

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Bachelor of Technology (Computer Engineering) SEMESTER - 1 Summer 2026 (Supply.)

Course :Bachelor of Technology (Computer Engineering) Branch : Engineering and Technology

Semester : SEMESTER - 1

Subject Code & Name: 24AF1000ES108 - BASIC CIVIL AND MECHANICAL ENGINEERING

Time : 3 Hours]

[Total Marks : 60

Instructions to the Students:

1. Each question carries 12 marks.
 2. Question No. 1 will be compulsory and include objective-type questions.
 3. Candidates are required to attempt any four questions from Question No. 2 to Question No.6
 4. Use of non-programmable scientific calculators is allowed.
 5. Assume suitable data wherever necessary and mention it clearly.
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Q1. Objective type questions. (Compulsory Question)

12

- 1 What is primary function of shallow foundation ?
 - a) To transfer loads to a deeper
 - b) To distribute the loads over a larger area to reduce soil pressure
 - c) To provide lateral supports to the superstructure
 - d) To resist uplift forces
- 2 What is primary function of steel reinforcement in concrete ?
 - a) To provide tensile strength
 - b) To improve compressive strength
 - c) To reduce shrinkage
 - d) To increase durability
- 3 is the middle horizontal member of the shutter where the locking arrangement is provided.
 - a) Cross rail
 - b) Top rail
 - c) Bottom rail
 - d) Lock rail
- 4 A is a horizontal member which is placed across a opening to support the position of the structure above it.
 - a) Doors
 - b) Window
 - c) Sill
 - d) Lintel
- 5 An offset is a distance of an object measured from the survey line.
 - a) Lateral
 - b) Horizontal
 - c) Normal
 - d) Incline

- 6 instrument is used to sight to an object
- Compass
 - U-frame
 - Plumbing fork
 - Alidade
- 7 The vertical distance between any two consecutive contour is called as
- Contour interval
 - Vertical equivalent
 - Equivalent
 - All
- 8 Heat does not spontaneously flow from a colder body to a hotter one. Which of the following thermodynamics law states this?
- Zeroth law of thermodynamics
 - First law of thermodynamics
 - Second law of thermodynamics
 - None of the above
- 9 The working cycle in case of four stroke is completed in following number of revolutions of crank shaft.
- One
 - Two
 - four
 - None of the given
- 10 Which cycle serves as the theoretical basis for a steam power plant?
- Brayton cycle
 - Carnot cycle
 - Rankine cycle
 - Otto cycle
- 11 Which part of the milling machine provides support and allows vertical adjustment of the work table?
- Arbor
 - Overarm
 - Column
 - Knee
- 12 What is the primary purpose of the Factor of Safety (FoS) in mechanical design?
- To increase the overall cost and weight of the machine
 - To compensate for unknown variables, material defects, and loading uncertainties
 - To make the machine element highly stiff
 - To strictly limit the machine's operational speed
- Q2. Solve the following.
- Describe in detail concrete along with its types & properties. 6
 - Explain the role of civil engineer in the field of construction engineering. 6
- Q3. Solve the following.
- Explain the foundation with its types & their function . 6
 - Describe in detail fully panelled door along with sketch 6
- Q4. Solve Any Two of the following.

- A) Describe in details ' Metric Chain ' with sketch. 6
- B) Define contouring along with their purpose of contouring . 6
- C) Define the terms, 6
 - i. Whole circle bearing
 - ii. Reduced bearings
 - iii. Reduced levels
 - iv. Bench mark
 - v. Change point
 - vi. Contour interval

Q5. Solve Any Two of the following.

- A) Describe in brief first law of Thermodynamics. How it can be explained with Joule's Experiment. 6
- B) Explain the working of two stroke petrol engine with suitable diagram. 6
- C) With suitable diagram, describe the major components of an Automobile. 6

Q6. Solve Any Two of the following.

- A) Define Mechanism. How it is different than a Machine. Describe any two inversions of Four bar Kinematic chain. 6
- B) Classify commonly used engineering materials. Describe any two nonferrous metals along with the applications. 6
- C) Describe in brief Sand casting Process. 6

*** End ***