

C 1113

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**SIXTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE
EXAMINATION, APRIL 2016**

CE / PTCE 09 601—HYDROLOGY AND IRRIGATION ENGINEERING

Time : Three Hours

Maximum : 70 Marks

Part A

Answer all questions.

1. Explain the use of double mass curve in preparation of hydrologic data.
2. Define irrigation.
3. What are the techniques of water distribution in the farms ?
4. Define base period.
5. What do you mean by guide banks ?

(5 × 2 = 10 marks)

Part B

Answer any four questions.

6. Differentiate between recording and non - recording type of rain gauges.
7. Define hydrology. With a neat sketch, explain the Horton's qualitative representation of the hydrologic cycle.
8. Explain Flow irrigation with the help of neat sketches.
9. What are the methods of applying water to crops ? Explain any one surface irrigation methods.
10. List out the advantages of drip irrigation.
11. Explain about different types of river training works.

(4 × 5 = 20 marks)

Part C

Answer all questions.

12. A small catchment area of 150 hectare received a rainfall of 10.5 cm. in 90 min. due to a storm at the outlet of catchment draining the catchment was dry before the storm and experienced a runoff lasting for 10 hrs. with average discharge of 1.5 m³/s the stream was dry again after runoff event.
(a) What is amount of water which was not available to runoff due to combine effect of infiltration evaporation ? ; (b) What is the ratio of runoff to precipitation.

Or

Turn over

13. During a month, a rain gauge went out of order while the other four gauges in the basin reported rainfalls of 110, 90, 120 and 115 mm. If the normal annual rainfall for these four gauges are 115, 95, 125 and 120 mm. respectively and the normal rainfall for the broken gauge is 98 cm, estimate the monthly rainfall at the broken gauge
- 14 (i) What are the factors affecting duty ?
(ii) Explain : (a) Gross command area ; (b) Culturable command area.

Or

15. The base period, duty at the field of difference crops, and area under each crop in the command area are given below. Find the required reservoir capacity to cater to the needs of the crops.

<i>Crops</i>	<i>Base period (days)</i>	<i>Duty @ field (Ha / cumec)</i>	<i>Intensity of irrigation (%)</i>
Wheat	120	1800	20
Sugar cane	360	1700	20
Cotton	180	1400	10
Rice	120	800	15
Vegetables	120	700	15

16. "With a neat sketch, explain any *one* type in each of cross drainage work".

Or

17. (i) Explain various considerations for alignment of a canal.
(ii) Define canal, discuss various types of canal.
18. Define floods .explain factors affecting floods.

Or

19. Mention any two empirical formulae for estimating flood.

(4 × 10 = 40 marks)