Reg. No. \_\_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov / Dec – 2019**

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| **Code :** | **18CE2004** | **Duration :** | **3hrs** |
| **Sub. Name :** | **WATERSHED HYDROLOGY** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | | **Course Outcome** | **Marks** |
| **PART – A (20 X 1 = 20 MARKS)** | | | | |
| 1. | | Define Hydrology. | CO1 | 1 |
| 2. | | Explain each term in Horton’s Infiltration equation . | CO2 | 1 |
| 3. | | Compare hyetograph with hydrograph. | CO3 | 1 |
| 4. | | Write the Ingli’s formula for fan shaped catchment. | CO2 | 1 |
| 5. | | Define Interception loss. | CO2 | 1 |
| 6. | | Mention the water budget equation and explain the terms. | CO4 | 1 |
| 7. | | List different evaporimeters. | CO2 | 1 |
| 8. | | Compare w-index with *ϕ* index. | CO4 | 1 |
| 9. | | Mention assumptions used in unit hydrogaph. | CO3 | 1 |
| 10. | | Explain rational method for runoff computation. | CO2 | 1 |
| 11. | | Define form factor. | CO1 | 1 |
| 12. | | Explain about perennial streams. | CO2 | 1 |
| 13. | | Define interflow. | CO2 | 1 |
| 14. | | Define unit hydrograph. | CO3 | 1 |
| 15. | | Most commonly used rain gauge in India is \_\_\_\_\_\_\_\_\_\_\_\_\_. | CO4 | 1 |
| 16. | | Define synthetic unit hydrograph. | CO3 | 1 |
| 17. | | Examine the analysis of mean precipitation by using Arithmetic mean method. | CO4 | 1 |
| 18. | | Find the depth of flow in cm if the annual stream flow from a 10 km2 catchment is 107 m3 . | CO2 | 1 |
| 19. | | Define watershed. | CO1 | 1 |
| 20. | | Define Drizzle. | CO4 | 1 |

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| **PART – B (10 X 5 = 50 MARKS)**  **(Answer any 10 from the following)** | | | |
| 21. | Elucidate the types of precipitation. | CO4 | 5 |
| 22. | Examine and give a brief note on different methods for finding average precipitation. | CO4 | 5 |
| 23. | Distinguish different methods for finding evaporation loss. | CO4 | 5 |
| 24. | Explain different methods for finding the infiltration loss. | CO4 | 5 |
| 25. | Explain hydrologic cycle with neat sketch. | CO1 | 5 |
| 26. | Explain the two methods for finding missing rainfall data. | CO4 | 5 |
| 27. | Explain different watershed characteristics. | CO1 | 5 |
| 28. | Differentiate between different components of stream flow. | CO2 | 5 |
| 29. | Give a brief note on different types of streams. | CO2 | 5 |
| 30. | Mention different methods for baseflow separation. | CO3 | 5 |
| 31. | Explain effects of land use change. | CO5 | 5 |
| 32. | A small watershed having a certain group of soil and fair pasture cover with runoff curve number, CN = 56, had a rainfall of 10 cm. Estimate the direct runoff. | CO2 | 5 |

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| **PART – C (2 X 15 = 30 MARKS)**  **(Answer any 2 from the following)** | | | | |
| 33. | a. | Explain different techniques for measuring stage of a stream with neat sketches. | CO2 | 7 |
| b. | Compare and elucidate the direct and indirect methods for stream flow measurements. | CO2 | 8 |
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| 34. | a. | Explain different methods for runoff computation. | CO2 | 7 |
| b. | Estimate the runoff for a fan shaped catchment area of 10 km2 by using   1. Dicken’s formula 2. Ryve’s formula 3. Ingli’s formula   Take Dicken’s C = 11.45 & Ryve’s C = 8.5 | CO2 | 8 |
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| 35. | a. | Explain the different types of watershed models. | CO6 | 7 |
| b. | Explain the different types of rain gauges with neat sketches. | CO6 | 8 |