

Selection test for JRF in Agriculture & Ecology (RAE) to be held in 2006.

Junior Research Fellowship in Agronomy

SYLLABUS

Standard: M.Sc. (Agriculture) in Agronomy of Indian University.

1. Agrometeorology:
What is agrometeorology; weather forecasting; water balance model; available moisture index model; factors limiting growth, development and yield of crop as affected by light, temperature, humidity and precipitation. Growth and development in adverse environmental conditions like drought, flood.
2. Basic Agronomy:
The inventory of potentialities in a) climate, b) soil types, c) irrigation, d) manure and fertilizers, and e) package of practices, and their utilization.
3. Crop improvement:
Mechanism of variability and selection-seed production and distribution, seed testing and certification and storage of seeds-description and variety improvement of cereals (rice, wheat, maize), pulses (gram, pigeon pea, green gram, black gram), oilseeds (rape mustard, groundnut, linseed, sesame) and commercial crops (jute, sugarcane, potato).
4. Crop growth and nutrition:
Growth and development in adverse conditions like acidity, salinity and alkalinity of soil. Role of nutrient elements- major and minor. Factors affecting their availability.
5. Soil fertility and water management:

Soil fertility problems; role of organic matter, soil reaction and crop rotation in soil fertility; important manure and fertilizers including biofertilizers, their application and behaviour in different soils; soil testing methods and fertilizer recommendation; role of water in plant development and crop production; systems of irrigation and drainage; irrigation requirement of different field crops.

6. Crop husbandry:

Advanced studies in the cultural practices of rice, wheat, maize, cotton, jute, potato, forage crops, pulses and oilseeds; economics of crop production; different cropping systems including inter and mixed cropping.

7. Field experimentation:

Objects and trends in agronomic experiments; application, layout and analysis of data of principal experimental designs viz. Randomized block, Latin squares, factorial experiments, split-plot and confounding; computation of linear and curvilinear regressions and their uses.

Sample questions for RAEI test (forenoon) 2006.

1. The interculture operation in standing broadcast rice crop commonly known as
(a) Thinning (b) Spudding (c) Rotation (d) Beushening
2. For getting 10% advantage, the LER should be
(a) 1.00 (b) 0.50 (c) 1.10 (d) 110
3. From the following select one medium duration rice cultivar
(a) Pankaj (b) Masuri (c) Jaya (d) Sabita.
4. The optimum row spacing of wheat is
(a) 22.5cm (b) 15.5cm (c) 30cm (d) 5cm.
5. Triple super phosphate is
(a) Water soluble (b) alkali soluble (c) Acid soluble (d) Citrate soluble.
6. The optimum temperature for germination of rice seeds is
(a) 18 - 20⁰ C (b) 20 - 22⁰ C (c) 30 - 32⁰ C (d) 37 - 39⁰ C
7. Which one of the following parts of the tobacco plant synthesises nicotine?
(a) Root (b) Stem (c) Branch (d) Leaf
8. LER is a index to assess
(a) Light intensity (b) Intercropping advantage (c) Crop rotation advantage (d) Leaf area.
9. Which of the following disease affects young seedlings at nursery stage
(a) Fusarium wilt (b) Little leaf (c) Early blight (d) Damping off.
10. In a RBD experiment with ten sowing dates of wheat replicated thrice, the error MSS value is estimated as 24.6. Select the correct CD value.
(t at 0.05 P = 2.101)
(a) 5.32 (b) 7.57 (c) 8.51 (d) 10.02.
11. Alluvial soil according to soil taxonomical classification can be called as
(a) Entisol (b) Vertisol (c) Ultisol (d) Oxisol.
12. IW/CPE ratio in wheat under alluvial soil condition is
(a) 0.92 (b) 0.88 (c) 0.78 (d) 0.67.

13. Which should be lime requirement of a sandy loam lateritic soil with pH 5.4?
(a) 5.3 q/ha (b) 10.5 q/ha (c) 14.2 q/ha (d) 16.8 q/ha.
14. In a 120 days rice variety initiation of panicle primordia is noticed after
(a) 40 (b) 50 (c) 60 (d) 70 (Days after transplanting)
15. In an intercropped plot mixture of ij and ji crop yielded 3867 and 1254 kg/ha respectively whereas as sole crops ii and jj yielded 4775 and 4321 kg/ha. LER calculated is
(a) 1.10 (b) 1.34 (c) 1.00 (d) 1.24.

Sample questions for RAE II test (afternoon) 2006.

1. What is LER? How is LER calculated? What are the differences between inter and mixed cropping? State the importance of intercropping.
2. State the criteria for essentiality of nutrients for plant? State the roles of Mo and B in crop nutrition. Classify phosphatic fertilizers.
3. What are the different forms of soil water? What is available Water? What is wilting point? State how soil moisture may be conserved for crops?
4. What is the dominant pulse crop in India? Write down its climatic requirements and rotations followed with this crop. Name five improved varieties of this crop.