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**Question Paper Code: 54104**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2019

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 ( $\Delta$ ) 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)

