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9. Describe the following :
- (a) Necessity and classification of drains.
  - (b) Land drainage and land reclamation
  - (c) Spur and cutoffs

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B. Tech. (Civil) 6th Semester (G Scheme)

Examination, July-2022

IRRIGATION ENGINEERING

Paper-PCC-CE-302-G

Time allowed : 3 hours]

[Maximum marks : 75

Note : (i) Question No. 1 is compulsory. Attempt one question from each section.

(ii) All questions carry equal marks.  
(iii) Assume missing data, if any, suitably.

1. Describe the following :

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- (a) Field capacity
- (b) Enumerate the advantages and disadvantages of tube well irrigation.
- (c) Differentiate between siphon and super passage
- (d) Classification of cross drainage works
- (e) Requirements of spillway
- (f) Guide banks

Section-A

2. (a) Define base period and crop period. Give the relation between duty delta and base period. 7

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- (b) What is Drip irrigation ? Describe briefly the component parts of drip irrigation system. 8
- 3. (a) What are the various components of flow irrigation system ? Describe lift irrigation and flow irrigation in detail. 7
- (b) What are the uses of irrigation ? Differentiate between perennial and inundation irrigation. 8

**Section-B**

- 4. (a) Define silt ejector. Describe the different devices to control silt entry into the off-taking channel. 8
- (b) What is canal head work ? Describe the various components of canal head work. 7

- 5. Design a siphon aqueduct with the following data :
  - Discharge of canal = 56 cumecs
  - Bed width of canal = 32 m
  - Canal depth = 1.98 m
  - Bed level of canal = 267.00 m
  - High flood discharge of the drainage = 425 cumecs
  - Bed level of drainage = 265.50 m
  - HFL of the drainage = 268.20 m
  - General ground level = 267.20 m

**Section-C**

- 6. (a) What are the requirements of a canal outlet ? Describe the different types of canal outlets with their characteristics. 7
- (b) A water course is to take a flow of 0.04 cumec. Design an open flume outlet from the connected distributary if the full supply depth in the distributary is 70 cm. 8

- 7. (a) What are the different types of spillway ? Describe any two types of spillway in detail with neat diagram. 8
- (b) What do you mean by stilling basin ? Explain I.S. stilling basin in detail. 7

**Section-D**

- 8. (a) What are the objectives of river training works ? Describe in detail the methods and planning of river training. 8
- (b) Describe in detail different causes of water logging. Also describe its preventive measures. 7