SIDDHARTH GROUP OF INSTITUTIONS::PUTTUR

Siddharth Nagar, Narayanavanam Road – 517583

<u>**QUESTION BANK (DESCRIPTIVE)**</u>

Subject with Code: WRE-II (16CE128)	**Course & Branch**: B.Tech - CE
Year & Sem: III-B.Tech & II-Sem	**Regulation:** R16

UNIT-I

CANAL REGULATION WORKS & CROSS DRAINAGE WORKS

1. a) What do you understand by a fall in a canal? Why it is necessary? [6M]

   b) How do you select location of canal fall? [4M]

2. a) What are the types of canal fall? [2M]

   b) Explain any four types of canal falls with neat sketch. [8M]

3. Briefly explain classification of canal falls. [10M]

4. Explain the procedure of designing of Sarada type fall. [10M]

5. Design a Sarada type fall for the following set of data. Full Supply Discharge-14 m^3/s, Bed width-18 m, Full Supply Depth (FSD) - 1.5 m, Full Supply Level (U/S) -101.00 m, Full Supply Level (D/S) -100.00 m, U/S Bed Level -99.5 m, D/S Bed Level- 98.5m, Natural Surface Level-99.5 m (D/S), Bligh's Coefficient (c) is -8.
   [10M]

6. With neat sketches explain about different offtake alignments. [10M]

7. Describe with the help of sketches various types of Cross Drainage Works. [10M]

8. Explain the functions of Head Regulators and Cross Regulators. [10M]

9. Write a detailed note on selection of suitable type of cross drainage works. [10M]

10. Explain the difference between Aqueduct and Syphon Aqueduct with neat sketches. [10M]

UNIT-II

STREAM GAUGING

1. a) Explain the necessity of stream gauging. [6M]

   b) List the criteria for selection of gauging site. [4M]

2. Mention various methods of discharge measurement and explain any two method in detail.
   [10M]

3. a) What is the data to be obtained from field measurements to determine the discharge by slope area method? [5M]

b) Explain how the discharge is computed by slope area method. [5M]

4. Explain the principal of surface and subsurface float for velocity measurements. [10M]

5. A 20 gm/lit solution of a chemical tracer was discharged into a stream at a constant rate of 0.01 lit/sec as sufficiently for from D/S observation point. The chemical was found to react an equilibrium concentration of 5 parts per billion. Estimate the stream discharge take the background concentration of trace chemical in a stream water as nil or zero [10M]

6. Write shorts notes on the following: a) current meter b) echo sounder. [10M]

7. During high flow water surface elevation of a small stream was noted at two sections A and B, 10km (A is upstream of B), these elevations and other salient properties are given below.

Section	Water surface elevation(m)	Area of cross section (m^2)	Hydraulic radius (m)
A	104.771	72.293	2.733
B	104.500	93.375	3.089

The appropriate eddy loss coefficients are 0.3 for gradual expansion and 0.1 for gradual contraction. Estimate the discharge in the stream, assuming Manning's roughness coefficient (n) as 0.020.

[10M]

8. Compute the stream flow for the measurement data given below: [10M]

Distance (m)	0	0.6	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.4	6	6.6
Depth (m)	0	0.3	1.29	2.16	2.55	2.22	1.68	1.41	1.05	0.63	0.42	0
Avg velocity (m/s)	0	0.315	0.465	0.66	0.73	0.555	0.645	0.57	0.51	0.435	0.38	0

9. Write shorts notes on the following: i) Manual gauge ii) Automatic gauge [10M]

10. Explain the discharge expression of ultrasonic and slope area method. [10M]

UNIT-III
RIVER ENGINEERING

1. Give a detailed account on various types of rivers. [10M]

2. What do you understand by meandering? What are the causes for meandering? [10M]

3. a) What are the basic factors controlling process of meandering? [5M]

   b) Explain general features of meandering. [5M]

4. How aggrading type of river and degrading type of river differ with each other? [10M]

5. a) What are the objectives of river training? [3M]

   b) How to classify the river training works? [7M]

6. Sketch a suitable cross selection of a guide bank as used in river training works. Explain the process of launching of aprons in such works.
[10M]

7. a) What are the effects of levees on flood flows? [5M]

   b) What are the points to consider the planning of levee? [5M]

8. Elaborate on various measures taken for bank protection. [10M]

9. a) Describe various types of groynes used for river training. [7M]

   b) What is the purpose of a groynes? [3M]

10. What do you understand by pitched island and pitched bank? [10M]

UNIT-IV
RESERVOIR PLANNING

1. a) Explain various types of reservoirs. [7M]

   b) What do you understand multipurpose reservoirs? [3M]

2. Describe in detail various investigation required for reservoir planning. [10M]

3. What are the various factors on which the selection of the site of a reservoir depends? [10M]

4. Explain how you would determine safe yield from a reservoir of a given capacity. [10M]

5. a) Write brief notes on reservoir yield. [5M]

   b)Write short notes on mass curve and demand curve. [5M]

6. Explain the different types of storages in a reservoir with the help of neat sketch. [10M]

7. Explain the mass curve method that can be used for determining: [10M]

   a) Reservoir capacity for fulfilling given demand

   b) Demand rate from a reservoir of a given capacity.

8. a) Write a note on reservoir sedimentation. [5M]

   b) How do you estimate the probable life of reservoir? [5M]

9. Describe various methods of reservoir sediment control in detail. [10M]

10. Explain clearly the graphical method of flood routing. [10M]

UNIT-V
DAMS & GRAVITY DAMS

1. Classify various types of dams. Distinguish clearly between rigid and non-rigid dam. [10M]

2. Discuss in brief merits and demerits of any four types of dam. [10M]

3. Discuss, with illustration the physical factors that governs the selection of type of dam. [10M]

4. What are the factors on which selection of site for a dam depends? [10M]

5. a) What do you understand by gravity dam? [5M]

   b) Explain various forces that act on a gravity dam. [5M]

6. Discuss in detail various modes of failure of a gravity dam. [10M]

7. a) Explain the methods of determining principal and shear stresses in gravity dam. [5M]

   b) Draw an elementary profile of a gravity dam and show various components on it. [5M]

8. a) Draw the practical profile of a gravity dam. [5M]

   b) Derive the limiting height of a gravity dam. [5M]

9. Explain the effect of wave pressure on gravity dam. [10M]

10. A masonry dam 6 m high and 1.5 m wide at the top and 4.5 m wide at the bottom, with vertical face. Determine the normal stresses at the toe and heel for reservoir empty and reservoir full conditions. Take ρ=2.4 and c=1.

    [10M]

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