15116

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**. Abbreviation used convey usual meaning.

(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. Answer **any five** :   **(5×4=20)**

   a) Explain the role of hydrology.

   b) State and explain two forms of precipitation.

   c) State the types of rain gauges and explain any one with a diagram.

   d) Differentiate between confined and unconfined aquifers.

   e) State any four applications of unit hydrograph.

   f) State the factors affecting site selection for stream gauging.

   g) State and explain the factors affecting sedimentation in a reservoir.

2. Answer **any four** :   **(4×4=16)**

   a) State and explain the limitations of a unit hydrograph.

   b) Explain the Thession method of calculation of average annual rainfall.

   c) Explain the hydrological cycle with a diagram.

   d) Explain the sediment rating curve.

   e) State the types of precipitation and explain any one type.

   f) State and explain the factors affecting rainfall.

Marks

3. Answer **any two** :   **(2×8=16)**

   a) State and explain the procedure of development of DRH from unit hydrograph.

   b) Explain characteristics of precipitation.

   c) i) Explain the procedure of estimation of peak runoff rate by rational method.   **6**

       ii) What are the advantages of Cooke's method over rational method.   **2**

4. Answer **any four** :   **(4×4=16)**

   a) Define runoff. State the factors affecting runoff.

   b) Explain the unit hydrograph method of calculation of runoff.

   c) Define the following :
       i) Return period
       ii) Recurrence interval.

   d) State the different methods of drilling in tube wells. Explain any one method.

   e) Differentiate between open wells and tube wells.

   f) What are Aquifer's constant ? How are they determined ?

5. Answer **any four** :   **(4×4=16)**

   a) Explain the curve number method of estimation of rainfall.

   b) Explain the surface float method of estimation or measurement of velocity.

   c) Explain the modified pulse method.

   d) State the different measures taken to control sedimentation in reservoirs.

   e) Explain Weibull's formula method of probability analysis.

   f) Describe stream flow routing.

6. Answer **any four** :   **(4×4=16)**

   a) Define the following : (i) water table (ii) yield of wells.

   b) Explain the recharge of ground water and factors affecting the recharge.

   c) Define isobars and isobath lines.

   d) Explain the different characteristics of aquifer influencing the yield of wells.

   e) Explain the following terms :
       i) Artificial recharge
       ii) Specific yield of aquifer.

   f) Describe 'intensity-duration' relationship.

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