

ARUNACHAL PRADESH PUBLIC SERVICE COMMISSION

SOIL SCIENCE PAPER - I

Time: 3 (Three) hours

Full marks: 100

(Group - A is compulsory. Attempt any FOUR questions from Group - B).

GROUP - A

(This Group is COMPULSORY)

Q.1. Answer any 10 (ten) of the following questions.

10x2=20

- a. What is soil? How it is different from land.
- b. Write different fraction of soil composition.
- c. Define soil texture. Which textual class is considered to be most ideal for growing upland crops?
- d. What is soil air? How it is different from atmosphere.
- e. What is Darcy's Law? Deduce it mathematically for saturated flow in soil.
- f. Write the basic concept of soil mineral.
- g. Give the major reasons of soil erosion in Arunachal Pradesh.
- h. How soil pH affects on growing plants.
- i. What is suitable pH for growing forest crops?
- j. What is humus? Write down the role of humus in soil.
- k. What do you mean by Green Manuring? Write down the methods of Green Manuring with suitable example.
- l. What is leg-haemoglobin? Discuss the role of leg-haemoglobin.

GROUP - B

(Answer any Four.)

Q.2. Attempt any 8 (eight)

2.5x8=20

- a. What is soil moisture? Describe the importance of soil moisture constant.
- b. Write about the different classes of soil water.
- c. Explain the movement of water in soil.
- d. Write the classification of organic matter with the suitable example.
- e. How humus form in soil in different environment?
- f. Write the principle of soil organic matter estimation.
- g. What is humic substance? How does it bind the soil particles?
- h. $AW = FC - PWP$ -explain the situation in soil.
- i. How do you estimate and maintain field capacity in a field growing crops?
- j. What are the erosion control measures on hilly terrain with more than 30% slope?

Q.3. Attempt any 5 (five)

4x5=20

(Write short notes on any five of the following)

- a. Master horizon
- b. Denitrification
- c. Amorphous clay

