BOOKLET NO.   TEST CODE : **AEA**

<u>Forenoon</u>

Questions: 120 marks   Time : 2 hours

On the answer-booklet write your Name, Registration Number, Test Code, Number of this booklet, etc., in the appropriate places.

This test contains 30 questions in all. For each of the 30 questions, there are four suggested answers. Only one of the suggested answers is correct. You will have to identify the correct answer in order to get full credit for that question. Indicate your choice of the correct answer by darkening the appropriate oval completely on the answer sheet. You will get

4 marks for each correctly answered question,
0 marks for each incorrectly answered question and
1 mark for each unattempted question.

ALL ROUGH WORK MUST BE DONE ON THE BOOKLET AND/OR ON
THE ANSWERSHEET. YOU ARE NOT ALLOWED
TO USE CALCULATOR.

STOP ! WAIT FOR THE SIGNAL TO START

AEA

Agriculture (Agronomy, Agricultural Chemistry and soil science)

Answer all questions

Choose the correct answer

1. Apatite is a group of minerals which mainly contains
   (a) Sulfur
   (c) Phosphorus
   (b) Nitrogen
   (d) Titanium

2. For getting 25% advantage, the LER should be:
   (a) 100
   (c) 0.15
   (b) 1.25
   (d) 125

3. A soil with 20me/ 100g CEC and 5me/ 100g exchangeable H will have a base saturation of
   (a) 25.0%
   (c) 75.0%
   (b) 80.00%
   (d) 133.3%

4. Hydraulic conductivity of soil varies directly with
   (a) Capillary porosity
   (c) Non-Capillary porosity
   (b) Total porosity
   (d) Water holding capacity

5. Which of the following element is not essential for plants but proves to be beneficial for some?
   (a) Copper
   (c) Boron
   (b) Sodium
   (d) Iodine

6. Fixation of 'P' is more in
   (a) Acid soil
   (c) Neutral soil
   (b) Submerged soil
   (d) Saline soil

7. The instrument, which is used, for measuring the relative humidity is known as-

(a) Hygrometer   (c) Anemometer

(b) Axonometer   (d) Hydrometer

8. Percentage of moisture held in soil at a tension of 15 atmosphere is referred to as

(a) Wilting point or wilting percentage

(b) Wilting coefficient of available water

(c) Moisture capacity

(d) None of the above

9. Available potassium of less than 110 kg / ha of soil is considered at

(a) Low   (c) Medium

(b) High   (d) None of these

10. Which soil covers maximum area in India?

(a) Black cotton soil   (c) Alluvial soil

(b) Arid and desert soil   (d) Lateritic soil

11. Phosphorus content in India soil ranges from

(a) 0.03 – 0.06%   (c) 2.0 – 5.8%

(b) 10 – 15%   (d) 0.8 – 1.0%

12. The study of the relationship of agricultural crops and environment is called

(a) Auto-ecology   (c) Agro-ecology

(b) Agro-climatology   (d) Agro-meteorology

13. Consider data on average temperature and average rainfall for each of 10 days. If the data on the average temperature and average rainfall for another day are included, the correlation between average temperature and average rainfall will

 (a) Increase or remain the same but not decrease

 (b) Decrease or remain same but not increase

 (c) Increase or decrease but not remain same

 (d) Increase, decrease or remain same

14. Raising a crop entirely by harvested water comes under:

 (a) Rainfed farming   (c) Dry land farming

 (b) Irrigated farming   (d) None of these

15. In determination of soil available phosphate by Olsen's method, extractant used is

 (a) Ammonium acetate   (c) Sulphuric acid

 (b) Sodium di-carbonate   (d) Ammonium fluoride.

16. In a 2-year rotation, First year crops are maize-wheat-moong followed by jute-paddy-wheat-black gram in the Second year. Crop Intensity per cent calculated is

 (a) 300   (b) 350   (c) 400   (d) 450

17. When organic matter with wide C:N ratio (70:1) is added to the soil, the net effect is disappearance of mineral nitrogen, due to

 (a) Mineralization   (b) Immobilisation

 (b) Nitrogen transformations   (d) Nitrogen reduction

18. Hydraulic conductivity of soil varies directly with

   (a) Capillary porosity   (b) Non-Capillary porosity

   (c) Total porosity   (d) Water holding capacity

19. The standard deviation of the sample mean

   (a) Increases with the sample size

   (b) Decreases with the sample size

   (c) Increases or remain the same with the sample size

   (d) Decreases or remain the same with sample size

20. Water use efficiency (WUE) is calculated by

   (a) $WUE = {}^Y/_{WR}$ (b) $WUE = {}^Y/_{ET}$

   (c) $WUE = {}^Y/_{CU}$ (d) None of these

21. A soil scientist performed soil analysis on the same sample 15 times and found the mean pH values content of the soil to be 5.3 while s.d. was 2.8. Another one repeated the same analysis on the same soil sample 15 times and found the mean and s.d. values to be 5.1 and 6.1.

   (a) The analysis of first scientist is more accurate than the second

   (b) The analysis of second scientist is more accurate than the first

   (c) Both are very bad

   (d) Both are equally good

22. Rainfed farming in eastern plateau upland is characterized by

   (a) High return high variance   (c) High return low variance

   (b) Low return low variance   (d) Low return high variance

23. If you want to test the equality of variances of two population, each of which is distributed as normal, then you would use

   (a) a 'Z-test'   (c) a 't-test'

   (b) a χ^2-test   (d) a 'F-test'

24. Estimate seed quantity per hectare, if germination percent is 71, Test wt. is 28 g and the required plant population 250000 plants per ha

    (a) 10.37 kg   (c) 9.87kh

    (b) 10.97 kg   (d) 11.97 kg

25. In an intercropped plot mixture of A and B crop yielded 2842 and 434 kg/ha respectively whereas as sole crops A and B yielded 3250 and 1160 kg/ha. LER calculated is

    (a) 1.00   (b) 1.25   (c) 1.34   (d) 1.40

26. Which of the following crops have been approved for commercial cultivation in India?

    (a) Bt cotton and Bt brinjal   (c) Bt cotton and Golden Rice

    (b) Bt maize and Bt cotton   (d) Bt cotton only

27. Which of the following does not apply to SRI method of paddy cultivation?

    (a) Reduced water application

    (b) Increased application of chemical fertilizers

    (c) Reduced age of seedlings

    (d) Reduced Plant density

28. A soil sample indicating pH = 7.5, EC 4.8 dS/m, exchangeable sodium percentage = 12, may be categorized as which one of the following?

    (a) Alkaline soil   (c) Saline soil

    (b) Saline alkaline soil   (d) Normal fertile soil

29. Which nitrogen transformation process is responsible for causing a decrease in Nitrate-N under anaerobic condition?

(a) Mineralization   (c) Notification

(b) Denitrification   (d) Immobilization

30. Which one of the following is responsible for the failure of crop in saline soil?

(a) High osmotic potential   (c) Poor aeration

(b) Low permeability   (d) Poor physical condition