

315314

25226

3 Hours / 70 Marks

Seat No.

--	--	--	--	--	--	--	--

-
- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answer with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Assume suitable data, if necessary.
(6) Use of Non-programmable Electronic Pocket Calculator is permissible.
(7) 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) Run-off
 - ii) Hydrology.
- b) Enlist any four classification of Irrigation on the basis of purposes.
- c) Define:
- i) Delta
 - ii) Crop period.
- d) Enlist any two purpose of galleries in gravity dam.

P.T.O.

- e) Draw a neat sketch of ogee spillway.
- f) Define Drip Irrigation.
- g) Define the following terms:
 - i) Aqueduct;
 - ii) Super passage.

2. Attempt any THREE of the following: 12

- a) Define Rainfall. Draw a neat sketch of symon's rain gauge.
- b) The influence area as observed by Thiessen's polygon are 360 km², 275 km², 420 km², 650km² with 115 cm, 128 cm, 152 cm and 135 cm respectively. Compute the average rainfall over the catchment.
- c) Define silting of reservoir and state any three factors affecting silting of reservoir.
- d) Estimate maximum flood discharge from 350 km² catchment area of a proposed reservoir Assume C = 15. Use
 - i) Ingli's formula and
 - ii) Dicken's formula

3. Attempt any THREE of the following: 12

- a) The base period, intensity of irrigation and duty of various crops under a canal are given in table below. Find the discharge and volume of water required for crop.

Sr. No.	Name of Crop	Duty at field (ha/cumec) D	Base Period (days) B	Area under Crops (ha) A
1	Wheat	1900	120	4500
2	Rice	850	120	3250

- b) Differentiate between Earthen dam and Gravity dam on any four points.
- c) Enlist any four functions of spillway.
- d) Explain Energy Dissipation.

4. Attempt any THREE of the following: 12

- State the site selection criteria for percolation tank.
- State the advantages and disadvantages of well irrigation system.
- State any four requirements for an ideal site for bandhara.
- Compare Weir with barrage with respect to cost, afflux, maintenance, sketch.
- Draw a layout of diversion head works with component parts.

5. Attempt any TWO of the following: 12

- Fix control levels of medium size reservoir from given data—
Effective storage required for crops 30 Ha.m.
Tank losses = 20% of effective storage.
Carry over allowance = 10% of effective storage.
Dead storage = 10% of gross storage.

Countour R.L.(m)	250	253	256	278	281	284
Storage (Mm ³)	3.20	4.10	5.25	42.65	47.30	55.12

Assume flood lift as 3 m and free board as 3 m.

- Derive the relation between duty, delta and base period.
- Explain the failures of earthen dams with their preventive measures.

6. Attempt any TWO of the following: 12

- Enlist various types of gates in dams, explain Vishweswarya gate with a neat sketch.
- State three advantages and disadvantages of canal lining.
- Explain with the neat sketch components of Canal regulators:
 - Head regulator
 - Escape and
 - Fall.