DO NOT BREAK THE SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO

QUESTION BOOKLET

SERIES II

PAPER- II (Plant Breeding and Genetics, Soil Science and Agricultural Chemistry, Agricultural and Microbiology

BOOKLET SERIAL NO. 620470

Marks : 100

Time 1 hour

Read the following instructions carefully before you begin to answer the questions

INSTRUCTIONS TO CANDIDATES

1. This booklet contains **50 questions** to be answered in a separate OMR Answer Sheet using Black Ball Pen in following three parts:

   Part-A-Plant Breeding and Genetics : 20 questions, Part-B- Soil Science and Agricultural Chemistry : 20 questions, Part-C- Agricultural and Microbiology : 10 questions

2. All Questions are compulsory.
3. You will be supplied the Answer sheet separately by the invigilator. You must complete the details of particulars asked for.
4. Answers must be shown by completely blackening the corresponding circles in the Answer Sheet against the relevant question number by Black Ball Pen. OMR Answer Sheet without marking series/ double series marking shall not be evaluated.

Example :

Supposing the following question is asked :-

The Capital of Meghalaya is-

A. Guwahati
B. Kohima
C. Shillong
D. Delhi

You will have four alternatives in the Answer Sheet for your response corresponding to each question of the Question Booklet as below :-

Ⓐ Ⓑ Ⓒ Ⓓ

In the above illustration, if your chosen response is alternative C i.e. Shillong, then the same should be marked on the Answer Sheet by blackening the relevant circle with a Black Ball Point Pen only as below :-

Ⓐ Ⓑ ● Ⓓ

WHICH IS THE ONLY CORRECT METHOD OF ANSWERING

5. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any one question.
6. There will NOT be any negative marking for wrong answers.
7. The Answer Sheet must be handed over to the invigilator before you leave the Examination Hall.
8. No rough work is to be done on the Answer Sheet. Space for rough work has been provided in the question booklet.

PAPER-II

PART-A : Plant Breeding and Genetics

Each question carries two marks :

1. Cross pollination in maize is mainly on account of which of the following ?
a) Dioecism
b) Monoecism
c) Protogyny
d) Self-compatibility

2. Which one of the following breeding methods is most appropriate for development of disease resistant varieties ?
a) Mass selection
b) Back cross method
c) Recurred selection
d) Bulk method

3. A cultivar developed through population improvement approach can be maintained with proper identity through ?
a) Pure line selection
b) Random mating in isolation
c) Selfing in isolation
d) Top crossing

4. Mostly plant cell wall is made up of ?
a) Cellulose
b) Sucrose
c) Glycogen
d) Pectin

5. Who gave the double helix model of DNA ?
a) Watson and Crick
b) Arnon and Stroumt
c) Johnson and Darwin
d) Fleming and Leibing

6. Polyploidy is induced through ?
a) Irradiation
b) Mutagenic chemicals
c) Ethylene
d) Colchicine

7. Heterosis is ?
a) Appearance of spontaneous mutation
b) Induction of mutation
c) Mixture of 2 or more traits
d) Superiority of hybrids over their parents

8. The quickest method of plant breeding is ?
a) Introduction
b) Selection
c) Hybridization
d) Mutation breeding

9. Pure line breed refers to ?
a) Heterozygosity only
b) Homozygosity only
c) Homozygosity and self-assortment
d) Heterozygosity and linkage

10. Paddy inflorescence is ?
a) Ear
b) Spikelet
c) Arrow
d) Panicle

11. 'Power house' of cell ?
a) Lysome
b) Ribosome
c) Nucleus
d) Mitochondria

12. Phenomenon where a single gene has more than one phenotyphic effect is known as ?
a) Hypostasis
b) Pleiotropism
c) Epistasis
d) Duplicate gene

13. In breeding in cross pollinated crops increase due to ?
a) Homozygosity
b) Herterozygosity
c) Polyploidy
d) Population mean

14. A top cross test is done to evaluate the performance of ?
a) Inbred line
b) Single cross hybrid
c) Pure line
d) Double cross hybrid

15. In which of the following seed storage conditions, the longevity of the seeds would be maximum ?
a) Normal ambient storage
b) Moisture proof storage
c) Dehumidified with low temperature (5-8°C) storage
d) Dehumidified storage only

16. The seed dormancy can be detected by ?
a) Vigour test
b) Germination test
c) Tetrazolium test
d) Purity test

17. The hormone needed for cell division during germination of seed ?
a) Gibberelin
b) Abscisic acid
c) Cytokinin
d) Ethylin

18. Somatic hybridization is achieved through ?
a) Grafting

b) Conjugation
c) Protoplast fushion
d) Recombinant DNA technology

19. In the process of plant breeding, bagging is done to ?
a) Avoid cross pollination
b) Avoid self-pollination
c) Achieve desired pollination
d) Prevent contamination from foreign pollen

20. When both the alleles of a gene are fully expressed in a heterozygote, what is this phenomenon called ?
a) Complete dominance
b) Over dominance
c) Co dominance
d) Pseudo dominance

PART-B
Soil Science and Agriculture Chemistry

Each question carries two marks :

21. Flow of nitrogen in soil mainly due to ____
a) Mass flow b) Diffusion
c) Interception d) None of the above

22. Which one is lower category for classification of soil ?
a) Soil order b) Family
c) Soil series d) None of the above

23. Which clay mineral is responsible for cracking in black soil ?
a) Kaolinite b) Illite
c) Vermiculite d) Montmorillonite

24. Which method used for determination of available phosphorus in acid soil ?
a) Bray b) Olsen
c) Walkley and Black d) Jackson

25. The percentage of clay in sandy loam is ?
a) 20-30% b) 40-60%
c) 25-30% d) 0-20%

26. Nitrogen content in vermicompost ?
a) 3% b) 5%
c) 7% d) 10%

27. Micro element available in soil with alkaline pH is ?
a) Zinc b) Copper
c) Iron d) Molybdenum

28. Potassium is absorbed by plants in ionic form as ?
a) K b) K^+
c) K^{++} d) K_2O

29. Which nutrient deficiency in plant cause growth stunt and pale-yellow colour of leaf ?
a) Nitrogen b) Phosphorus
c) Magnesium d) Potassium

30. Hue denotes ?
a) Dominant spectrum
b) Lightness or brightness
c) Purity
d) Intensity

31. Which fertilizer produce acidity in soil ?
a) Ammonium Sulfate
b) Sodium nitrate
c) Calcium ammonium nitrate
d) Calcium nitrate

32. Rock phosphate has P_2O_5 ?
a) 10-20% b) 20-40%
c) 30-50% d) 20-30%

33. The conversion factor for calculating P from P_2O_5 ?
a) P_2O_5 x 2.29 b) P x 0.44
c) P x 2.29 d) P_2O_5 x 0.44

34. Soil colloidal particle shows the phenomena?
a) Plasticity
b) Adhesion and cohesion
c) Flocculation
d) All of the above

35. Hydrogen bond found in which clay mineral?
a) Kaolinite b) Montmorillonite
c) Vermiculite d) Beidelite

36. Denitrification is a process of _____
a) Oxidation b) Reduction
c) Hydration d) Carbonation

37. Ammonia volatilization is purely process of ____
a) Physical b) Chemical
c) Biological d) None of the above

38. Reddish colour in muriate of potash is due to ____
a) KCl b) Colour reagent
c) Impurities d) All of the above

39. Bedrock is absent in which soil ?
a) Black soil b) Red soil
c) Alluvial soil d) Forest soil

40. Which soil occur mainly a soil crust problem?
a) Sandy soil b) Silty clay loam
c) Loamy soil d) Clayey soil

PART-C
Agricultural and Microbiology

Each question carries two marks :

41. Which of the following is a N_2 fixing actinomycete ?
a) Acetobacter b) Azotobacter
c) Frankia d) Azospirillum

42. Name of bacteria producing endospore is ?
a) Bacillus b) Agrobacterium
c) E Coli d) Xanthomonas

43. Which of the following is a correct association ?
a) Polysome : group of golgi complex
b) Ribosome : electron transport chain
c) Lysosome : digestive enzyme for intracellular use
d) Mitochondria : transport materials from the nucleus to the cytoplasm

44. Which one explains ascent of sap ?
a) Cohesion theory
b) Mass flow
c) Malate hypothesis
d) Interfacial low hypothesis

45. The principal pathways of which water is translocated in angiosperms is ?
a) Xylem vessel system
b) Sieve cells of phloem
c) Xylem and Phloem together
d) Sieve tube members of phloem

46. All are free living nitrogen fixers except ?
a) Azospirillum b) Clostridium
c) Azotobacter d) Bacillus polymyxin

47. Among the following which is considered as the best indicator of water pollution ?
a) Bacillus b) Clostridium
c) E. coli d) Paramecium

48. Rhizobium has symbiotic association with ?
a) Legumes b) Non legume crops
c) Sugarcane d) Paddy

49. Azolla is widely used as nitrogen fixer in ?
a) Paddy fields b) Corn fields
c) Wheat fields d) All of the above

50. Microbes that solubilise fixed soil phosphorus are called ?
a) Phosphorus fixers
b) Phosphorus solubilising microorganism (PSM)
c) Phosphorus solubilisers
d) none of the above

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