**Code No.: PC307CE**

**METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY**

**(An Autonomous Institutions)**

**B.E.(CIVIL) IV-Semester (AICTE)(Regular) Examination,Aug-2023**

**Subject: HYDROLOGY**

**Time: 3 hours Max.Marks:60**

 **Note: Missing data, if any, maybe suitably assumed.**

**PART-A**

**Answer All the questions. (10X2M=20M)**

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| --- | --- | --- | --- | --- |
| **Q.No.** | **Questions** | **Marks** | **CO** | **BTL** |
| **1. a** | What are the different types of precipitations? | 2 | 1 | 1 |
| **b** | What are the factors affecting infiltrations? | 2 | 1 | 1 |
| **c** | What do you understand by evapo transpiration? | 2 | 2 | 1 |
| **d** | Discuss various factors affecting runoff. | 2 | 3 | 6 |
| **e** | Describe about well preparation. | 2 | 4 | 2 |
| **f** | Distinguish between aquifer and aquitaurd. | 2 | 4 | 4 |
| **g** | Write any one equation to estimate evaporation by empirical method. | 2 | 2 | 6 |
| **h** | What are the factors affecting flood routing? | 2 | 4 | 1 |
| **i** | Draw a neat sketch of tipping bucket type rain gauge. | 2 | 1 | 5 |
| **j** | Write the formula for coefficient of permeability. | 2 | 4 | 6 |

**PART-B**

**Answer Any Five questions**. **(5X8=40M)**

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| --- | --- | --- | --- | --- | --- |
| **Q.No.** |  | **Questions** | **Marks** | **CO** | **BL** |
| **2** | **a** | Draw a neat sketch of Hydrologic cycle. | 4 | 1 | 5 |
| **b** | Mention any two rain gauges with neat sketches. | 4 | 1 | 2 |
| **3** | **a** | Describe about reservoir evaporation & explain any one method to reduce it. | 4 | 4 | 5 |
| **b** | Explain how evapo-transpiration can be estimated using Blaney-Criddle equation and Throuthwaite equation. | 4 | 3 | 5 |
| **4** | **a** | How to construct a unit hydrograph? | 4 | 4 | 1 |
| **b** | Determine the runoff by SCS-CN Method | 4 | 4 | 5 |
| **5** | **a** | Derive an expression for the steady stage discharge of a well fully penetrated into a confined aquifer. | 4 | 4 | 6 |
| **b** | A tube well of 30cm dia penetrates fully in an artesianaquifer. The strainer length is 15m. Calculate the yield from the well under a drawdown of 3m. the aquifer contains sand of size 0.2mm having coefficient of permeability 50m per day. Assume the radius of drawdown as 150m. | 4 | 4 | 6 |
| **6** | **a** | What is flood routing? Explain basic flood routing equation. | 4 | 4 | 1 |
| **b** | The analysis of 30 years flood data at a point on a river yielded X/ =1200m3/s and S(x)=650m3/s. For what discharge would you design the structure to provide 95% assurance that structure would not fail in the next 50 years. Use Gumbel’s method. | 4 | 4 | 6 |
| **7** | **a** | Describe the principal of working of a tipping bucket type recording rain gauge with a neat sketch. | 4 | 1 | 5 |
| **b** | A rain gauge station X is not functioned for a part of a month during which a storm occurred. The storm produced rainfalls of 84,70,96mm at three surrounding stations A, B and C. The normal annual rainfalls at stations X, A, B and C are 770,882,736,944mm. Estimate the missing storm rainfall at station X. | 4 | 1 | 6 |
| **8** | **a** | Define Flood ? What are the different measures to control floods | 4 | 5 | 1 |
| **b** | What are the different method to estimate flood ? | 4 | 5 | 4 |
| **9** | **a** | Explain trial & error method for flood routing. | 4 | 4 | 5 |
| **b** | Write the assumptions made for storm hydrograph. | 4 | 4 | 4 |

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