G 702 (Pages : 2) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, MAY 2014

Seventh Semester

Branch : Civil Engineering

CE 010 701 – DESIGN OF HYDRAULIC STRUCTURES (CE)

(2010 Admissions)

[Improvement/Supplementary]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 3 *marks.*

1. State the equation for rate of discharge through spilway.
2. Distinguish between Arch dam and Buttress dam.
3. Distinguish between storage and diversion head works.
4. Define the function of Canal falls.
5. Define the term capacity factor in water power engineering.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*

Each question carries 5 *marks.*

6. Briefly explain the selection of site for a dam.
7. Briefly explain the thick cylinder theory for design of arch dam.
8. Briefly explain the construction details and functions of silt excluder.
9. Write a brief note on canal escape.
10. Write brief note on penstock.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*

Each question carries 12 *marks.*

11. Distinguish between High dam and Low dam. Determine the limiting height of a gravity dam. Assume any data required suitably.

Or

12. Discuss the modes of failure of a gravity dam. State the stability requirements of a gravity dam.

13. Explain the structural behaviour of rock fill dam. With neat sketches, explain the construction of impervious membrane type and earth core type rock fill dam.

Or

14. Sketch different types of Earth dam. Define Phreatic line for an earth dam and explain the procedure for drawing phreatic line in earth dam.

15. State and explain Bligh's creep length theory. Explain its limitations and applications.

Or

16. Sketch the lay out of a diversion head works and give a brief note on various construction works.

17. Sketch the longitudinal section of a siphon well drop and explain the functions and design procedure of each part.

Or

18. Sketch the longitudinal section of a vertical canal drop and explain the construction procedure and design principles.

19. Sketch the plan and sectional elevation of a siphon aqueduct and explain the component parts and design procedure.

Or

20. Briefly explain the classification and working of water turbines with examples from Kerala power houses.

(5 × 12 = 60 marks)