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

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**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(20X1=20 MARKS)** | | |
| 1. | Define watershed. | CO1 | 1 |
| 2. | What is groundwater hydrology? | CO1 | 1 |
| 3. | Name any one source for the collection of hydrologic data. | CO4 | 1 |
| 4. | What is overland flow? | CO4 | 1 |
| 5. | Define drainage density. | CO1 | 1 |
| 6. | What is stream density? | CO1 | 1 |
| 7. | Define relief. | CO1 | 1 |
| 8. | How will yo meaure infiltration? | CO3 | 1 |
| 9. | Name the types of waterhed models. | CO5 | 1 |
| 10. | What is morphometric analysis? | CO5 | 1 |
| 11. | Define climate change. | CO5 | 1 |
| 12. | Draw stage –discharge curve. | CO2 | 1 |
| 13. | Name the type of recording raingauge. | CO3 | 1 |
| 14. | Expand SCS method. | CO4 | 1 |
| 15. | What is the use of unit hydrograph? | CO3 | 1 |
| 16. | What are interception losses? | CO4 | 1 |
| 17. | Define hydrograph. | CO3 | 1 |
| 18. | What do you mean by hyetograph? | CO3 | 1 |
| 19. | What is influent stream? | CO2 | 1 |
| 20. | What is flood routing? | CO2 | 1 |

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|  | **PART B(10 X 5= 50 MARKS)**  **(Answer any 10 from the following)** | | |
| 21. | Describe about the hydrological equation. | CO3 | 5 |
| 22. | Explain about Horton’s equation | CO4 | 5 |
| 23. | Discuss the factors affecting the evaporation process. | CO4 | 5 |
| 24. | Differentiate between floodplain and wetlands. | CO5 | 5 |
| 25. | What are the commonly observed stream pattern? | CO5 | 5 |
| 26. | Distinguish between circularity ratio and elongation ratio. | CO1 | 5 |
| 27. | What are the characteristics of hydrologic data? | CO2 | 5 |
| 28. | Write a brief note on kulendaiswamy’s model. | CO3 | 5 |
| 29. | Describe the three methods of determining the average depth of rainfall over an area | CO3 | 5 |
| 30. | with a neat sketch the method of measuring the velocity at a point in a stream using a current meter. | CO2 | 5 |
| 31. | How will you estimate the flow in ungauged site? | CO2 | 5 |
| 32. | Explain the rational method of flood estimation. | CO4 | 5 |

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|  | **PART C(2 X 15= 30 MARKS)**  **(Answer any 2 from the following)** | | | |
| 33. | a. | Illustrate the uses of watershed models. | CO6 | 7 |
| b. | Discuss the effect of climate change on watershed hydrology. | CO6 | 8 |
| 34. | a. | The average annual rainfall of 5 rain gauges in a basin are 89, 54, 45, 41, and 55 cm If the error in the estimation of basin mean rainfall should not exceed 10%, how many additional gauges should be installed in the basin? | CO3 | 8 |
| b. | Describe the Muskingum method of channel routing. | CO2 | 7 |
| 35. | a. | How will you construct S- curve unit hydrograph? What are its uses? | CO3 | 7 |
| b. | Derive the ordinates of a 6 hour unit hydrograph from the given ordinates 3  hour unit hydrograph.   |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Time Hours) | 0 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 36 | | Direct Run-off (Cumecs) | 0 | 34 | 114 | 182 | 198 | 143 | 110 | 64 | 42 | 23 | 9 | 2 | 0 | | CO3 | 8 |