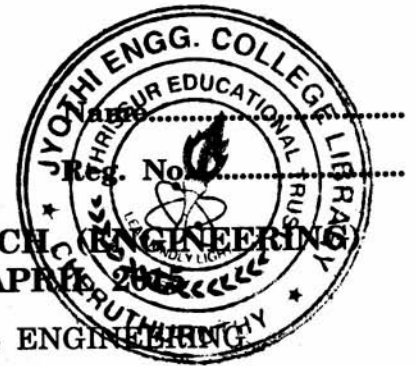


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**COMBINED FIRST AND SECOND SEMESTER B.TECH (14 SCHEME) DEGREE EXAMINATION, APRIL 2002**

EN 14 106—BASICS OF CIVIL AND MECHANICAL ENGINEERING

Time : Three Hours

Maximum : 100 Marks

*Answer Section I and Section II are to be answered in separate answer-books.*

*Assume suitable data wherever necessary.*

**Section I (Basics of Civil Engineering)**

**Part A**

*Answer any four questions.*

1. Give a list of type of bonds in brickwork.
2. What are the two types of stone masonry ?
3. List the different types of foundation used for building.
4. List the instruments used for chain surveying.
5. What is the theodolite ? Name the types.

(4 × 5 = 20 marks)

**Part B**

6. (a) Distinguish between :

- (i) English bond and Flemish bond.
- (ii) Brick masonry and Stone masonry.

(15 marks)

*Or*

- (b) Define cement concrete and mention its properties.

(15 marks)

7. (a) The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eighth readings :

2.228, 1.606, 0.988, 2.090, 2.864, 1.262, 0.602, 1.982, 1.044, 2.684 metres. Enter the above readings in a page of a level book and calculate the R.L. of points if the first reading was taken with a staff held on a Benchmark of 432.884 m. Apply the usual checks.

*Or*

- (b) What are the types of foundations ? Describe the various requirements of good foundations.

(15 marks)

[2 × 15 = 30 marks]

**Turn over**

**Section II (Basics of Mechanical Engineering)****Part A**

*Answer any four questions.*

1. Differentiate between Impulse and Reaction steam turbines.
2. Explain the terms slip and velocity ratio with respect to belt drive.
3. Explain rolling and extrusion process.
4. State the two classical statements of second law of thermodynamics.
5. Explain isothermal and adiabatic process.

(4 × 5 = 20 marks)

**Part B**

6. (a) Explain the following machining process :—

- |                |                |
|----------------|----------------|
| (i) Turning.   | (ii) Shaping.  |
| (iii) Milling. | (iv) Drilling. |

(15 marks)

*Or*

- (b) What do you mean by mechanical power transmission ? Explain basic power transmission system with the help of neat sketches.

(15 marks)

7. (a) Differentiate between SI and CI engines.

*Or*

- (b) With the help of flow and p-h diagram, explain the working of a vapour compression refrigeration system.

(15 marks)

[2 × 15 = 30 marks]