

Code No: **R231207**

**R23**

**SET - 1**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY GURAJADA VIZIANAGARAM**  
**I B. Tech II Semester Supplementary Examinations January-2025**  
**BASIC CIVIL AND MECHANICAL ENGINEERING**

(Common to CE, EEE, AME, MECH & ECE)

Time: 3 hours

Max. Marks: 70

. Question paper consists of Part A & Part B

All the questions in Part-A is Compulsory

Answer ONE Question from Each Unit in Part-B

*In Part A – Q.No. 1.a) to e) and in Part B Q.No. 2 to 7 should be answered at one place (may be upto page no. 17).*

*In Part A – Q.No. 1.f) to j) and in Part B Q.No. 8 to 13 should be answered at one place (may be from page no.18 to 32) in answer script.*

\*\*\*\*\*

**PART –A**

**(10 Marks)**

- 1 a) What is the role of cement in Concrete? [1]
- b) Explain the scope of Structural engineer. [1]
- c) Convert  $N30^0W$  to Prismatic Bearing. [1]
- d) List any two components of Permanent way. [1]
- e) What is the difference between a Dam and a reservoir? [1]
- f) List any two technologies used in manufacturing? [1]
- g) What is a Composite material? [1]
- h) What is Smart manufacturing? [1]
- i) What are the types of gear drives? [1]
- j) Write the applications of robotics. [1]

**PART – B**

**(60 Marks)**

**Basic Civil Engineering**

**Unit-I**

- 2 Explain the role of Civil Engineers in Society. [10]

**(OR)**

- 3 Write a brief note on Prefabricated Construction Techniques. [10]

**Unit-II**

- 4 Explain how the horizontal measurements are done at site? [10]

**(OR)**

- 5 The following readings were observed on a leveling staff with an Auto-level 1.11, 2.22, 3.33, 4.44, 5.55, 6.66, 7.77, 8.88, 9.99, 10.10, 11.11, 12.12m. The instrument was shifted after every third reading. It was found that the RL of first point was 123.45m. Find the RLs of remaining points. [10]

**Unit-III**

- 6 Explain the Components of Harbour with a neat sketch [10]

**(OR)**

- 7 Describe the concept of Rain Water Harvesting with a neat sketch? [10]

## **Basic Mechanical Engineering**

### **Unit-I**

8 Illustrate the role of Mechanical Engineering in Industries and Society? [10]

**(OR)**

9 Write the classification of ceramics and composites? Explain with examples. [10]

### **Unit-II**

10 Discuss the concept of 3D printing and Smart manufacturing and list the applications. [10]

**(OR)**

11 Explain in detail on the key components of Electric and Hybrid Vehicles. [10]

### **Unit-III**

12 Discuss the principle and main features of different types of power plants. [10]

**(OR)**

13 Define robotics? Explain in detail on various configurations of robotic systems. [10]

\*\*\*\*\*