

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

First Semester B.Tech Degree (S, FE) Examination June 2024 (2019 Scheme)

Course Code: EST 120**Course Name: BASICS OF CIVIL AND MECHANICAL ENGINEERING
(2019 -Scheme)****PART 1 : BASIC CIVIL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all questions, each carries 4 marks*

Marks

- | | | |
|---|--|-----|
| 1 | What are the factors to be considered in the selection of site for a residential building? | (4) |
| 2 | Explain the advantages and disadvantages of timber as a construction material. | (4) |
| 3 | A batch of brick has arrived at your house construction site. Discuss on the quality checks to be performed to ensure its suitability. | (4) |
| 4 | Discuss any four modern construction materials commonly used in the construction industry today | (4) |
| 5 | What do you understand by bearing capacity? How it is important in building construction? | (4) |

PART B*Answer one full question from each module, each question carries 10 marks.***MODULE 1**

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| 6 | a | Explain the classification of buildings based on occupancy as per NBC. | (10) |
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OR

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| 7 | a | List various disciplines of Civil Engineering and explain its contribution to infrastructural development of our country. | (10) |
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MODULE 2

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| 8 | a | Discuss the objectives and principles of surveying. | (10) |
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OR

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| 9 | a | What do you understand by Prefabricated building components? List the advantages and disadvantages of prefabricated construction over traditional construction | (4) |
| | b | Explain any 4 market forms of steel sections with neat sketches. | (6) |

MODULE 3

- 10 a How water can be effectively managed in a green building? (4)
b Enumerate any four types of shallow foundation with the aid of neat sketches. (6)

OR

- 11 a Discuss the key elements of MEP systems in the construction of commercial buildings. (4)
b Explain, with neat dimensioned sketches, the difference between English bond and Flemish bond. (6)

PART 2 : BASIC MECHANICAL ENGINEERING

Max. Marks: 50

Duration: 90 min

PART A

Answer all questions, each carries 4 marks

Marks

- 12 Explain the Concept of hybrid engines (4)
13 Write notes on Lubrication system of IC engine (4)
14 Differentiate between impulse turbine and reaction turbine (4)
15 What are the advantages of V belt over Flat belt? (4)
16 Describe brazing operation (4)

PART B

Answer one full question from each module, each question carries 10 marks.

MODULE 4

- 17 Derive equation for efficiency of Diesel Cycle (10)

OR

- 18 With the help of neat sketch explain working of ignition system of SI engine (10)

MODULE 5

- 19 With neat sketch explain summer air conditioning system. (10)

OR

- 20 Describe working of single acting Reciprocating pump. What is the use of an Air vessel in this system? (10)

MODULE 6

- 21 a. What is the different allowance provided on a pattern? (10)
b. What are the machining operations performed on a Lathe?

OR

- 22 a. What is a CNC machine? How it is working? (10)
b. what are the common defects in Rolling operation?
