PAPER ID-310410

Subject Code: KCE055

Roll No: | | | | | | | | | | | | | |

B. TECH
(SEM-V) THEORY EXAMINATION 2020-21
ENGINEERING HYDROLOGY

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

Q no.	Question	Marks	CO
a.	What is the purpose of Water Budget Equation in Hydrology?	2	1
b.	What do you understand by precipitation?	2	1
c.	What is Hydrograph?	2	2
d.	Why is base flow separated from total runoff?	2	2
e.	Discuss flood frequency analysis.	2	3
f.	What is flood routing?	2	3
g.	What is transmissibility?	2	4
h.	Explain and State Radius of influence and cone of depression.	2	4
i.	Explain specific capacity in tube well.	2	5
j.	Describe well losses.	2	5

SECTION B

2. Attempt any *three* of the following: 3 x 10 = 30

Q no.	Question	Marks	CO
a.	Define evaporation. Discuss the factor that affects the evaporation from a water body.	10	1
b.	What is Hydrograph? Draw a single peaked hydrograph and explain its components.	10	2
c.	Describe the various structural methods adopted for control of floods. Also discuss the problem of floods and their control.	10	3
d.	Derive the expression for discharge from the well in a confined aquifer.	10	4
e.	Describe all the quality of ground water for drinking.	10	5

SECTION C

3. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	What is meant by hydrological cycle? How can the parameters of the cycle can be written in an equation form? Draw a neat diagram to illustrate your answer.	10	1
b.	What do you mean by Probable Maximum Precipitation (PMP) over the basin? Explain how PMP is estimated.	10	1

4. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Explain theory of unit hydrograph and limitation of unit hydrograph.	10	2
b.	Write the short notes on synthetic unit hydrograph and instantaneous unit hydrographs.	10	2

5. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	Explain the terms risk, reliability and safety factor. A factory is proposed to be located on the edge of the 50 years flood plain of a river. If design life of factory is 25 years, what is reliability that it will not be flooded during its design life.	10	3
b.	During a flood flow the depth of water in a 10m wide rectangular channel was found to be 3.0m and 2.9m at two sections 100m apart. The drop in the water surface elevation was found to be 0.12m. Assuming manning's coefficient to be 0.025, estimate the flood discharge through the channel.	10	3

6. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	State and explain aquifers and its types in detail. Also describe its properties.	10	4
b.	A 30 cm diameter well completely penetrates a confined aquifer of permeability 465 m/day. The length of the strainer is 20 m. Under steady state of pumping the drawdown at the well was found to be 3.0 m and the radius of influence was 300 m. Calculate the discharge of well.	10	4

7. Attempt any *one* part of the following:

Q no.	Question	Marks	CO
a.	What do you understand by well development? Enumerate various methods for well development and explain any two of them in detail with neat sketch.	10	5
b.	Write down in details selection of suitable site for a tube well. And also explain advantages and disadvantages of well irrigation over canal irrigation.	10	5