

Printed Pages : 3



NAG405

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 180420

Roll No.

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B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15

HYDROLOGY

Time : 2 Hours]

[Total Marks : 50

Note : The question paper is divided into three sections.
Attempt each section. Assume missing data if any.

SECTION - A

- 1 Attempt each short answer type question : **2×5=10**
- (a) What do you mean by runoff ?
 - (b) What is convective precipitation?
 - (c) What is unit hydrograph ? Name any two important uses.
 - (d) What do you mean by stream length and stream area?
 - (e) Briefly write about hyetograph?

SECTION - B

- 2 Attempt any three parts of the following: **3×5=15**
- (a) Describe the recording gauges for estimating rainfall?

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[Contd...

- (b) How will you estimate the peak runoff rate and volume? Explain the "curve number" method?
- (c) The peak of a flood hydrograph due to a 6-h storm is $470\text{m}^3/\text{s}$. The mean depth of rainfall is 8.0 cm. Assume an average infiltration loss of 0.25 cm/h and a constant base flow of $15\text{ m}^3/\text{sec}$. Estimate the peak discharge of 6-h unit hydrograph for this catchment.
- (d) What are the methods to estimate the magnitude of a flood peak? Describe any one of them.
- (e) Write an essay on " watershed management & planning"?

SECTION-C

3 Attempt all parts of the following: **5×5=25**

- (a) What are the basic equations used for flood routing by :
 - (i) Hydrologic method.
 - (ii) Hydraulic method.

OR

Explain briefly the basic principles involved in the development of IUH by " Nash - model".

- (b) Describe the problems of floods and their control with special reference to the Indian scene.

OR

Explain briefly the man's interference in various parts of hydrologic cycle.

- (c) Explain the instantaneous unit hydrograph (IUH). What are its characteristics?

OR

Discuss the synthetic unit hydrograph. Draw a sketch, showing its elements.

- (d) Discuss the rational method to estimate runoff from a watershed of sandy-loam soil.

OR

Define the drought. Classify them as per National Commission on Agriculture (1976). How a drought management be achieved?

- (e) What is evapo-transpiration? Discuss any one method to find evapo-transpiration of sugarcane crop.

OR

Discuss the "Isohyetal method "to find out mean precipitation over an area of a basin.
