A   Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code: 96A01

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2024

Sixth semester

Agriculture Engineering

19UAG601- Hydrology And Water Resources Engineering

(Regulations 2019)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The rainfall intensity of light rain is   CO1- U

   (a) up to 2.5mm/Hr   (b) up to 3.5mm/Hr   (c) up to 5mm/Hr   (d) up to 7.5mm/Hr

2. Isohyets are the imaginary lines joining the points of equal   CO1- U

   (a) Pressure   (b) Height   (c) Humidity   (d) Rainfall

3. The runoff can be described as part of the water cycle that   CO1- U

   (a) Is absorbed into the ground   (b) Is discarded

   (c) Evaporates   (d) Flows over land as surface water

4. The observed annual runoff from a basin of area $500 Km^2$ is $150 Mm^3$ CO2- App
   and the corresponding annual rainfall over the basin during the same
   year is 750mm.what is the runoff coefficient?

   (a) 0.67   (b)0.4   (c)0.2   (d) 0.3

5. Which of the following equation is used in hydrological flood routing?   CO1- U

   a)energy equation   b)continuity equation   c)equation of motion   d)both a and c

6. Ryve's formula for flood estimate in cumecs, is   CO1- U

   (a) $Q=CA^{3/4}$ (B) $Q=CA^{2/3}$ (C) $Q=CA^{1/2}$ (d) $Q=CA^{1/4}$

7. The major resisting force in a gravity dam is   CO1- U

   (a) water pressure   (b) wave pressure   (c) self-weight of dam   (d) uplift pressure

8. Which of the following spillways is least suitable for an earthen dam?   CO1- U

   (a) ogee spillway   (b) chute spillway   (c) side channel spillway   (d) shaft spillway

9. The net water balance equation can be written as CO1- U

   (a) P-Q-E-T-G = ΔS   (b) P-Q+E+T-G= ΔS   (c) Q- P-E+T-G = ΔS   (d) P+Q+E+T+G = ΔS

10 In the expression T = Kb, T denotes_____ of the aquifer. CO1- U

   (a) Storativity   (b) Transmissibility   (c) Hydraulic conductivity   (d) None of the above

<center>PART – B (5 x 2= 10 Marks)</center>

11 How the precipitation can be measured? CO1- U

12 Define Effective Rainfall. CO1- U

13 List the structural flood control methods. CO1- U

14 What is the difference between weir and barrage? CO1- U

15 What is rainwater harvesting? CO1- U

<center>PART – C (5 x 16= 80 Marks)</center>

16 (a) Explain the analytical methods of evaporation estimation. CO1- U (16)

<center>Or</center>

   (b) Describe the working principle of a recording type rain gauge with neat sketch, Mentioning its advantages and disadvantages. CO1- App (16)

17 (a) Explain in detail about synthetic unit hydrograph method CO1- U (16)

<center>Or</center>

   (b) Elaborate components of hydrograph also explain in detail about the characteristics of streams. CO1- U (16)

18 (a) List the societal impacts of drought and also explain the Factors Aggravating Drought Impacts CO1- U (16)

<center>Or</center>

   (b) List out the structures methods of flood control explain in detail any one of the method CO1- U (16)

19 (a) Explain in detail about classification of reservoirs. CO1- U (16)

<center>Or</center>

   (b) Elaborate in detail about reservoir sedimentation control. CO1- U (16)

20 (a) Discuss the classification of aquifer with neat sketches CO1- U (16)

<center>Or</center>

   (b) What are purposes of and methods for artificial GW recharge (AGWR)? CO1- U (16)

96A01