17578

11819

3 Hours / 100 Marks Seat No. | | | | | | | | |

Instructions : *(1)* ***All*** *questions are* ***compulsory****.*
(2) Illustrate your answers with ***neat*** *sketches* ***wherever*** *necessary.*
(3) Figures to the ***right*** *indicate* ***full*** *marks.*
(4) Assume suitable data, if ***necessary****.*
(5) ***Use*** *of Non-programmable Electronic Pocket Calculator is permissible.*
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt **any five** of the following : **20**

a) Define soil. State its four functions.

b) Define following terms.

i) Bulk density

ii) Consistancy

iii) Void ratio

iv) Degree of saturation.

c) State and explain "Darcy's Law". State its validity too.

d) Write four factors on which rate of erosion of soil depends.

e) Write note on raindrop erosion.

f) What are the principles of erosion control ?

g) State different types of spillways, explain any one.

2. Attempt **any two** of the following : **16**

a) Enlist various constituents of soil. State their importance for plant growth.

b) Explain the textural classification of soil with neat sketch.

c) Define "Soil Structure". State the factors affecting it.

Marks

3. Attempt **any two** of the following : **16**

a) State and explain the methods of determination of moisture of soil.

b) Define the following terms :

i) Maximum retentive capacity

ii) Permanent wilting percentage

iii) Hygroscopic co-efficient

iv) Field capacity.

c) Write note on soil tilth and its importance.

4. Attempt **any two** of the following : **16**

a) What is permeability of soil ? State factors affecting on it.

b) What do you mean by soil erosion ? State its types. Also enlist the agents causing soil erosion.

c) Write note on :

i) Process of saltation

ii) Surface creep.

5. Attempt **any two** of the following : **16**

a) Enlist eight principles of erosion control of soil.

b) What is terracing ? State and explain it types.

c) Explain the design parameters of contour bund.

6. Attempt **any two** of the following : **16**

a) State with neat sketch :

i) Drop spillway

ii) Chute spill way.

b) What do you mean by ground water recharge ? State methods of recharging ground water. Explain any one.

c) Draw a neat sketch (cross section) of an earthen dam showing all components. Also state function of each component.

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