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06/06/18

**Question Paper Code : 41181**

(A<sub>2</sub>)

**B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2018**

**Second Semester**

**Electrical and Electronics Engineering**

**GE6251 – BASIC CIVIL AND MECHANICAL ENGINEERING**

**(Common to : Electronics and Instrumentation Engineering/Instrumentation and Control Engineering (Regulations 2013))**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions**

**PART – A**

**(10×2=20 Marks)**

1. Name the two principles of surveying.
2. How are the roofs classified in general ?
3. What is meant by 'water – cement ratio' ?
4. What are elastic materials ?
5. What is a cooling tower ? Give its uses.
6. Define steam turbine.
7. What is a four stroke engine ?
8. Define fuel injector.
9. Define COP.
10. Mention some application of refrigeration.

**PART – B**

**(5×16=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 m. 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)**



- b) i) What are the ingredients of cement ? State the function of the ingredients. (8)  
ii) What are the requirements of good cement ? (4)  
iii) State the qualities of good bricks. (4)
12. a) Describe briefly the methods for improving the bearing capacity of soils. (16)  
(OR)
- b) i) Compare brick masonry and stone masonry. (12)  
ii) A 200 kN compressive load was applied on a 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. (4)
13. a) i) Draw a 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)
- b) i) Describe the function of salient components of a centrifugal pump with suitable diagram. (8)  
ii) Explain the working of open cycle gas turbine with suitable sketches. (8)
14. a) Explain the working principle of a diesel engine with appropriate sketches. (16)  
(OR)
- b) i) Compare four stroke engines with two stroke engines. (8)  
ii) What do you mean by boiler mountings ? Briefly explain their functions. (8)
15. a) Explain the important components of a simple vapour compression refrigeration system with a sketch. (16)  
(OR)
- b) Discuss the window and split type room air conditioner. (16)