

22501

23242

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following:

10

- a) Define :
 - i) Rainfall
 - ii) Hydrological Cycle
- b) Enlist any four factors affecting the Duty.
- c) State any four advantages of spillway in Dam.
- d) Define :
 - i) Yield
 - ii) Dependable yield
- e) Enlist the Control Level's of reservoir.
- f) Enlist the methods of calculating average Rainfall.
- g) Enlist the forces acting on Gravity Dam.

P.T.O.

2. Attempt any THREE of the following :**12**

- a) Explain with Neat Sketch, Symon's Rain Gauge.
- b) The following data shows a catchment area with average annual rainfall by using the arithmetic mean method. Findout the mean rainfall over entire catchment.

Station	A	B	C	D
Rainfall (mm)	110	103	99	89

- c) Explain the meaning of
 - i) Time Factor
 - ii) Capacity Factor
 - iii) Command Area
 - iv) Irrigation Command Area
- d) Explain any two surveys conducted for an irrigation project.

3. Attempt any THREE of the following**12**

- a) Describe the type of failure of earthen Dam and its remedial measures.
- b) Differentiate Between elementary profile and practical profile of Gravity Dam.
- c) Write the functions of any four components of earthen dam.
- d) Draw a layout of lift irrigation scheme show all components and State purpose of any two.

4. Attempt any THREE of the following**12**

- a) Differentiate between sprinkler irrigation and drip irrigation.
- b) State the Advantages and Disadvantages of Bandhara irrigation.
- c) Draw neat sketch of Diversion Head work Give the function of each components.

- d) Compare weir with barrage with respect to crest level, afflux, silting, maintenance.
- e) Give the functions of the following :
- Divide Wall
 - Fish Ladder
 - Scouring Sluice
 - Guide Bank

5. Attempt any TWO of the following 12

- a) Calculate yield in H/M for a proposed tank with 900 sq.km of good Catchment Area. Dependable rainfall is 80% of Average Annual rainfall of 160 cm, use Inglis Formula.
- b) Determine LSL, FL, MRL & TBL from the data Given below. Effective storage required for crops = 5000 ha.m. Tank losses = 15% of effective storage, carry over allowance = 10% of effective storage, Dead storage = 8% of gross storage.

Contour _m RL	51	54	57	110	113	116
Storage mm ³	3.0	5.5	7.5	50	70	90

- c) Establish Relation Between Duty, Delta & Base period.

6. Attempt any TWO of the following : 12

- a) Explain the Drip irrigation with neat sketch and describe components of each.
- b) Design and Trapazoidal channel for carrying 30 m³/s of water. The Bed Slope of canal is 1:1800, side slope is 1:15, in chezy's formula take $c = 60$.
- c) Suggest the suitable type of CD work and draw sketch under each situation.
- HFL of Nala in inbetween FSL of canal & Bed Level of canal.
 - Canal Bed Level is above HFL of Nala.
 - Canal Bed Level and Nala Bed Level are same.
 - Nala Bed Level is above FSL of canal.