

110341

AGRICULTURE

Time : 3 hours

Full Marks : 200

Instructions :

- (1) Answer all questions following the directions.
- (2) The figures in the right-hand margin indicate full marks for the questions.

1. Write short notes on **any five** from the following (not exceeding **50** words):

5×5=25

- (a) Evapotranspiration
- (b) Osmosis
- (c) Green manuring
- (d) Enzymes
- (e) Calvin cycle
- (f) DNA
- (g) Plant parasite nematode
- (h) Backcross

2. Answer **any two** from the following (in about **80** words) :

- (a) What do you understand by nitrification? Name the organisms involved in the process. What are the important factors that affect nitrification? 2+2+4=8
- (b) Write the differences between of the following : 4+4=8
 - (i) Photosynthesis and Respiration
 - (ii) C₄ plants and CAM plants
- (c) Mention some strategies for increasing the pulse production in Arunachal Pradesh. 8

3. Answer *any two* from the following (in about **125** words) :

- (a) What is seed? Give the important characteristics of good seeds. Briefly describe the certification procedure and different classes of seeds according to nature and precaution with which the seeds are produced. 2+3+7=12
- (b) What is soil erosion? Discuss the different measures to control water erosion in hilly areas of Arunachal Pradesh. 2+10=12
- (c) What are the principles of extension programme planning? Write the programme planning processes briefly. 6+6=12

4. Answer *any five* from the following (in about **150** words) :

- (a) What is crop rotation? What are the principles of crop rotation? Write the advantage of crop rotation. 2+7+6=15
- (b) Differentiate between water requirement and irrigation requirement. How is irrigation scheduled? Describe the different methods of irrigation of field and horticultural crops. 2+5+8=15
- (c) What are the essential elements required for the growth of higher plants? Write the criteria of essentiality of plant nutrients. Write the role of N, P and K on growth and development of crop plants. 3+3+9=15
- (d) What is a pureline? Mention the important characteristics of pureline. What are the merits and demerits of pureline selection? 2+5+4+4=15
- (e) Describe any *two* of the following with reference to horticultural crops : 7½×2=15
- (i) Cutting
- (ii) Layering
- (iii) Grafting
- (f) How are agricultural markets classified according to seller and time? Briefly discuss the problems of agricultural marketing in Arunachal Pradesh. 5+5+5=15

5. Answer *any three* from the following (in about **200** words) :

- (a) What is integrated farming system (IFS)? What are the advantages of IFS? In the context of integrated farming system (IFS), describe the feasible enterprise diversification for Arunachal Pradesh with special reference to small landholdings. Discuss in detail the management practices of IFS. 2+5+6+7=20
- (b) How is water absorbed by plants? Describe briefly the active and passive absorption mechanisms. Discuss the factors affecting water absorption. 2+10+8=20
- (c) Write brief notes on (any *four*) : 5×4=20
- (i) Late blight of potato
 - (ii) Blast of rice
 - (iii) Red rot of sugarcane
 - (iv) Bacterial wilt of tomato
 - (v) Fruit borer in brinjal
- (d) What do you understand by integrated pest management? Describe the principles involved in integrated pest management. Describe the integrated pest management strategy for lowland *kharif* rice. 2+8+10=20
