22501

12425

03 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

(6) Preferably, Write the answers in sequential order.

Marks

1. Attempt any FIVE of the following: **10**

a) Define :

i) Run-off

ii) Yield

b) Enlist the any four classification of Irrigation on the basis of purposes.

c) Define:

i) Delta

ii) Crop period

d) Enlist any four design criteria of gravity dams.

e) Draw a neat sketch of ogee spillway.

f) State any four benefits of Irrigation.

g) Enlist any four factors affecting on duty.

Marks

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 Thiesson's polygon are 14.75 km^2, 28.75 km^2, 22.50 km^2 with 115 cm, 128 cm, 152 cm. Compute the average rainfall over the catchment.

c) Define silting of reservoir and state any three factors affecting silting of reservoir.

d) 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

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

a) Differentiate between Earthen dam and Gravity dam on any four points.

b) Enlist any four functions of spillway.

c) Draw a neat sketch of hydraulic jump type dissipators.

d) Describe drip Irrigation system showing field layout of system.

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

a) State any four requirements for an ideal site for bandhara.

b) Describe Jalyukt Shivar Yojana.

c) Compare Weir with barrage with respect to cost, afflux, maintenance, sketch.

d) State any two functions of

i) Fish ladder

ii) Divide Wall

e) Draw a layout of diversion head works with component parts.

Marks

5. Attempt any TWO of the following: **12**

a) The rainfall data over a catchment is as given below.

Year	**1974**	**1975**	**1976**	**1977**	**1978**	**1979**	**1980**	**1981**	**1982**	**1983**
Rainfall in mm	1150	950	1450	1300	1175	1350	1420	1280	1400	1305

Size of catchment area = 60 sq.km.

Coefficient of run-off = 0.60

Calculate the yield of the catchment at 60% dependability.

b) Fix the control levels DSL, FRL, HFL and TBL from given data.

i) Effective storage required for crops 3000 Ha.m

ii) Carry over allowance and tank losses 25%

iii) Dead storage - 10% of gross storage

R.L(m)	580	582	584	610	612	614
Storage (mm^3)	3.0	4.5	6.0	30	40	50

Assume flood lift as 1.5 m and free board as 2.5 m.

c) Derive the relation between duty, delta and base period.

6. Attempt any TWO of the following: **12**

a) Draw the layout of lift Irrigation. State any two features of lift Irrigation.

b) Design a most economical canal section to carry a discharge of 5 m^3/s. with bed slope of 1:2000 lined with concrete. Take N = 0.0012 and side slope 1:1.

c) State three advantages and disadvantages of canal lining.