C09–C–403

3424

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2013

DCE—FOURTH SEMESTER EXAMINATION

IRRIGATION ENGINEERING

Time : 3 hours] [*Total Marks* : 80

PART—A

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State the principal crop seasons in our country. What are the main crops grown in the respective seasons?

2. What is sprinkler irrigation? State the crops and soil conditions for which it is suitable.

3. Differentiate between a storage headwork and diversion headwork.

4. List the component parts of a weir.

5. State any three situations where earthen dams are suitable.

6. What is a spillway? What are its functions in a dam?

7. Define the following :

(a) Phreatic line

(b) Saturation gradient in the dam

8. Define the following :

(a) Syphon aqueduct

(b) Super passage

9. State any six characteristics of watershed.

10. What is meant by water harvesting? Why is it necessary?

PART—B

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain Symon's rain gauge with a neat sketch.

12. *(a)* State the different methods of expressing duty.

(b) Explain the factors affecting duty of water.

13. State the functions of the following components of diversion headworks :

(a) Weir

(b) Scouring sluices

(c) Divide wall

(d) Head regulator

14. *(a)* What is the necessity of grouting in dams?

(b) Explain different types of grouting.

15. What are the different modes of failure of gravity dams? Explain the stability conditions.

16. Explain the points to be considered for the selection of site for a reservoir.

17. Draw a neat sketch showing the typical cross-sections of canals in *(i)* cutting, *(ii)* partial cutting and embankment and *(iii)* embankment.

18. Explain the various objectives of watershed management.

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