

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2018-19 Examination

Semester: 7

Subject Code: 03104402

Subject Name: Water Resource and Irrigation Engineering

Date: 10/05/2019

Time: 10:30 am to 01:00pm

Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (Fill in the blanks, one-word answer, MCQ-not more than Five in case of MCQ) (All are compulsory) (Each of one mark) **(15)**

1. Consumptive use of a crop during growth, is the amount of
 - a.) Interception b.) Transpiration c.) Evaporation d.) All the above
2. Irrigation canals are generally aligned along
 - a.) Ridge line b.) Contour Line c.) Valley Line d.) Straight line
3. The difference in level between the top of a bank and supply level in a canal, is called
 - a.) Berm b.) Free Board c.) Height of bank d.) None of the above
4. When a canal and a drainage approach each other at the same level, the structure so provided, is
 - a.) Aqueduct b.) Super passage c.) Level crossing d.) Inlet and Outlet
5. The depth of rice root zone, is
 - a.) 50cm b.) 60cm c.) 80cm d.) 90cm
6. The main function of a diversion head works of a canal from a river, is
 - a.) to remove silt, b.) to control flood, c.) to raise water level, d.) all the above.
7. For designing of the diversion structures, the method generally preferred is _____.
8. The major resisting force of a gravity dam is _____.
9. A non-silting and non-souring channel is also called as _____.
10. Write Mitra's Transition Formula.
11. Give the relation between the base period(B), Duty (D) and Delta (Δ).
12. Define spillway.
13. Define consumptive use of irrigation.
14. The useful soil moisture for plant growth is _____.
15. The rise in water level due to the obstruction on the upstream side of the structure _____.

Q.2 Answer the following questions. (Attempt any three) **(15)**

- A) Explain the benefits and ill-effects of irrigation.
- B) Discuss the various causes of failure of earthen dam.
- C) Describe the functions of the followings (i) Fish ladder, (ii) Silt Excluder, (iii) Weir, (iv) Divide wall, (v) Canal head Regulator
- D) Enumerate the detailed classification of soil water.

Q.3 A) What do you mean by Regulating Structures? Classify the types of canal escapes. **(07)**

B) Explain the following: (i) NIR, (ii) GIR, (iii) FIR, (iv) CIR. **(08)**

OR

B) Enlist and explain the different forces acting on a Gravity Dam. **(08)**

Q.4 A) Design an irrigation channel for a discharge of 6 cumecs considering a side slope of 0.5 H: 1V. Take Lacey's silt factor as 1.0 and determine the bed slope of the channel. **(07)**

OR

A) Define Cross Drainage Structure. Explain the various classification of the Cross Drainage works. **(07)**

B) Explain the various causes of failure of gravity dam. **(08)**