Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Engineering

End Sem Examination Dec 2024

CE3CO29 Water Resources Engineering

Programme: B.Tech. Branch/Specialisation: CE

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	PO	CO	PSO
Q.1	i.	Hydrology helps in- (a) Predicting maximum flows (b) Forecasting the availability of quantity of water at reservoir site (c) Deciding the minimum reservoir capacity (d) All of these	**1**	1	1	1,2	1
	ii.	The surface Run-off is the quantity of water- (a) Absorbed by soil (b) Intercepted by buildings and vegetative cover (c) Required to fill surface depressions (d) That reaches the stream channels	**1**	1	1	1,3	1
	iii.	For predicting floods of a given frequency, the best reliable method is- (a) Unit hydrograph (b) Gumbel's method (c) California method (d) None of these	**1**	1	1	1,2	1,2
	iv.	The hydraulic methods of flood routing use- (a) Continuity equation (b) Continuity and momentum equation (c) Energy equation (d) Continuity and energy equation	**1**	1	1	1,4	1,2
	v.	What is the quantity of water that a unit volume of aquifer drains by gravity called? (a) Porous volume (b) Water yield (c) Specific yield (d) Unit yield	**1**	1	1	1,2	1

P.T.O.

vi.	A geological formation which stores water and is also capable of transmitting water through its pores at a large rate is called- (a) Aquifer (b) Aquiclude (c) Aquifuge (d) Aquitard	**1**	1	1	1,3	1
vii.	What is total depth of water, for complete growth of crop called? (a) Triangle (b) Delta (c) Duty of water (d) Rotation period	**1**	1	1	1,2	1,2
viii.	What is the time interval between the sowing and harvesting of crops? (a) Base period (b) Kor period (c) Crop period (d) Season period	**1**	1	1	1,2	1
ix.	Loss of canal discharge occurs mainly due to- (a) Seepage and percolation (b) Percolation and absorption (c) Seepage and evaporation (d) Seepage and absorption	**1**	1	1	1,3	1,2
x.	Which type of canal is most useful in hilly areas? (a) Side Slope canal (b) Contour canal (c) Watershed canal (d) Field channel	**1**	1	1	1,4	1

Q.2	i.	Explain hydrological cycle with neat sketch.	**4**	1	2	1,2	1
	ii.	What are the forms of precipitation? Distinguish between the precipitation and the rainfall.	**6**	2	2	1,3	1
OR	iii.	What do you understand by the rainfall intensity? Explain the methods for the preparation of the intensity duration curves.	**6**	2	2	1,2	1,2
Q.3	i.	What are types of flood?	**3**	1	2	1,3	1
	ii.	What are the different methods of flood control? Explain them in detail.	**7**	2	2	1,4	1
OR	iii.	What do you understand by flood control? Discuss the various types of flood control reservoirs.	**7**	2	2	1,5	1,2

Q.4		Attempt any two:						
	i.	Describe the various methods for lifting water.	**5**	2	2	1,3	1
	ii.	Explain the advantages and disadvantages of well irrigation over canal irrigation.	**5**	2	3	1,4,5	1,2
	iii.	What are the methods of drilling tube well.	**5**	2	2	1,5	1,3
Q.5	i.	Define a relationship between duty and delta.	**4**	3	2	1,3	1
	ii.	Discuss in brief various methods of surface irrigation	**6**	2	2	1,4	1,2
OR	iii.	Describe the various methods to improve duty.	**6**	2	2	1,4	1,3
Q.6	i.	What is canal alignment?	**2**	2	2	1,3,4	1
	ii.	Compare Kennedys theory and Lacey's theory. What are the limitation of both the theories?	**8**	3	3	1,2,3	1,2
OR	iii.	Design an irrigation channel in alluvial soil according to Lacey's silt theory for the following data: Full supply discharge $50m^3$/sec., Lacey's silt factor 1.0 and side slope of channel ½H: 1V.	**8**	4	4	1,2,3	1,3

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Marking Scheme
CE3CO29 WATER RESOURCES ENGINEERING

Q.1	i)	All of the above	**1**
	ii)	that reaches the stream channels	**1**
	iii)	Unit hydrograph	**1**
	iv)	Continuity and momentum equation	**1**
	v)	Specific yield	**1**
	vi)	Aquifer	**1**
	vii)	Delta	**1**
	viii)	Crop period	**1**
	ix)	Seepage and Evaporation	**1**
	x)	Contour Canal	**1**
Q.2	i.	Correct Explaination of hydrological cycle- 3 marks Neat sketch- 1 marks	**4**
	ii.	Forms of Precipitation - 3 marks Distinguish between the precipitation and the rainfall- 3 marks	**6**
OR	iii.	the rainfall intensity- 3 marks the methods for the preparation of the intensity duration Curves - 3 marks	**6**
Q.3	i.	types of Flood- 3marks	**3**
	ii.	different methods of Flood control- 3 marks Explanation in detail- 4 marks	**7**
OR	iii.	Flood control- 3marks various types of Flood control reservoirs- 4marks	**7**
Q.4	i.	various methods for lifting water- 5marks	**5**
	ii.	advantages disadvantages of well irrigation over canal irrigation - For each point give 1/2 mark	**5**
	iii.	methods of drilling tube well - 5marks	**5**
Q.5	i.	relationship between duty and delta- 4 marks	**4**
	ii.	various methods of surface irrigation - 6 marks	**6**
OR	iii.	various methods to improve duty- 6 marks	**6**
Q.6	i.	Canal Alignment definition- 2 marks	**2**
	ii.	Compare Kennedys theory and Lacey's theory- 4marks limitation of both the theories- 4 marks	**8**
	iii.	Design an irrigation channel Fundamental equations- 3 marks Derived equations- 5 marks	**8**

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