begin{pmatrix} 4 & 0 & 2 & 1 \\ 2 & 1 & 3 & 4 \\ 2 & 3 & 4 & 7 \\ 2 & 3 & 1 & 4 \end{pmatrix}$.	6	L2
	b.	Solve by Gauss - Jordan method $2x + y + 4z = 12, 8x - 3y + 2z = 20, 4x + 11y - z = 33$.	7	L3

	c.	Using Rayleigh's power method find the dominant eigen value and the corresponding eigen vector of $A = \begin{pmatrix} 4 & 1 & -1 \\ 2 & 3 & -1 \\ -2 & 1 & 5 \end{pmatrix}$ by taking $(1, 0, 0)^T$ as the initial eigen vector. Carry out 5 iterations.	7	L3	CO4
OR					
Q.10	a.	Solve the following system of equations by Gauss – Seidal method $5x + 2y + z = 12$ $x + 4y + 2z = 15$ $x + 2y + 5z = 20$. Carry out 3 iterations with $(1, 0, 3)$ as initial approximation.	8	L3	CO4
	b.	Solve the following system of equations by Gauss – elimination method. $x + y + z = 9$ $2x + y - z = 0$ $2x + 5y + 7z = 52$	7	L3	CO4
	c.	Using modern mathematical tool, write programme to test the consistency of the equation $x + 2y - z = 1$ $2x + y + 4z = 2$ $3x + 3y + 4z = 1$.	5	L3	CO5

B.L.D.E. ASSOCIATION'S
VACHANA PITAMAH
DR. P.G. HALAKATTI
COLLEGE OF ENGINEERING
LIBRARY, BIJAPUR.

USN

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

BESCK104D

First Semester B.E./B.Tech. Degree Examination, June/July 2025

Introduction to Mechanical Engineering

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M : Marks , L: Bloom's level , C: Course outcomes.

Module – 1				M	L	C
Q.1	a.	Explain briefly the emerging trends of mechanical engineering in Automobile and Energy Sectors.	10	L2	CO1	
	b.	Discuss on the roles of mechanical engineers in different sectors.	10	L2	CO1	
OR						
Q.2	a.	Describe the construction and working of hydel power plant with a schematic diagram.	10	L2	CO1	
	b.	Brief on the following environmental issues (causes and remedies) i) Global warming ii) Ozone layer depletion.	10	L2	CO1	
Module – 2						
Q.3	a.	Explain the working principal of drilling with schematic diagram.	8	L2	CO2	
	b.	Illustrate the following operations of Milling with sketches. i) Plane milling ii) Slot milling.	6	L3	CO2	
	c.	Explain the following operations of lathe i) Turning ii) Knurling.	6	L2	CO2	
OR						
Q.4	a.	Explain the different methods of manufacturing.	4	L2	CO2	
	b.	Define Additive Manufacturing. Brief on steps involved in 3D printing with a block diagram.	10	L2	CO2	
	c.	Describe the various components of CNC with schematic diagram.	6	L2	CO2	
Module – 3						
Q.5	a.	List the difference between Otto cycle and diesel cycle.	4	L1	CO3	
	b.	Analyze the working of the 4 stroke diesel engine with sketch.	10	L4	CO3	
	c.	Outline the classification of IC Engines.	6	L1	CO3	
OR						
Q.6	a.	Describe Electric Vehicles. Explain the components and working of Electric Vehicles.	10	L2	CO3	
	b.	Describe Hybrid Vehicles. Explain the components and working of Hybrid Vehicles.	10	L2	CO3	

Module – 4

Q.7	a.	Recite the classification of metals.	5	L1	CO4
	b.	Describe the three types of carbon steels with applications.	9	L2	CO4
	c.	Describe the following materials i) Graphite ii) Aluminum Alloy.	6	L2	CO4

OR

Q.8	a.	Describe the construction and writing of gas welding process with neat sketch.	10	L2	CO4
	b.	List the differences between soldering brazing and welding.	10	L1	CO4

Module – 5

Q.9	a.	Based on the configuration, explain the four types of robots with sketch.	10	L3	CO5
	b.	Define Mechatronics. List the difference between open loop and closed loop systems.	10	L1	CO5

OR

Q.10	a.	Describe the communication models with respect to IoT.	5	L1	CO5
	b.	Define IoT. List the characteristics of IoT.	5	L1	CO5
	c.	Describe the basic elements of automation system with a block diagram.	10	L2	CO5

