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Question Paper Code: **22119**

**B.E./B.Tech.Degree Examinations, April/May 2011
Regulations 2008**

Second Semester

(Common to EEE, E & I, I & C, ECE, CSE, IT and Biomedical Engineering
branches)

GE2152 Basic Civil and Mechanical Engineering

Time: Three Hours

Maximum: 100 marks

Answer ALL Questions

Part A - (10 x 2 = 20 marks)

1. Write the arithmetic equation used in rise and fall method of levelling.
2. What are the constituent materials of bricks?
3. List any two objectives of foundation.
4. What are 'beams' in a building?
5. Write any two purposes of a dam.
6. Name any two materials that can be used as moderator in a nuclear reactor.
7. Distinguish between the energy conversion in a pump and in a turbine.
8. What are the limitations of single jet carburettor?
9. What is scavenging?
10. Define the term 'Air conditioning'.

Part B - (5 x 16 = 80 marks)

11. (a) (i) How surveying is classified based on the objective of survey? Name any four of them. (4)
- (ii) The following staff readings were observed successively with a level, the instrument having been moved after third, sixth and eighth readings:
3.150, 1.605, 0.920, 2.600, 2.900, 1.125, 0.605, 2.265 meters.
Calculate the R.L. of points if the first reading was taken with a staff held on a bench mark of 110.00 m. Perform the usual arithmetic check. (12)

OR

11. (b) (i) What are the ingredients of cement? State the functions of the ingredients. (8)
- (ii) What are the requirements of good cement? (4)
- (iii) State the qualities of good bricks. (4)
12. (a) (i) With the help of sketches, briefly explain the Random rubble masonry. (5)
- (ii) Distinguish between 'Uncoursed rubble masonry' and 'Coursed rubble masonry'. (5)
- (iii) Make a comparison of various aspects of brick masonry and stone masonry. (6)

OR

12. (b) (i) A 200 kN compressive load was applied on cylindrical specimen of 30 mm diameter and 200 mm length. The decrease in the length of specimen was observed as 0.4 mm. Find out the stress, strain and Young's modulus of the material. (5)
- (ii) What is a bridge? What are meant by 'superstructure' and 'substructure' of a bridge? (3)
- (iii) Sketch a line diagram showing the top view of a bridge and state what are 'Piers', 'Abutments', 'Wing walls' and 'Clear span' of a bridge. (8)
13. (a) (i) Draw the layout of a Diesel Power Plant. State the subsystems and components of the plant and explain each one of them briefly. (12)
- (ii) State the advantages and disadvantages of diesel power plant. (4)

OR

13. (b) (i) With a neat schematic diagram, explain the working principle of a double acting reciprocating pump. State why it is called double acting pump. (10)
- (ii) What is cavitation in pumps? Explain. (6)
14. (a) (i) Make a comparison of a petrol engine and diesel engine based on their operational features. (10)

- (ii) How will you classify internal combustion engines? State atleast three types of classifications. (6)

OR

14. (b) Explain the working of a two-stroke petrol engine, with sketches for the following events:
- (1) End of compression
 - (2) Beginning of exhaust
 - (3) Beginning of 'transfer of charge' into the cylinder
 - (4) Start of compression (16)
15. (a) (i) Distinguish between 'CFC Refrigerant', 'HFC Refrigerant', and 'HCFC Refrigerant'. Mention also one common refrigerant under each category. (6)
- (ii) Compare the vapour absorption refrigeration system and vapour compression refrigeration system. Give either reason or brief explanation for each point of comparison. (10)

OR

15. (b) (i) List the comfort requirements of conditioned air in an air-conditioned room. Hence explain what are (1) Dry-bulb, Wet-bulb and Dew point temperatures (2)'Humidity' and 'Relative humidity' (3) Dry and moist air. (12)
- (ii) Mention the advantages and disadvantages of split type room air conditioner. (4)
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