Code No: **R1641012** **R16** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, March – 2021

WATER RESOURCES ENGINEERING - II

(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
****

PART–A *(14 Marks)*

1.	a)	What are inundation canals?	[3]
	b)	Define balancing depth of canal.	[2]
	c)	What is canal fall?	[2]
	d)	How can you differentiate weir & barrage?	[2]
	e)	What are Rigid dams?	[2]
	f)	Define spillway?	[3]

PART–B *(4x14 = 56 Marks)*

2.	a)	Define irrigation? What is the necessity of irrigation?	[7]
	b)	Compare surface irrigation with subsurface irrigation.	[7]
3.	a)	Define canal? Give the classification of canals and explain.	[7]
	b)	Briefly mention layout and design of canals.	[7]
4.	a)	Discuss in brief the various types of falls? Give neat sketches.	[7]
	b)	Describe the functions of distributors head regulators and cross regulators.	[7]
5.	a)	Classify head works. What are the various components of diversion head works? Draw a neat diagram and explain the function of each component.	[7]
	b)	Give classification of weirs and explain.	[7]
6.	a)	What are the functions of a dam?	[5]
	b)	What forces act on a gravity dam? Explain with the help of a diagram.	[9]
7.	a)	Discuss the criteria for safe design of earth dam.	[7]
	b)	What are the various types of spillways	[7]

Code No: **R1641012** **R16** **Set No. 2**

IV B.Tech I Semester Regular/Supplementary Examinations, March – 2021

WATER RESOURCES ENGINEERING - II

(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
****

PART–A *(14 Marks)*

1. a) What is contour farming? [3]
   b) Draw a cross section of canal. [2]
   c) Define Cross Drainage works. [2]
   d) What is exit gradient? [2]
   e) What is reservoir sedimentation? [2]
   f) What is discharge formula of ogee fall? [3]

PART–B *(4x14 = 56 Marks)*

2. a) Explain the terms duty and delta. Derive a relationship between the two. [7]
   b) Discuss various methods of assessment of irrigation water. [7]

3. a) Explain various considerations for alignment of a canal. [7]
   b) Design an irrigation channel on Kennedy's theory to carry a discharge of 45 cumes. Take N=0.0225 and , M=1.05. The channel has a bed slope of line 5000. [7]

4. a) What do you understand by level crossing? [7]
   b) Explain the procedure of designing straight glacis fall. [7]

5. a) Distinguish clearly between a weir and a barrage. [7]
   b) Discuss in brief various causes of failures of weirs and their remedies. [7]

6. a) Explain in detail the factors to be considered in the selection of site for reservoir. [7]
   b) Explain with neat sketch elementary profile of a gravity dam. Derive the expression for base width of a gravity dam. [7]

7. a) Explain with the help of a sketch the components of a zoned embankment dam. [7]
   b) Write a note on ogee-shaped spillway. [7]

Code No: **R1641012** **R16** **Set No. 3**

IV B.Tech I Semester Regular/Supplementary Examinations, March – 2021

WATER RESOURCES ENGINEERING - II

(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
*****

PART–A *(14 Marks)*

1. a) What is crop rotation? [3]
   b) What is canal lining? [2]
   c) What is the function of cistern? [2]
   d) Define piping. [2]
   e) What are the functions of drainage gallery? [2]
   f) What is the function of stilling basin? [3]

PART–B *(4x14 = 56 Marks)*

2. a) Write a note on sprinkler method of irrigation. [7]
   b) What are the factors affecting duty? How can duty be improved? [7]

3. a) Explain various types of canals. [7]
   b) Design a regime channel for a discharge of $35m^3$/sec with silt factor of 0.9 by lacey's theory taking side slopes as 11t : 2V. [7]

4. a) Write a note on selection of suitable type of cross drainage works. [7]
   b) Write a note on notch type fall? [7]

5. a) Write a note on location of head work? [7]
   b) Explain the procedure for the design of a vertical drop weir. [7]

6. a) Describe in brief various investigations required for reservoir planning. [7]
   b) Discuss in brief various modes of failure of a gravity dam. [7]

7. a) Discuss various methods used for energy dissipation below spillways? [7]
   b) Write a note on filter criteria for earth dam? [7]

Code No: **R1641012** **R16** **Set No. 4**

IV B.Tech I Semester Regular/Supplementary Examinations, March – 2021

WATER RESOURCES ENGINEERING - II

(Civil Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
*****

PART–A *(14 Marks)*

1.	a)	Define water application efficiency.	[3]
	b)	What are non erodible canals?	[2]
	c)	Write a short note on siphon aqueduct.	[2]
	d)	What is the function of crest gates?	[2]
	e)	What are the effects of reservoir sedimentation?	[2]
	f)	What is multipurpose project?	[3]

PART–B *(4x14 = 56 Marks)*

2.	a)	Discuss in brief the benefits and ill effects of irrigation.	[7]
	b)	The left branch canal carrying a discharge of 20cumes has culturable commanded area of 20,000 hec. The intensity of rabi crop is 80 percent and the base period is 120 days. The right branch canal carrying discharge of 8 cumes has culturable commanded area of 120000 hec, intensing of irrigation of rabi crop is 50 percent and the base period is 120 days. Compare the efficiencies of the two canal systems.	[7]
3.	a)	Explain Lacey's silt theory.	[7]
	b)	Derive expression for balancing depth of canal.	[7]
4.	a)	What is canal fall? Explain in detail sarda type of fall.	[7]
	b)	Explain with neat sketch of aqueduct.	[7]
5.	a)	Explain Bligh's creep theory.	[7]
	b)	What is meant by scour? What precautions do you like against it in weir design?	[7]
6.	a)	What do you understand by magi inflow curve and how is it prepared.	[7]
	b)	Give a practical profile of a low gravity dam.	[7]
7.	a)	Describe with the help of sketch the working of a volute siphon?	[7]
	b)	Explain the design procedure for the standard stilling basis type-I.	[7]