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Question Paper Code : 71942

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2017.

Second Semester

Instrumentation and Control Engineering

GE 6251 — BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to Electrical and Electronics Engineering, Electronics and Instrumentation Engineering)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Enlist any four uses of stones as a building material.
2. What are the substitutes used for sand due to its scarcity?
3. State the basic requirements of a good foundation.
4. Write the various types of bridges and draw any two.
5. Distinguish boiler mountings and accessories.
6. Classify hydraulic turbines based on operating head and direction of water flow.
7. Draw the ideal and actual indicator diagrams of two stroke petrol engines.
8. Draw the sectional elevation of a four stroke petrol engine and mark the parts.
9. State the factors on which the comfort feeling of the people depends on.
10. Define tone of refrigeration.

PART B — (5 × 16 = 80 marks)

11. (a) State the characteristics of the four category of bricks and their uses. Also list the field tests that are performed on bricks. (16)

Or

- (b) What are the different varieties of cements available in the market? Brief them. (16)

12. (a) Differentiate :
- (i) Composite masonry and composite structure
 - (ii) Stone and brick masonry
 - (iii) Plastering and pointing. (5 + 6 + 5)

Or

- (b) State the causes of failure of foundation and preventive steps to be adapted to avoid failure. (16)

13. (a) (i) Explain the working of boiling water reactor with a neat line diagram. (8)
- (ii) Compare thermal and hydro power. (8)

Or

- (b) (i) Explain the working principle of simple impulse turbine and parson's reaction turbine with relevant diagrams. (12)
- (ii) State the differences between impulse and reaction turbines. (4)

14. (a) (i) How to differentiate whether a given engine is a two stroke engine or four stroke engine? (8)
- (ii) Explain the three common working cycles of internal combustion engines. (8)

Or

- (b) (i) Compare the S.I and C.I engines in detail. (10)
- (ii) Give the applications of I.C and E.C engines. (6)

15. (a) Explain different methods of refrigeration except vapour refrigeration systems. (16)

Or

- (b) Write all the psychrometric properties and explain them in brief. (16)