

B.E DEGREE EXAMINATIONS: JUNE 2010

Second Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

MEC211: Basics of Civil and Mechanical Engineering

Time: Three Hours

Maximum Marks: 100

Answer ALL Questions

PART A (10 x 1 = 10 Marks)

1. The earth is assumed as curve then the type of surveying is called as
(A) Plane survey (B) Geodetic survey (C) Defense survey (D) Compass survey
2. The composition of ordinary cement is -----
(A) Lime (Cao)- 3 to 8%,slica (SiO₂) -3 to 5%
(B) Lime (Cao)- 17 to 25%,slica (SiO₂) -60 to 70%
(C) Lime (Cao)- 60 to 70%,slica (SiO₂) -17 to 25%
(D) Lime (Cao)- 3 to 5%,slica (SiO₂) -3 to 8%
3. The foundation which consists of rolled steel joists placed in single or double tiers with spaces filled up with concrete, is known as
(A) Pile foundation (B) Grillage foundation (C) Pier foundation (D) Raft foundation
4. G.I Sheet is-----
(A) Breakable and sheets cannot be made thin
(B) Breakable and sheets can be made thin
(C) Non breakable and sheets can be made thin
(D) Non breakable and sheets cannot be made thin
5. Moderator in nuclear plant is used to
(A) Reduce the temperature
(B) Extract heat from nuclear reaction
(C) Control the reaction
(D) Cause collision with fast moving neutrons to reduce their speed
6. The economizer is used in boilers to
(A) Increase thermal efficiency of boiler (B) Economize on fuel
(C) Extract heat from the exhaust flue gases (D) Increase flue gas temperature
7. The air-fuel ratio in petrol engines is controlled by
(A) Controlling valve opening/closing (B) Governing (C) Injection (D) Carburettion

8. In a centrifugal pump casing, the flow of water leaving the impeller, is
(A) Rectilinear flow (B) Radial flow (C) Free vortex motion (D) Forced vortex
9. In vapour compression cycle, the condition of refrigerant is saturated
(A) After passing through the condenser
(B) Before passing through condenser
(C) After passing through the expansion or throttle valve
(D) Before entering the expansion valve
10. The condenser and evaporator tube in refrigeration plant are made of
(A) Copper (B) Steel (C) Brass (D) Aluminium

PART B (10 x 2 = 20 Marks)

11. State the objective of surveying.
12. List out the composition of ordinary cement.
13. Define safe bearing capacity of soil.
14. What are the different types of lintels?
15. What is a steam power plant?
16. Write down the working principle of nuclear power plant.
17. What is meant by scavenging in two-stroke engines?
18. What is meant by priming?
19. Define capacity of refrigerator.
20. Name any four refrigerants used in industrials and comfort air-conditioning system.

PART C (5 x 14 =70 Marks)

21. a) Explain the principles of surveying. Give the classification of surveys.

(OR)

- b) List out the types of cement and the various test carried out on ordinary Portland cement.

22. a) Enumerate different types of foundation you would recommend under different situation and soil conditions explain them briefly.

(OR)

- b) (i) Compare the brick masonry and stone masonry. (6)

- (ii) With neat sketch explain the gravity dam. (8)

23. a) (i) With the help of a neat sketch, explain the working of a hydro-electric power plant.(10)
(ii) List out the advantages of hydro-electric power plant. (4)

(OR)

- b) With neat sketch describe construction and working of Benson boiler.

24. a) Describe with neat sketch the working principle of two-stroke petrol engine. Also list out the differences between four stroke cycle and two stroke cycle engine.

(OR)

- b) (i) With neat sketch, explain the construction and working of a centrifugal pump. (10)
(ii) Compare a reciprocating pump and the centrifugal pump. (4)

25. a) Draw the sketch of vapour absorption system. List out the components and their functions.

(OR)

- b) Write short notes on window and split air conditioner.
