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

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

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| **Code :** | **18AT2018** | **Duration :** | **3hrs** |
| **Sub. Name :** | **IRRIGATION AND DRAINAGE WATER ENGINEERING** | **Max. Marks :** | **100** |

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| **Q. No.** | **Questions** | **Course Outcome** | **Marks** |
| **PART – A (20 X 1 = 20 MARKS)** | | | |
| 1. | Write the scope of irrigation. | CO2 | 1 |
| 2. | Define field capacity. | CO2 | 1 |
| 3. | Two cumec of water is pumped into a farm distribution system. 1.6 cumec is delivered to a turnout 0.9 km from the well. Compute the conveyance efficiency. | CO2 | 1 |
| 4. | What is meant by permenant wilting point? | CO2 | 1 |
| 5. | Define evapotranpiration. | CO2 | 1 |
| 6. | Define effective rainfall. | CO2 | 1 |
| 7. | Define irrigation scheduling. | CO2 | 1 |
| 8. | Define delta of irrigation. | CO2 | 1 |
| 9. | List the crops suitable for ridges and furrow irrigation. | CO2 | 1 |
| 10. | Define WUE. | CO2 | 1 |
| 11. | List out the materials ued for channel lining. | CO1 | 1 |
| 12. | CADA means \_\_\_\_\_\_\_\_\_\_\_\_\_\_. | CO1 | 1 |
| 13. | Define drainage co-efficient. | CO3 | 1 |
| 14. | Illustrate some of water diversion structures. | CO3 | 1 |
| 15. | Define Darcy’s law. | CO3 | 1 |
| 16. | What is meant by leaching of soil? | CO3 | 1 |
| 17. | Write the demerits of underground pipe line system. | CO2,3 | 1 |
| 18. | What is meant by super passage system? | CO3 | 1 |
| 19. | What are the types of sub-surface drainage system? | CO3 | 1 |
| 20. | Define land grading. | CO1,2,3 | 1 |

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| **PART – B (10 X 5 = 50 MARKS)**  **(Answer any 10 from the following)** | | | |
| 21. | Explain various advantages and disadvantages of irrigation. | CO2 | 5 |
| 22. | Explain the factors affecting the duty of water. | CO2 | 5 |
| 23. | Describe the different components of CADA programme. | CO1 | 5 |
| 24. | Describe the different types of irrigation efficiencies. | CO2 | 5 |
| 25. | Explain in detail the different components of underground pipe line systems. | CO1,2,3 | 5 |
| 26. | What are the advantages and disadvantages of lining of channels? | CO1 | 5 |
| 27. | How you will estimate crop water requirement or irrigation water requirement? | CO2 | 5 |
| 28. | Explain in detail the different methods of irrigation scheduling. | CO2 | 5 |
| 29. | Explain in detail the working of OFD. | CO1 | 5 |
| 30. | Write the factors considered for improving the duty of water. | CO3 | 5 |
| 31. | Describe the Warabandhi irrigation system. | CO1 | 5 |
| 32. | Explain in detail the land leveling methods. | CO2,3 | 5 |

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| **PART – C (2 X 15 = 30 MARKS)**  **(Answer any 2 from the following)** | | | | |
| 33. | a. | Explain any two methods of surface irrigations with advantages and disadvantages. | CO2 | 8 |
| b. | Design of an irrigation channel (Kennedy’s theory) to carry a discharge of 45 cumecs. Assume N = 0.0225, m = 1. The channel bed slope of 0.16m/km. Assume the depth 1.8m, z = 1:1/2. | CO1,2 | 7 |
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| 34. | a. | Derive an equation for delta and duty of irrigation water. | CO2 | 8 |
| b. | Describe the different types of surface drainage systems. | CO3 | 7 |
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| 35. | a. | Wheat is to be grown at a certain place of useful climatological conditions of which are tabulated. Define the ET and consumptive use irrigation requirement of wheat crop. Also determine the field irrigation requirement if the water application efficiency is 0.7. Use of blanney criddle equation and a crop factor is 0.75.   |  |  |  |  | | --- | --- | --- | --- | | Month | Temperature in ˚C (t) | Daytime sunshine hr (p) | Useful R.F in cm (RE) | | November | 19.0 | 7.19 | - | | December | 16.0 | 7.15 | 1.2 | | January | 12.5 | 7.30 | 0.8 | | February | 13.0 | 7.03 | - | | CO2 | 7 |
| b. | A channel section has to be designed for the following data; discharge Q = 100 cumecs, silt factor f = 1.1, side slope = 0.5 : 1. (use Lacey’s theory). | CO1 | 8 |