B.E. Eighth Semester (Civil Engineering) (CGS)

10235 : Professional Elective - II : Dam Engineering : 8 CE 04

P. Pages : 2 | AU - 2973

Time : Three Hours | Max. Marks : 80

Notes :
1. Answer **three** question from Section A and **three** question from Section B.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answer necessary with the help of neat sketches.
5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION – A

1. a) What factors affect the selection of the most suitable dam for a particular site? **7**

b) Define the economic height of dam and state how it is decided. **6**

OR

2. a) Explain subsurface exploration programme for dam. **6**

b) Determine the most economical height of the dam from purely construction point of view. **7**

Si. No.	Height of dam (m)	Construction cost (Million Rs)	Storage (Mm^3)
1	10	04	50
2	20	08	110
3	30	12	180
4	40	18	250
5	50	27	350
6	60	39	500
7	65	50	600

3. a) Illustrate with neat sketches the membrane type and inclined core type rock fill dam. Discuss their relative merits and demerits. **7**

b) Discuss the advantages and disadvantages of rock fill dam. **6**

OR

4. a) Explain the design considerations for Rockfill dam. **7**

b) What are different types of rockfill dams? Explain the foundation requirements for rockfill dams. **6**

5. a) Show that the most economical central angle of an arch is $133°34^1$. **7**

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b) How would you fix the spacing of buttress? Explain the use of master curve for the most economical spacing. 7

OR

6. a) Discuss the site requirement of an arch dam. 7

b) Calculate arch thickness of every 10m ht for a 80m high arch dam to be laid in valley 160m at top, 100m at base and safe stress 500t/m^2 the layout is constant radius type. Use thin cylinder theory. 7

SECTION – B

7. a) What is the purpose of providing gates on spillway? Explain radial gates. 7

b) Explain the various types of energy dissipation devices used below spillway in relation to the TWRC and JHC. 7

OR

8. a) What are different types of spillway gates? Explain their functions. 7

b) Explain Roller bucket type Energy dissipator and where it is used. 7

9. a) State main components of head regulator with neat sketch and also explain function of each. 7

b) What is scale effect in model? What will be the basis of spillway model scales? 6

OR

10. a) Why ventilation is necessary in the barrel? How it is achieved. 7

b) State types of gates and explain any one of them. 6

11. a) Explain in brief the repairs and maintenance of dam. 7

b) Why instrumentation is necessary in dam? Explain instruments installed to measure settlement of dam and foundation. 6

OR

12. a) Discuss necessity and problems involved in raising height of dam. 7

b) Describe cassagrande piezometer. 6

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