24516

B. Tech. 7th Semester (Civil) F. Scheme Examination, December–2017

GROUND WATER ENGG.

Paper–CE-453-F

Time allowed : 3 hours] [*Maximum marks : 100*

Note : Attempt five question in all selecting at least one question from each part. Question No. 1 is compulsory. All questions carry equal marks.

1. Define following hydrogical parameter : 8×2½=20

   (i) Transmissivity

   (ii) Hydraulic Conductivity

   (iii) Well sickness

   (iv) Leaky artesian aquifer

   (v) Types of Tube well

   (vi) Dupuits assumptions and its limitations

   (vii) Necessity of strainer in tubewell

   (viii) Perched water table.

Section–A

2. (a) Describe formation constants of aquifer Explain ground water exploration. 10

   (b) Describe various methods of investigation. 10

3. Derive the ground water flow equation for steady flow in isotopic homogeneous aquifer.	20

Section–B

4. (a) Describe partial penetration of an aquifer by well with the help of diagramme.	10

   (b) What do you understand by spherical flow ? Why this type of flow is not used in practical.	10

5. (a) What is mutual interference of well ? How can this be avoided ?	10

   (b) Calculate the specific capacity of an open well from the following data	10

   Initial depression head = 5 m

   Final depression head = 2 m

   Time of recuperation = 2 Hours

   Dia of the Well = 3 m

   Calculate also the Specific Yield and yield of the well under head 3 m.

Section–C

6. Explain different methods used in drilling operations.	20

7. (a) Define spherical flow in a well.	10

   (b) What is meant by tubewell ? What are its type ? With the help of a neat self explanatory sketch of tubewell show its various components.	10

Section–D

8. (a) Define artificial recharge of ground water. What is its necessity.	10

   (b) Describe briefly recharge pits shafts and recharge well.	10

9. Write short notes on :

   (i) Properties of aquifer

   (ii) Design of tube well.	20