

**GANPAT UNIVERSITY**  
**B. Tech. Semester: VII (CIVIL)**  
**CBCS Regular Theory Examination – Nov-Dec, 2016**  
**2CI 704 IRRIGATION ENGINEERING**

Time: 3 Hours

Total Marks: 70

- Instructions: 1 Answer to the two sections must be written in separate answer books.  
2 Assume suitable data if required.  
3 Figures to the right indicate full marks

**Section-I**

- Q-1(a) Defines the term 'Irrigation'. State the different methods of irrigation. Which irrigation system is the most efficient? Why? 6
- Q-1(b) What is 'Lift Irrigation'? State the advantages of lift irrigation. In which geological formation the lift irrigation can be developed? Why? 6

OR

- Q-1(a) Classify and narrate the scope of irrigation. 6
- Q-1(b) State the ill effects of irrigation. Explain the precautionary measures to control the ill effects of irrigation. 6
- Q-2(a) Discuss in brief the factors affecting the duty. How would you improve duty? 6
- Q-2(b) If wheat requires about 10 cm of water after 35 days, and the base period is 140 days, determine the duty for wheat. 5

OR

- Q-2(a) What is canal Lining? What are the advantages of canal lining? State the different types of canal lining with indicative rugosity coefficient. 6
- Q-2(b) A canal has capacity of 2.5 cumec at its head and conveyance efficiency of 80%. If the Duty of the crop it serves is 1600 ha/cumec; what is the maximum size of command area it can serve? 5

- Q-3 Answer any three of the followings: 12

- (1) Write a short note on 'Cross-Drainage works'.
- (2) Draw a typical canal section in full cutting.
- (3) Write a note on Sprinkler Irrigation system.
- (4) Necessity of irrigation.
- (5) Points to be attended while fixing canal alignment.

## Section-II

- Q4 (a) Which factors make the construction of earthen dam economical? What precautions are necessary against over topping of earthen dam by flood waters? 6
- Q4 (b) State the major forces acting on the 'Gravity dam'. Explain that the tension crack by itself does not cause failure of the dam but it leads to the failure of the dam by crushing or overturning. 6
- OR
- Q4 (a) Classify the failures of 'Earthen Dam'. Narrate the causes of seepage failures of earthen dam with remedies thereof. 6
- Q4 (b) Define the terms 'Weir' and 'Barrage'. State the objectives of constructing Diversion Headwork. Differentiate 'Weirs' and 'Barrages'. 6
- Q5 (a) Explain different types of spillways with sketch. 6
- Q5 (b) Narrate the Effects of construction of a Weir on the Regime of River. 5
- OR
- Q5 (a) What is Flownet? Narrate the methods of constructing Flownet. State the uses of the Flownet. 6
- Q5 (b) Construction of barrages is preferred now-a-days, why? 5
- Q-6 Answer any three of the following:- 12
- (1) Differentiate between Curtain grouting and consolidation grouting.
  - (2) Give comments on Swedish Slip Circle method.
  - (3) Write a note on 'Galleries in the Gravity Dam'.
  - (4) Compare Kennedy and Lacey theories.
  - (5) Draw a typical layout of a 'Diversion Headwork' showing details.

END OF PAPER