

18/12/13

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**B.E. / B.Tech. (Full Time) DEGREE ARREAR EXAMINATIONS, NOV / DEC 2013**

**AGRICULTURAL AND IRRIGATION ENGINEERING BRANCH**

③

**THIRD SEMESTER**

**AI 9203 – PRINCIPLES OF CROP PRODUCTION**

(REGULATION 2008)

Time: 3 hours

Answer ALL Questions

Max Marks: 100

Part – A (10 x 2 = 20 Marks)

- 1) How are atmospheric gases important for crop growth?
- 2) Expand – ICAR, NFCL, SPIC, DAP
- 3) What do you understand by *package of practices* and *cost of cultivation*?
- 4) Write a note on Universal Soil Loss Equation.
- 5) Differentiate low analysis and high analysis fertilizer grades with examples.
- 6) Draw a sketch of sub-soiler and discuss its role in ploughing.
- 7) List 4 fruits each that are to be harvested before and after ripening with reasons.
- 8) Give few examples of millets including minor millets and fibre crops.
- 9) What are spices and plantation crops? Give examples.
- 10) Write any 4 fruits/vegetables/flowers with their botanical names and the places where they are largely grown.

Part – B (5 x 16 = 80 Marks)

- 11) a) i) It is recommended that a farmer applies 75 kg of nitrogen and 25 kg of phosphorus per hectare to his field. How much of ammonium nitrate and triple super phosphate should be applied to achieve the recommended rate? (6)
- ii) Discuss the Integrated Nutrient management in crop production. (10)
- 12) a) i) Explain the advantages and disadvantages of intercropping systems. (8)
- ii) Discuss the various parameters of solar radiation on crop growth. (8)
- (or)
- b) i) Knowledge on multidisciplinary subjects is necessary in practising agriculture. Justify. (8)
- ii) How does the plant spacing and arrangement affect crop growth? (8)
- 13) a) i) What is soil matric tension? How it is directly measured in soil? (8)

ii) What is soil texture? Explain how it is classified and its importance for plant growth. (8)

(or)

b) i) Discuss the soil moisture depletion method and crop critical stages method of irrigation scheduling. (12)

ii) In a 20 ha catchment, the soil erosion is to be evaluated. The following information for the catchment is available.  $R = 1000 \text{ t-m/ha mm/h}$ ;  $K = 0.25 \text{ t/ha/R}$ ;  $LS = 0.1$ ; vegetative cover factor = 0.5, contour farming is practiced in 12 ha ( $P=0.6$ ) and strip cropping in the remaining area ( $P=0.3$ ). Calculate the soil loss using USLE and the annual soil loss when no such conservation measure is taken up. (4)

14) a) i) Discuss the important features of Low land method of rice cultivation. (8)

ii) What is *ratooning* and explain how a ratoon crop of sugarcane or sorghum is grown? (8)

(or)

b) i) Explain the package of practices for sugarcane cultivation. (9)

ii) What are green manures? Explain their role in crop production with examples. (7)

15) a) i) Discuss the vegetative propagation methods of mango and banana. (9)

ii) What are the major divisions of horticulture? Explain them with examples. (7)

(or)

b) i) What is micro irrigation? Discuss any one method in detail with a neat sketch. (10)

ii) Discuss the organic farming practises. (6)