

Time: 3 Hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit.

Each question carries 10 marks and may have a, b, c as sub questions.

## PART-A

(25 Marks)

- 1.a) Discuss the concept of Watershed Development. [2]
- b) Describe Physiographic characteristics of a watershed. [3]
- c) Explain the administrative requirements of a watershed. [2]
- d) What is flood frequency analysis? Explain. [3]
- e) Draw and explain rock fill dam. [2]
- f) Describe land fertility and land capability. [3]
- g) Explain the need for soil moisture conservation. [2]
- h) Discuss the advantages of water harvesting. [3]
- i) What is meant by saline and alkaline soils? [2]
- j) Explain what is participatory watershed management? [3]

## PART-B

(50 Marks)

- 2.a) Write short notes on the following:
    - i) Geomorphologic Characteristics of watershed
    - ii) Socio-economic characteristics of watershed
  - b) Explain in detail watershed development stages. [5+5]
- OR
- 3.a) Discuss in detail Implementation of watershed management practices in India.
  - b) Briefly explain about the criteria's involved in watershed development activities? [5+5]
4. What are the causes and effects of erosion? Explain the universal soil loss equation. Also, explain the different types of factors involved in this equation. [10]
- OR
- 5.a) What is a watershed action plan and Why should we develop a watershed plan?
  - b) Why does the plan need to be locally based? Who should participate in watershed planning? [5+5]
6. Define Land use and Land capability? How land capability is classified and what are the different objectives of Land capability classification? [10]

OR

7.a) Write short note on methods to control soil erosion:

i) Brushwood dam ii) Gabion iii) gully control iv) terracing

b) Differentiate between geologic erosion and accelerated erosion.

[5+5]

8.a) What is the need for water harvesting in the watershed? How do you harvest rainwater from rooftop? Explain with sketch.

b) What do you understand by artificial recharge? Explain.

[5+5]

OR

9.a) Write in detail about catchment harvesting.

b) Write a note on farm ponds or dugout pond. Explain with sketches.

[5+5]

10. What is participation? Discuss the role of local institutions in sustainability, productivity and equity as a part of Integrated Watershed Development.

[10]

OR

11.a) Write short notes on the following:

i) Mixed and strip cropping ii) Dry land agriculture.

b) Discuss in detail the role of ecosystem and bio-mass management.

[5+5]

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