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Question Paper Code: 21006

B.E. / B.Tech. DEGREE EXAMINATION, OCTOBER 2014.

Second Semester

Civil Engineering

01UME205 - BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to all branches)

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. List out the two principles of surveying.
2. What are the constituents of cement?
3. Define bench mark in levelling.
4. What is meant by landscaping?
5. What is nuclear fission?
6. What is the use of surge tank in hydroelectric power plant?
7. Mention the functions of flywheel in engines.
8. What is a carburetor?
9. How are refrigeration systems classified?
10. What is defrosting?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain briefly about the classification of surveying. (4)

(ii) The following perpendicular offsets were taken at 10m intervals from a baseline to an irregular boundary line.

5.9m, 12.4m, 16.5m, 15.3m, 18.4m, 20.9m, 24.2m, 21.8m and 19.2m

Calculate the area enclosed between baseline and irregular boundary line by

(i) Trapezoidal rule and

(ii) Simpson's rule. (12)

Or

(b) Mentions the properties and uses of the following materials:

(i) Bricks and

(ii) Concrete. (16)

12. (a) Discuss the various types of foundations. (16)

Or

(b) A bar of 30mm diameter is subjected to a pull of 60 KN. The measured extension on a gauge length of 200mm is 0.09mm and change in diameter is 0.0039mm. Calculate Poisson's ratio and values of the three moduli. (16)

13. (a) Explain the working principle of diesel power plant with the help of a schematic diagram. (16)

Or

(b) Explain the working principle of nuclear power plant with sketches. (16)

14. (a) Explain the working principle of four stroke cycle petrol engine with sketches. (16)

Or

(b) Explain any one water cooling system in detail. (16)

15. (a) Draw the sketch of vapour absorption refrigeration system. List out the components and their functions. (16)

Or

(b) With a neat sketch, explain in detail the window type room air conditioner. (16)