



17578

15162

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) *All questions are compulsory.*
 - (2) *Answer each next main question on a new page.*
 - (3) *Illustrate your answers with neat sketches wherever necessary.*
 - (4) *Figures to the right indicate full marks.*
 - (5) *Assume suitable data, if necessary.*
 - (6) *Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.*

Marks

1. Solve any ten :

20

- a) Define soil.
- b) Write the importance of soil.
- c) Define :
 - i) Soil particle density
 - ii) Porosity
- d) Explain the term soil texture.
- e) Enlist the methods used to determine soil moisture.
- f) State Darcy's law and its use.
- g) Define soil erosion. Name the agents causing it.
- h) What is Rill erosion ?
 - i) What is contour bunding ?
 - j) Enlist the types of terraces.
- k) Name various soil conservation structures.
 - l) Write the importance of farm ponds.
- m) What is i) Rock filled dam ii) Hydraulic filled dam.
- n) Enumerate the types of i) spillways and ii) outlets.

P.T.O.

**2. Solve any four :****16**

- a) Explain the necessity of soil and water conservation.
- b) Name major soils of India. Explain any two.
- c) Explain textural classification of soil.
- d) Explain the factors that affect soil structure.
- e) Write the importance of soil structure.
- f) Define :
 - i) Bulk density
 - ii) Consistency of soil. Write use of each.

3. Solve any four :**16**

- a) Explain any two methods of finding soil moisture.
- b) Define :
 - i) field capacity and
 - ii) permanent wilting percentage.Write an equation to compute available water.
- c) Classify soil moisture and explain one type.
- d) Explain the importance of soil permeability.
- e) Define :
 - i) ESP
 - ii) SAR
- f) Write the benefits of tillage operations.

4. Solve any four :**16**

- a) Explain the effects of salt on physical properties of soil.
- b) Explain mechanics of
 - i) Rain drop erosion and
 - ii) Sheet erosion
- c) What are gullies ? State and explain briefly the classification of gullies.
- d) Explain the factors that affect the erosion by water.
- e) Explain the types of soil movement in wind erosion.
- f) Discuss the factors affecting erosion by wind.



[3]

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Marks

5. Solve any four :

16

- a) Explain the measures adopted for control of soil erosion by wind.
- b) Explain strip cropping technique.
- c) Write the details of various tillage operations.
- d) State advantages and disadvantages of contour bunds.
- e) Write a short note on vegetated waterways, stating its purpose and design parameters.
- f) Enlist the types of check dams and state suitability of each.

6. Solve any four :

16

- a) Using sketch explain the working of drop spillway.
 - b) Name the types of spillways used as permanent soil conservation structures and state adaptability of each.
 - c) Write constructional features of drop inlet spillway (meant for erosion control).
 - d) Name various water harvesting structures. Explain one in detail.
 - e) Draw a neat cross section of earth dam and label parts.
 - f) Explain the causes of failure of earth dam.
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