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**GIET UNIVERSITY, GUNUPUR – 765022**  
 B. Tech (Fifth Semester – Regular) Examinations, December – 2022  
**BPCCV5020 – Water Resource Engineering**  
 (Civil Engineering)

Time: 3 hrs

Maximum: 70 Marks

**Answer ALL Questions**

**The figures in the right hand margin indicate marks.**

**PART – A: (Multiple Choice Questions)**

**(1 x 10 = 10 Marks)**

- Q.1. Answer ALL questions** [CO#] [PO#]
- a. Unit Hydrograph theory was enunciated by CO1 PO1
- i. Merril Bernard ii. W.W. Horner
- iii. Le-Roy K. Sherman iv. Robert E. Horten.
- b. The theory of infiltration capacity was given by CO1 PO1
- i. Merrill Bernard ii. W.W. Horner
- iii. Le-Roy K. Sherman iv. Robert E. Horten.
- c. Hydrology helps in CO1 PO1
- i. predicting the effects on the river water level on completion of dams ii. deciding the minimum reservoir capacity
- iii. predicting maximum flows iv. all the above.
- d. The surface Run-off is the quantity of water CO2 PO3
- i. absorbed by soil ii. intercepted by buildings and vegetative cover
- iii. required to fill surface depressions iv. that reaches the stream channels
- e. Pick up the correct equation from the following : CO1 PO1
- i. Run off = Surface run off + Ground water flow ii. Run off = Surface run off - Ground water flow
- iii. Run off = Surface run off / Ground water flow iv. Run off = Surface run off x Ground water flow
- f. Infiltration capacity of soil depends upon CO1 PO1
- i. number of voids present in the soil ii. shape and size of soil particles
- iii. compaction of the soil particles iv. All the above.
- g. Pick up the correct statement from the following : CO1 PO1
- i. The actual prevailing rate of infiltration of water in the soil at any time, is known as infiltration rate ii. When rainfall rate is less than the infiltration capacity, the infiltration rate is approximately equal to the rainfall rate
- iii. When rainfall rate exceeds the infiltration capacity, the water enters the soil at full capacity rate iv. All the above.
- h. The main factor which affects the infiltration capacity, is CO1 PO3
- i. thickness of saturated layer ii. depth of surface detention
- iii. soil moisture iv. All the above.
- i. Absolute humidity in air CO1 PO1
- i. decreases at higher altitudes ii. increases at higher altitudes
- iii. remains constant at all altitudes iv. none of these
- j. Precipitation caused by lifting of an air mass due to the pressure difference, is called CO2 PO3

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|-------------------------------|------------------------------|
| i. cyclonic precipitation     | ii. convective precipitation |
| iii. orographic precipitation | iv. None of these.           |

**PART – B: (Short Answer Questions)**

**(2 x 10 = 20 Marks)**

Q.2. Answer ALL questions

	[CO#]	[PO#]
a. What are the factor effecting precipitation?	CO1	PO1
b. What are the different types of precipitation?	CO2	PO1
c. Explain about trickling filter rain gauge?	CO3	PO1
d. What is the difference between recording and non-recording rain Gauge?	CO2	PO2
e. What do you mean by average rainfall over a catchment area?	CO1	PO3
f. Explain about the factor effecting evapotranspiration?	CO3	PO2
g. How vegetation impact the evaporation process?	CO1	PO1
h. Define infiltration?	CO2	PO3
i. What are the different factor effecting infiltration?	CO3	PO1
j. What is hydraulics jump?	CO1	PO3

**PART – C: (Long Answer Questions)**

**(10 x 4 = 40 Marks)**

Answer ALL questions

	Marks	CO#	PO#
3. a. Find out the 12 hour unit hydrograph from 4 hour unit hydrograph ordinates 0,24,84,159,184,151,103,64,36,17,6,0	5	CO2	PO2
b. Explain about the direct runoff hydrograph?	5	CO1	PO2
(OR)			
c. Explain the unit hydrograph with proper explanation with diagram?	5	CO1	PO1
d. Differentiate between the unit hydrograph and s hydrograph?	5	CO3	PO2
4. a. Derive the energy loss equation in hydraulic jump?	5	CO1	PO2
b. What are the design parameter for canal design in open channel flow?	5	CO1	PO3
(OR)			
c. What is flooding? And what are the parameter to to control it?	5	CO1	PO1
d. Explain about storm hydrograph?	5	CO1	PO1
5. a. What are the different causes of flow?	5	CO1	PO1
b. Explain about instantaneous unit hydrograph?	5	CO2	PO2
(OR)			
c. Derive the DRH from the catchment due to storm duration of 4 hr and having a rainfall excess of 5cm, The coordinates of TUH are 0,8,35,50,47,40,31,23,15,10,6,3,0	5	CO2	PO2
d. Explain about synthetic unit hydrograph?	5	CO1	PO1
6. a. What are the different stages of water cycle?	5	CO2	PO2
b. What are the different factor effecting transpiration?	5	CO3	PO1
(OR)			
c. What are the different types of rain gauge?	5	CO1	PO1
d. Explain about floating type rain gauge?	5	CO3	PO3

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