

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Bachelor of Technology (Civil Engineering) SEMESTER - 2 Summer 2026 (Regular)

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

Semester : SEMESTER - 2

Subject Code & Name: 24AF1000ES208 - 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 Which material is mainly used as fine aggregate in concrete?
a) Gravel b) Sand c) Brick bats d) Steel
- 2 The standard size of a modular brick is:
a) $190 \times 90 \times 90$ mm b) $230 \times 115 \times 75$ mm c) $200 \times 100 \times 100$ mm
d) $250 \times 125 \times 75$ mm
- 3 Which of the following is a deep foundation?
a) Strip footing b) Combined footing c) Raft foundation d) Pile foundation
- 4 The lintel is provided:
a) Below foundation b) Above door and window openings c) At plinth level
d) On roof slab
- 5 Contours are lines joining points of:
a) Equal distance b) Equal slope c) Equal elevation d) Equal bearing
- 6 Which instrument is mainly used for levelling?
a) Prismatic Compass b) Dumpy Level c) Plane Table d) Theodolite
- 7 The SI unit of heat is:
a) Joule b) Pascal c) Watt d) Newton
- 8 Which power plant does not require a boiler?
a) Steam power plant b) Nuclear power plant c) Gas turbine power plant
d) Thermal power plant
- 9 The exhaust of a closed cycle gas turbine is:
a) Reused insystem b) Released to atmosphere c) Condensed d) Lost
- 10 Turning operation is performed on:
a) Milling machine b) Drilling machine c) Lathe machine d) Shaper
- 11 In an I.C. engine, spark plug is used in:
a) Diesel engine b) Steam engine c) Petrol engine d) Gas turbine
- 12 Which manufacturing process is used for producing complex-shaped components?
a) Turning b) Drilling c) Casting d) Milling

- Q2. Solve the following.
- A) Discuss the functions and characteristics of good quality stones used in construction. 6
 - B) What are the physical and mechanical properties of building materials? 6
- Q3. Solve the following.
- A) Explain the functions of the following building components: Foundation, Plinth, Wall, Lintel, Roof and Staircase. 6
 - B) Classify foundations into shallow and deep foundations with suitable sketches and applications 6
- Q4. Solve Any Two of the following.
- A) State and explain the fundamental principles of surveying. 6
 - B) Differentiate between Whole Circle Bearing (WCB) and Quadrantal Bearing (QB). 6
 - C) Explain the concept of Bench Mark and Reduced Level used in levelling. 6
- Q5. Solve Any Two of the following.
- A) Explain the working of a two-stroke petrol engine with a neat labelled sketch and mention its applications. 6
 - B) Describe the layout and working of a gas turbine power plant with neat sketch. State its advantages and disadvantages. 6
 - C) State and explain the First Law of Thermodynamics with one engineering example. 6
- Q6. Solve Any Two of the following.
- A) Explain different types of engineering materials used in manufacturing with suitable applications. 6
 - B) Explain the construction and working principle of a drilling machine with neat sketch. 6
 - C) Explain the concepts of machine and mechanism with suitable examples. Differentiate between them 6

*** End ***