

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

- | | | |
|---|---|------|
| 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?
