CE701 – Irrigation Engineering

P. Pages : 2

Time : Three Hours

1361

GUG/W/18/1732

Max. Marks : 80

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Notes : 1. All questions carry equal marks & compulsory.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.
4. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.

1.	a)	Define duty, delta and base period? Derive a relation between them.	**8**
	b)	Define irrigation and discuss the benefits and ill effects of irrigation.	**8**

OR

2. a) Determine the frequency of irrigation from the following data. **8**

  i) Field capacity of soil – 35%

  ii) Permanent wilting point – 18%

  iii) Density of soil – $1.5\,g/cm^2$

  iv) Depth of root zone – 70 cm

  v) Daily consumptive use of water – 17 mm.

  b) Describe in brief various method of surface irrigation. **8**

3. a) State and explain what types of investigation are required for reservoir planning. **8**

  b) Define river training and explain guide bank system of river training work in details. **8**

OR

4. a) Describe various method adopted as a water logging measures. **8**

  b) Distinguish between the following : **8**

  i) Spur and groyne

  ii) Attractive groyne and repelling groyne.

5. a) What are the various modes of failure of a gravity dam? Describe briefly. **8**

  b) State and explain types of Spillway gates. **8**

OR

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6. a) State the condition in which bucket type of energy dissipater is preferred. Explain with neat sketches the bucket type energy dissipater. **8**

b) Distinguish between **8**

   i) Gravity Dam & Earthen Dam

   ii) Elementary profile of gravity dam and practical profile of gravity dam.

7. a) Design an irrigation channel section for the following data. **10**
   Discharge – 30 cumces.
   Silt factor – 1.0
   Side slope - $\frac{1}{2}:1$

   Draw the complete channel cross section assuming it to be in part cutting and filling.

b) Distinguish between initial region and final regime. **6**

OR

8. a) State and explain in detailed type of lining. **8**

b) Write note on losses in Canal. **4**

c) State drawbacks of Kennedy theory. **4**

9. a) Explain with neat sketch sluiceway. **8**

b) Discuss in brief submerge intakes. **8**

OR

10. a) What do you understand by rigid module and describe the working of Gibb's module. **8**

b) Write a note on **any two.** **8**

   i) Siphon

   ii) Silt Ejector.

   iii) Bligh's Creep Theory.

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