

# GANPAT UNIVERSITY

B.Tech. Sem. V(Civil) , Regular Examination –November / December: 2012

## 2CI502- Hydrology and Water Resources Engineering

Max.Time: 3 Hours

Max. Marks: 70

Exam. No. of the candidate: \_\_\_\_\_ Supervisor's dated initial: \_\_\_\_\_

- Instructions: -
- (1) Answer to the two sections must be written in separate answer books.
  - (2) Figures to the right indicate full marks.
  - (3) Assume suitable data if required.

### Section - I

Q-1 Answer The Following.

- (A) Explain the procedure for plotting the depth-area-duration curves. What are their uses? (06)
- (B) Define: Unit hydrograph and write Application, Use and Limitation of it. (06)

OR

- Q-1 (A) Explain the methods for estimation of missing rainfall data. (06)
- (B) Describe term "AET". How we can measure it? Explain with neat sketch. (06)

Q-2 Answer The Following.

- (A) What are different methods for the estimation of average rainfall depth over an area? Explain any one. (06)
- (B) Describe term "Evaporation Consumptive Base" & "Interception losses". (05)

OR

- Q-2 (A) Discuss briefly the different methods by which peak discharge of a stream during a storm can be estimated. (06)
- (B) Explain the following terms: (a) Rain gauge density. (b) Mean annual rainfall. (05)

Q-3 Answer The Following.

- (A) What is HEC-HMS model? Draw flow chart for it. (06)
- (B) Explain the method of separation of base flow from flood hydrograph. (06)

### Section - II

Q-4 Answer The Following.

- (A) What is a current meter and what are its types? Discuss how it can be used to determine discharge in shallow and wider river. (06)
- (B) Enumerate the flood control measurement methods and discuss merits and demerits of it. (06)

OR

- Q-4 (A) What is a rating curve? Explain its use. Sketch typical rating curve. (6)  
(B) What do you understand by flood forecasting? Why it is necessary in life and how are they formulated. (6)
- Q-5 **Answer The Following.**  
(A) Enumerate the different methods by which the ground water is drain out & used in our country. (06)  
(B) Describe term "Vadose Water" & "Cartesian Well". (05)
- OR**
- Q-5 (A) What is Dupuit's equation? State the assumptions that enter in its development. (06)  
(B) How we can finding out peak flood discharge by using Drainage area only and Drainage area & Total runoff. (05)
- Q-6 **Answer The Following.**  
(A) What is SWAT model? Which hydrological processes are occurring in SWAT model? (06)  
(B) Write explanatory note on  $W_{index}$  and  $\phi_{index}$ . (06)

**End of Paper**