Total No. of Questions : 12]

P5572

SEAT No. :

[Total No. of Pages : 3

[Max. Marks: 70

[5561] 514

B.E. (Civil) (Semester - II) DAMS AND HYDRAULIC STRUCTURES (2015 Pattern)

Time : 2½ Hours]

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10, Q.11 or Q.12.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Use of electronic non-programmable calculator is allowed.
- 5) Assume suitable data if necessary.

Q1) Discuss the impact of climate change on a water resource project. [6]

- OR
- Q2) Differentiate between Large Dam and Small Dam. What will be your choice and why?[6]
- Q3) a) Discuss various methods to reduce uplift pressure at the base of gravity dam.
 - b) What are the factors affecting selection of arch dam? [2]

OR

- Q4) a) What is elementary profile of a gravity dam? How it is modified to get practical profile? [6]
 - b) Enlist any four Load Combinations considered for design of gravity dam. [2]

P.T.O.

Q5) Draw a labeled sketch of ogee spillway showing all components. [6] OR Q6) Enlist types of spillway gates and explain anyone. [6] State different corrections suggested by Khosla. Explain in detail the **Q**7) a) correction for mutual interference of piles. 6 Determine the factor of safety of downstream slope of homogenous b) earth dam section drawn to a scale of 1:500 [8] Length of slip circle arc = 15 cm i) Total area of N-Rectangles = 16.5 cm^2 ii) Total area of T Rectangles = 7 cm^2 iii) Total area of U - Rectangles = 5 cm^2 iv) Angle of Internal friction $= 26^\circ$ Cohesion = 0.2 kg/cm^2 vi) Specific weight of soil = 1.8 kg/cm^3 vii) Explain seepage failure of earthen dam. [4] c) OR Briefly explain different causes of failure of earthen dams. **08)** a) [8] Differentiate between weir and barrage. b) With the help of expression explain 'Exit Gradient'. Also give permissible c) values of it for various soils. [6] **Q9**) a) What is a canal? Explain three types of canals based on function. [8] Design an unlined alluvial canal section to carry a discharge of $10 \text{ m}^3/\text{s}$. b) The longitudinal slope is 1 in 4000 and the side slope is 0.5 H : 1 V. Use Lacey's theory and take silt factor f = 0.9. [8] OR

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<i>Q10)</i> a)	Design an irrigation channel section to carry a discharge of 5 m ³ /s. Assur N = 0.0225 and m = 1, Consider trial depth D = 1.0 m and channel be slope as 0.0002.	ne ed 8]
b)	What is a Canal Fall? Discuss the necessity of it.	4]
c)	Write a short note on :	4]
	i) Canal Escape.	
	ii) Ogee Fall.	
Q11) a)	Explain necessity of cross drainage work. Explain Syphon Aqueduct detail with neat sketch.	in []
b)	What do you understand by river training work? What are the functio	ns
	of marginal bunds?	8]
	OR	
<i>Q12)</i> a)	Write a short note on :	8]
D	i) Super passage.	
	ii) Level crossing.	
b)	Explain in brief:	8]
	i) Attracting groyne.	
	ii) Deflecting groyne.	20
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	6.4-	
[<i>22/</i> 1] <i>2</i>		
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