

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Second Semester B.Tech Degree Examination June 2022 (2019 scheme)

Course Code: EST120

Course Name: BASICS OF CIVIL AND MECHANICAL ENGINEERING
(2019 -Scheme)

PART 1: BASIC CIVIL ENGINEERING

Max. Marks: 50

Duration: 90 min

PART A

Answer all questions, each carries 4 marks

Marks

- | | | |
|---|--|-----|
| 1 | Explain relevance of civil engineering in the infrastructure development of a country. | (4) |
| 2 | Discuss the primary objectives of surveying. | (4) |
| 3 | Distinguish between PCC and RCC. | (4) |
| 4 | Explain the classification of pile based on load transfer. | (4) |
| 5 | Discuss any four factors considered for selection of flooring. | (4) |

PART B

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

MODULE 1

- | | | |
|---|--|------|
| 6 | Explain basic elements of a residential building and its functions with the help of a neat sketch. | (10) |
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OR

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|---|--|------|
| 7 | Explain the primary classification of CRZ. | (10) |
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MODULE 2

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|---|--|------|
| 8 | Explain any 5 types of cement with its composition and uses. | (10) |
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OR

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| 9 | Discuss any 5 rolled steel sections commonly available in market with its uses. Draw neat sketches of each. | (10) |
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MODULE 3

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|----|--|-----|
| 10 | a Draw the elevation and plan of one brick thick wall with Flemish bond. | (5) |
| | b Discuss any five types of roofing materials. | (5) |

OR

- | | | |
|----|--|-----|
| 11 | a Explain the role of MEP and HVAC in a commercial building. | (5) |
| | b Discuss the importance of green buildings. | (5) |

PART 2: BASIC MECHANICAL ENGINEERING

Max. Marks: 50

Duration: 90 min

PART A

Answer all questions, each carries 4 marks

Marks

- 12 Why 2 stroke engines are not widely used in commercial vehicles nowadays? (4)
- 13 List any two merits and demerits of water cooling system over air cooling system. (4)
- 14 What is the unit used for specifying capacity of refrigeration? Define the unit (4)
- 15 List any two advantages and two disadvantages of belt drives (4)
- 16 List two products manufactured by casting and forging. (4)

PART B

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

MODULE 4

- 17 With the help of a p-V and T-S diagram derive the air standard efficiency of a Diesel cycle (10)

OR

- 18 a With the help of a figure explain the working of a 4 stroke petrol engine. (6)
- b Explain any four merits and demerits of Petrol engine over Diesel engine. (4)

MODULE 5

- 19 Explain the basic components of Vapour compression refrigeration system with the help of neat sketch. Draw Pressure- Enthalpy and Temperature-Entropy diagrams of the same. (10)

OR

- 20 With neat sketch explain the working of Francis turbine (10)

MODULE 6

- 21 (a) Explain the arc welding process with a neat sketch (6)
- (b) Differentiate between soldering and brazing (4)

OR

- 22 (a) Define machining process. (2)
- (b) Explain the following machining operations (8)
- (i) Turning
 - (ii) Drilling
 - (iii) Milling and
 - (iv) Grinding
