



17351

16117

3 Hours / 100 Marks

Seat No.

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

- 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) *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.*
(8) *Use of Steam tables, logarithmic, Mollier's chart is permitted.*

Marks

1. A) Attempt **any six** of the following :

12

- Define rain and hail.
- Define run off.
- List the components of hydrograph.
- Define stream gauging.
- List the different ground water resources.
- State the methods of flood routing.
- Define isohyet.
- Name the rain gauges used to measure rainfall.

B) Attempt **any two** of the following :

8

- Explain with sketch types of water bearing formations.
- How will you estimate run-off volume by curve number method ?
- What factors to be kept in mind while selecting site for rain gauge station ?

2. Attempt **any four** of the following :

16

- Define average annual rainfall and state the methods used to find average rainfall.
- State the factors affecting runoff.
- State the uses of hydrograph.
- List the methods of stream gauging and explain any one in detail.
- How will you determine aquifer constants ?
- Explain with sketch sediment rating curve.

P.T.O.



3. Attempt **any four** of the following : 16
- a) Explain with sketch hydrological cycle.
 - b) List methods of computing runoff and explain any one in detail.
 - c) State the different factors affecting rainfall.
 - d) State aquifer characteristics influencing yield of wells.
 - e) Explain the Recuperation Test used for water yield calculations.
 - f) A small watershed is 300 Ha in size has group c. The land cover as 30% open forest and 70% poor quality pasture. Assume AMC at average condition and black soil, estimate the direct runoff volume for 75 cm rainfall in one day.
4. Attempt **any four** of the following : 16
- a) State the factors affecting sedimentation.
 - b) State the different methods of drilling and explain any one.
 - c) Explain Perched water table.
 - d) State the factors affecting stream gauging.
 - e) Explain Weibulls method of probability analysis of rainfall data.
 - f) Define unit hydrograph and explain in detail.
5. Attempt **any four** of the following : 16
- a) How the balance between geohydrological and hydrological is maintained ?
 - b) State the different types of precipitation.
 - c) State the limitations of unit hydrograph.
 - d) Explain the rational method of peak runoff estimation.
 - e) Define water table, isobath, isobar and recharge of ground water.
 - f) Explain reservoir sedimentation control.
6. Attempt **any four** of the following : 16
- a) A reservoir has a capacity of 15 Mm^3 and fed by catchment area 250 Km^2 . Mean annual runoff is 400 mm. The annual sediment yield and specific weight are 1000 MT/Km^2 and 12 kN/m^3 resp. Calculate time it will take to fill reservoir to fill with sediments.
 - b) Explain ground water recharge.
 - c) State the various methods of velocity measurement in stream.
 - d) Explain depth area duration relationship for hydrographs.
 - e) How the missing data is found out from estimation of rainfall ?
 - f) Define drizzle and return period.
-