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Question Paper Code: 54104

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Fourth Semester

Civil Engineering

15UCE404- WATER RESOURCES AND IRRIGATION ENGINEERING

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

- Alkaline soils are best reclaimed by CO1- R
 - leaching
 - addition of gypsum to soil
 - providing good drainage
 - addition of gypsum to soil and leaching
- With the increase in supplied irrigation water, the yield of crops CO1- R
 - Increases continuously
 - Increases upto a certain and then becomes constant.
 - Decreases continuously
 - increases up to a certain limit and then decreases
- The most expected crops in a hot arid district of Rajasthan State in India, in the month of September are CO2- R
 - Rice and sugarcane
 - Bazar and maize
 - Wheat and maize
 - Tobacco and cotton
- The relation between duty(D) in hectares/ cumec, delta (Δ) in meters and base period (B) in days is CO2- R
 - $\Delta = 8.64 B / D$
 - $\Delta = 86.4 B / D$
 - $\Delta = 8.64 D / B$
 - $\Delta = 8640 B / D$
- If two canals are taken off from both the flanks of a river at the side of a diversion headwork, then the number of undersluices and divide walls will respectively be CO3- R
 - 1 and 1
 - 1 and 2
 - 2 and 1
 - 2 and 2

6. In a barrage project, a divide wall is provided to CO3- R
- (a) Separate the lower crest ‘undersluice side’ from the higher crest ‘weir side’
 (b) Separate the higher crest ‘undersluice side’ from the lower crest ‘weir side’
 (c) Keep the cross currents away from the barrage body
 (d) Serve none of the above purposes
7. A canal escape is a structure constructed for the purpose of CO4- R
- (a) dissipating excess energy (b) acting as a forebay
 (c) discharging wastewater from the canal (d) all of the above
8. Silt excluders are constructed CO4- R
- (a) On the river bed downstream of the head regulator
 (b) On the river bed upstream of the head regulator
 (c) On the canal bed downstream of the canal head regulator
 (d) None of these
9. The efficiency of water conveyance does not depend upon CO5- R
- (a) Climatic conditions
 (b) Geometry of the conveyance system
 (c) Nature of the boundary of the conveyance system
 (d) Method of application of water
10. Over irrigation is responsible for CO5- R
- (a) seepage (b) water logging
 (c) water management (d) permeability
- PART – B (5 x 2= 10 Marks)
11. State the salient features of national water policy. CO1- R
12. Distinguish between crop period and base period. CO2- R
13. Mention the forces acting on the gravity dam CO3- R
14. Classify various types of canal. CO4- R
15. What are the systems of rice intensification? CO5- R
- PART – C (5 x 16= 80 Marks)
16. (a) (i) Discuss the advantages and ill effects of irrigation CO1- U (8)
 (ii) Describe the soil water potential and its components CO1- U (8)

Or

- (b) Briefly explain the steps involved in water resources planning and development of irrigation projects. CO1- U (16)
17. (a) (i) Explain the factors affecting duty. How to improve duty? CO2- U (8)
(ii) Outline the various irrigation efficiencies CO2- U (8)
- Or
- (b) Summarize the consumptive use of water and the factor affecting consumptive use of water. How will you measure it? CO2- U (16)
18. (a) (i) Differentiate between weir and barrage CO3- U (10)
(ii) Discuss the factors to be considered for selecting the site for a dam. CO3- U (6)
- Or
- (b) Enumerate the various types of spillways with neat sketches CO3- U (16)
19. (a) (i) Compare Kennedys and Lacey's regime theory. CO4- U (8)
(ii) With a neat sketch, discuss the types of cross drainage works that are necessary on a canal alignment. CO4- U (8)
- Or
- (b) Summarize the different methods of surface irrigation with their merits and demerits. CO4- U (16)
20. (a) (i) Discuss the various techniques used for distributing water in the farms. CO5- U (8)
(ii) Write short note on participatory irrigation management CO5- U (8)
- Or
- (b) Discuss in detail about water user associations and economic aspects of irrigation CO5- U (16)

