

Total No. of Questions : 12]

SEAT No. :

P1505

[4759] - 2

[Total No. of Pages : 3

B.E. (Civil)

DAMS & HYDRAULIC STRUCTURES
(2008 Course) (Semester - I)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer 3 questions from Section I and three questions from Section II.*
- 2) Answers to the two sections should be written in separate books.*
- 3) Neat diagrams must be drawn wherever necessary.*
- 4) Figures to the right indicate full marks.*
- 5) Use of logarithmic tables calculator and steam tables is allowed.*
- 6) Assume suitable data, if necessary.*

SECTION - I

- Q1)** a) Explain the concept of construction of R.C.C. Dams and state and explain the advantages of R.C.C. Dams. [8]
- b) Write short note on. [8]
- i) Dam Instrumentation
 - ii) Strengthening of dams.

OR

- Q2)** a) What are different types of arch dams? And explain any one type of arch dam. [8]
- b) What are different factors that govern the selection of site for dam. [8]

- Q3)** a) State any four forces acting on gravity dam and write their equations.[8]
- b) What is phenomenon and significance of [10]
- i) Steady seepage condition
 - ii) Sudden drawdown condition

OR

- Q4)** a) Write any four forces acting on a slide of an earthen dam failure envelope with the help of a sketch of free body diagram of forces and write their equations. [10]

P.T.O.

- b) If drainage gallery is not provided in gravity dam, then what will happen to its stability? Explain with help of sketch. Also write an equation of pressure if gallery is provided in gravity dam. [8]

- Q5) a)** What is economic height of dam? How it is determined? Calculate the economic height using following data. [8]

Ht(m)	Cost of construction (Crores in Rs.)	Storage Mm ³
13	4	46
23	7	101
33	10	176
43	15	250
53	21	328
63	26	401
70	36	505

- b) What is filter? Why it is provided? Write the design criteria of filter. Also, state types of filters. [8]

OR

- Q6) a)** State middle third rule and with help of sketch explain its significance. [8]
b) What is phreatic line? Enlist the steps to draw the phreatic line. [8]

SECTION - II

- Q7) a)** State the classification of spillways and explain functioning of ogee spillway. Also enlist design steps of ogee spillway. [8]
b) Why gates are provided on spillways? Explain functioning of radial gate with help of sketch. [8]

OR

- Q8) a)** What is diversion head work? Draw its layout and state its components. [8]
b) Write down equations for following. [8]

- Correction on account of mutual interference
- Exit gradient

Explain the terms of above equations with help of sketch.

- Q9) a)** Enlist the steps in designing of trapezoidal lined canal. [10]
b) When the syphon and aqueduct is selected as appropriate CD work? Explain with sketch. [8]

OR

- Q10)a)** Define [8]
i) Capacity factor
ii) Time factor
iii) Lining of canal
iv) Limiting velocity
b) Differentiate between cross-regulator and head regulator with help of sketch. [10]

- Q11)a)** What is river training? Why it is done? Explain classification of river training. [8]
b) With help of sketch, explain layout of hydropower plan. State the different components and their functions. [8]

OR

- Q12)a)** What is groyne? State classification of groyne. [8]
b) Define. [8]
i) Load factor
ii) Utilization factor
iii) Capacity factor
iv) Assessment of power potential.

