**DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO**

**Test Booklet No. :** 01037

**Series** A

# TEST BOOKLET

## AGRICULTURE

**Time Allowed : 2 Hours** **Full Marks : 200**

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

1. The name of the Subject, Roll Number as mentioned in the Admission Certificate, Test Booklet No. and Series are to be written legibly and correctly in the space provided on the Answer-Sheet with Black/Blue ballpoint pen.
2. **Answer-Sheet without marking Series as mentioned above in the space provided for in the Answer-Sheet shall not be evaluated.**
3. All questions carry equal marks.

   **The Answer-Sheet should be submitted to the Invigilator.**

   *Directions for giving the answers* : Directions for answering questions have already been issued to the respective candidates in the 'Instructions for marking in the OMR Answer-Sheet' along with the Admit Card and Specimen Copy of the OMR Answer-Sheet.

   *Example* :

   Suppose the following question is asked :

   The capital of Bangladesh is
   (A) Chennai
   (B) London
   (C) Dhaka
   (D) Dhubri

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

   Ⓐ Ⓑ Ⓒ Ⓓ

   In the above illustration, if your chosen response is alternative (C), i.e., Dhaka, then the same should be marked on the Answer-Sheet by blackening the relevant circle with a Black/Blue ballpoint pen only as below :

   Ⓐ Ⓑ ● Ⓓ

   **The example shown above is the only correct method of answering.**
4. Use of eraser, blade, chemical whitener fluid to rectify any response is prohibited.
5. Please ensure that the Test Booklet has the required number of pages (16) and 100 questions immediately after opening the Booklet. In case of any discrepancy, please report the same to the Invigilator.
6. No candidate shall be admitted to the Examination Hall/Room 20 minutes after the commencement of the examination.
7. No candidate shall leave the Examination Hall/Room without prior permission of the Supervisor/Invigilator. No candidate shall be permitted to hand over his/her Answer-Sheet and leave the Examination Hall/Room before expiry of the full time allotted for each paper.
8. No Mobile Phone, Electronic Communication Device, etc., are allowed to be carried inside the Examination Hall/Room by the candidates. Any Mobile Phone, Electronic Communication Device, etc., found in possession of the candidate inside the Examination Hall/Room, even if on off mode, shall be liable for confiscation.
9. No candidate shall have in his/her possession inside the Examination Hall/Room any book, notebook or loose paper, except his/her Admission Certificate and other connected papers permitted by the Commission.
10. Complete silence must be observed in the Examination Hall/Room. No candidate shall copy from the paper of any other candidate, or permit his/her own paper to be copied, or give, or attempt to give, or obtain, or attempt to obtain irregular assistance of any kind.
11. This Test Booklet can be carried with you after answering the questions in the prescribed Answer-Sheet.
12. Noncompliance with any of the above instructions will render a candidate liable to penalty as may be deemed fit.
13. No rough work is to be done on the OMR Answer-Sheet. You can do the rough work on the space provided in the Test Booklet.

**N.B. : There will be negative marking @ 0·25 per 1 (one) mark against each wrong answer.**

SEAL



**[ No. of Questions : 100 ]**

1. Which of the following has the highest irrigation efficiency?
   (A) Flooding
   (B) Channel irrigation
   (C) Drip irrigation
   (D) Sprinkler irrigation

2. The key principles of organic farming are
   (A) mixed farming
   (B) crop rotation
   (C) organic cycle
   (D) All of the above

3. Ooze test is done to detect
   (A) bacterial pathogens
   (B) viral pathogens
   (C) fungal pathogens
   (D) All of the above

4. Consider the following statements regarding climate change :
   1. Climate change refers to long-term alterations in temperature and weather patterns caused by human activities.
   2. The Paris Agreement (2015) aims to limit global warming to well below 2 °C above pre-industrial level.
   3. Methane ($CH_4$) is a greenhouse gas with lower global warming potential than carbon dioxide ($CO_2$).
   4. Burning of fossil fuels releases greenhouse gases.

   Which of the statements given above are correct?
   (A) 1, 2 and 4 only
   (B) 1 and 4 only
   (C) 2 and 4 only
   (D) 1, 2, 3 and 4

5. Consider the following statements regarding soil bulk density :
   1. It is the ratio of total mass of soil solids to total volume of soil solids.
   2. An increase in organic matter lowers the bulk density of soil.

   Which of the statements given above is/are ***not*** true?
   (A) 1 only
   (B) 2 only
   (C) Both 1 and 2
   (D) Neither 1 nor 2

6. Which of the following plant diseases is/are caused by fungal pathogens?
   1. Blackheart of potato
   2. Clubroot of cabbage
   3. Sheath blight of rice
   4. Rice tungro

   Select the correct answer using the codes given below.
   (A) 2 and 3
   (B) 1 and 2
   (C) 1 only
   (D) 3 and 4

7. In a randomized block design (RBD) experiment with 5 treatments and 4 replications, which is the total degree of freedom (df)?
   (A) 12
   (B) 9
   (C) 19
   (D) 21

8. Sometimes phenolic inhibitors are excreted or washed down with rain; as a result, these inhibit the growth of other plants around the plant producing them. The phenomenon is known as

1. antagonism
2. chemobiosis
3. allelopathy
4. antibiosis

Which of the above is/are true?

(A) 1, 2 and 3

(B) 1 and 2 only

(C) 3 only

(D) 3 and 4

9. Consider the following statements :

1. The term 'microeconomics' has been derived from the Greek word 'MICROS'.
2. Microeconomics is also known as price theory.
3. Microeconomics fundamentally deals with economic behaviour of individual economic units such as consumers, resources, owners and business firms.

Which of the statements given above is/are true?

(A) 1 only

(B) 2 only

(C) All three

(D) None of the above

10. The word market in economics means :

1. A market is the sphere within which price determining forces operate.
2. A market is the area within which the force of demand and supply converge to establish a single price.
3. A market means only a particular marketplace in which things are bought and sold.

Which of the statements given above is/are ***not*** correct?

(A) 1 only

(B) 3 only

(C) None of the above

(D) All of the above

11. National Centre of Organic and Natural Farming in India is located at

(A) Hyderabad

(B) Pune

(C) Ghaziabad

(D) Kochi

12. NABARD was established on 12th July, 1982 on the recommendation of

(A) Sivaraman Committee

(B) Narasimham Committee

(C) Rangarajan Committee

(D) None of the above

13. A single-window delivery system for different services was started through

(A) KVK

(B) IRDP

(C) DRDA

(D) ATIC

14. The MANAGE was established in

(A) 1967

(B) 1977

(C) 1987

(D) 1997

15. How many tiers are there in the Panchayati Raj system?

(A) 6

(B) 3

(C) 4

(D) 2

16. IADP stands for

(A) Indian Agricultural Development Project

(B) Intensive Area Development Programme

(C) Intensive Agricultural Development Programme

(D) Intensive Agricultural District Programme

17. The farmer, who adopts the new technology just after hearing about it, is called

(A) early adopter

(B) innovator

(C) awareness

(D) laggard

18. Which one of the following is ***not*** a part of communication process?

(A) Advice

(B) Communicator

(C) Audience

(D) Message

19. Anything which is having value is called

(A) wealth

(B) utility

(C) price

(D) usefulness

20. The association of fungi with roots of higher plants is referred to as

(A) mycorrhiza

(B) lichen

(C) mutualism

(D) commensalism

21. Loose smut pathogen of wheat is

(A) externally seed-borne

(B) internally seed-borne

(C) airborne

(D) Both (A) and (B)

22. Phyllody is an important disease in

(A) maize

(B) rice

(C) brassica

(D) sesame

23. The pathogen responsible for citrus canker disease is a

(A) fungus

(B) bacterium

(C) virus

(D) mycoplasma

24. The ability of a pathogen to infect a host strain is termed as

(A) pathogenicity

(B) pathogenesis

(C) parthenocarpy

(D) None of the above

25. A disease of rice which is severe under high nitrogen supply and called rich man's disease is

(A) blast

(B) khaira

(C) brown leaf spot

(D) None of the above

26. The most effective control for the viral disease is

(A) crop rotation

(B) seed treatment

(C) use of virus-free propagating materials

(D) All of the above

27. Which among the following plants is used in the study of photosynthesis?

(A) Chlorella

(B) Asparagus

(C) Garden pea

(D) Acetabularia

28. Sugarcane crop seems dry and on splitting this cane, white and red bands are seen with foul smell. Choose the correct answer.

(A) It is due to red rot

(B) It is due to whip smut

(C) It is due to wilt

(D) It is due to grassy shoot

29. Bacterial diseases are controlled by the use of which of the following chemicals?

(A) Antibiotics

(B) Viricides

(C) Fungicides

(D) Kelthane

30. Gundhi bug (*Leptocorisa acuta*) attacks rice plant at

(A) flowering stage and thereafter

(B) pre-tillering

(C) tillering stage

(D) nursery stage

31. Calvin cycle occurs in

(A) cytoplasm

(B) peroxisome

(C) chloroplast

(D) mitochondria

32. Inbreeding results in

(A) heterozygosity of breed

(B) covering the unfavourable characteristics

(C) uniform families which are distinct

(D) an increase in heterozygosity of the individual

33. Poultry diseases like Ranikhet and Avian encephalomyelitis are caused by

(A) protozoa

(B) virus

(C) bacteria

(D) mycoplasma

34. The breeding between indigenous cows with exotic bulls in a scientific way is called

(A) line breeding

(B) *inter se* mating

(C) species hybridization

(D) crossbreeding

35. Lactometer is the instrument used for

(A) measuring purity of milk

(B) measuring density of milk

(C) measuring refractive index of milk

(D) measuring fat percentage of milk

36. The colour of egg yolk depends on the absence or presence of

(A) vitamin A

(B) riboflavin

(C) xanthophyll

(D) chlorophyll

37. Overfeeding of cow causes

(A) increase in fat % of milk

(B) increase in protein % of milk

(C) increase in milk yield

(D) no change in milk composition

38. Cow milk is ***not*** a complete food because

(A) it is deficient in fat content

(B) it is deficient in iron content

(C) it is deficient in protein content

(D) it is deficient in vitamin content

39. Which animal is known as the poor man's cow in India and as wet nurse of infants in Europe?

(A) Cattle

(B) Buffalo

(C) Sheep

(D) Goat

40. Gully erosion is an advanced stage of

(A) splash erosion

(B) sheet erosion

(C) rill erosion

(D) All of the above

41. Stubble mulching is associated with

(A) water erosion

(B) wind erosion

(C) glacial erosion

(D) None of the above

42. Particles less than 0·1 mm diameter are moved by the action of

(A) suspension

(B) saltation

(C) surface creep

(D) None of the above

43. The most relevant flow to cause soil erosion is

(A) laminar flow

(B) uniform flow

(C) turbulent flow

(D) All of the above

44. Wind erosion is common in

(A) arid zones

(B) arid and semi-arid zones

(C) humid zones

(D) All of the above

45. Contour farming, contour bunds and terraces, etc., are

(A) agronomical measures

(B) mechanical measures

(C) biological measures

(D) All of the above

46. Erosion-permitting crop is

(A) jowar

(B) bajra

(C) maize

(D) All of the above

47. The removal of dissolved materials from the soil is called

(A) glacial erosion

(B) physical erosion

(C) chemical erosion

(D) All of the above

48. Water harvesting stands for

(A) collection of runoffs over the ground surface

(B) storage of water into subsurface layer

(C) Both (A) and (B)

(D) None of the above

49. 'Dapog' method of rice nursery raising was introduced in India from

(A) Japan

(B) China

(C) Philippines

(D) USA

50. A farmer has provision of one irrigation for wheat crop. At what stage he should irrigate the crop?

(A) Crown root initiation

(B) Tillering

(C) Flowering

(D) Milk stage

51. Irrigation water would be injurious to crop if the boron content is

(A) 0–1 ppm

(B) 1–2 ppm

(C) 2–3 ppm

(D) > 3 ppm

52. Azolla biofertilizer is mainly used in the crop

(A) maize

(B) rice

(C) jowar

(D) bajra

53. Which one is ***not*** allowed in organic farming?

(A) Sewage sludge

(B) Cover rotation

(C) Crop rotation

(D) None of the above

54. Which is ***not*** a target of organic farming?

(A) To increase the biodiversity

(B) To improve soil structure

(C) To achieve maximum profit

(D) To increase water conservation

55. Which of the following is nitrification inhibitor?

(A) Neem cake

(B) Cotton cake

(C) Groundnut cake

(D) Mustard cake

56. Sustainable agriculture promotes the use of renewable resources such as

(A) fossil fuel

(B) synthetic fertilizer

(C) genetically modified organism

(D) solar energy

57. Which farming practice aims to maintain soil fertility and prevent erosion?

(A) No-till farming

(B) Monoculture farming

(C) Pesticide-intensive farming

(D) Overgrazing

58. The concept of crop logging was first used in Hawaii in the crop of

(A) sugar beet

(B) sugarcane

(C) sweet potato

(D) sweet sorghum

59. The process of entry of water into soil has been termed as

(A) permeability

(B) infiltration

(C) percolation

(D) hydraulic conductivity

60. The fruit of rapeseed and mustard is scientifically known as

(A) pod

(B) capsule

(C) siliqua

(D) caryopsis

61. One cubic meter of water is equivalent to

(A) 10 litres

(B) 100 litres

(C) 1000 litres

(D) 10000 litres

62. In a waterlogged soil, there is a high concentration of

(A) methane

(B) carbon dioxide

(C) carbon monoxide

(D) ethane

63. Which of the following is the noble cane?

(A) *Saccharum officinarum*

(B) *Saccharum spontaneum*

(C) *Saccharum barberi*

(D) *Saccharum robustum*

64. The yield advantage in an intercropping system can be measured by

(A) land equivalent ratio

(B) competition coefficient

(C) allelopathy index

(D) durability coefficient

65. A device measuring percolation and leaching losses from a column of soil under controlled conditions is called

(A) infiltrometer

(B) lysimeter

(C) tensiometer

(D) parshall flume

66. White tip of cereals is due to

(A) Zn deficiency

(B) Cu deficiency

(C) Mn deficiency

(D) Ca deficiency

67. Which of the following is an example of stomata closing type anti-transpirants?

(A) PMA

(B) Mobileaf

(C) Hexadecanol

(D) Silicon

68. The physiological disorder *little leaf of cotton* is caused due to the deficiency of

(A) Zn

(B) Mn

(C) Mo

(D) Cu

69. The secondary plant nutrient is

(A) P

(B) K

(C) Mg

(D) Zn

70. Decomposition of organic matter in submerged soil is carried out by

(A) bacteria

(B) actinomycetes

(C) fungi

(D) earthworm

71. Law of minimum was proposed by

(A) Arnon

(B) Crescenzi

(C) Liebig

(D) Nicholas

72. Gibberellin leads to cell elongation in

(A) normal plants

(B) genetically normal plants

(C) genetically dwarf plants

(D) genetically tall plants

73. RNA synthesis takes place in

(A) nucleus

(B) nucleolus

(C) ribosome

(D) cytoplasm

74. The crop growth rate (CGR) can be expressed as

(A) NAR × LAI

(B) NAR × LAR

(C) LAI × crop duration

(D) None of the above

75. When germination is suspended by the active endogenous inhibitors, it is called

(A) sterility

(B) incompatibility

(C) inviability

(D) dormancy

76. The whiptail on *Brassica* crops is due to the deficiency of

(A) molybdenum

(B) manganese

(C) sulphur

(D) zinc

77. Mallika is a regular bearing variety of

(A) guava

(B) mango

(C) aonla

(D) peach

78. Refractometer is used to determine

(A) minerals

(B) total soluble solids

(C) vitamins

(D) All of the above

79. Red ring is caused, in coconut, by

(A) nematode

(B) bacteria

(C) virus

(D) elements

**80.** Which of the following conditions are favourable for cyclic photophosphorylation?

(A) Aerobic condition only

(B) Aerobic and low light intensity

(C) Aerobic and optimum light

(D) Anaerobic and optimum light

**81.** The second stage of gibberellin biosynthesis is inhibited by

(A) quaternary ammonium compounds

(B) pyrimidine-like compounds

(C) acylcyclohexanediones

(D) None of the above

**82.** Minimum support prices should be declared

(A) before crop harvesting

(B) after crop harvesting

(C) before crop sowing

(D) at any time

**83.** The ratio between net returns to total cost of cultivation is

(A) benefit cost ratio

(B) land equivalent ratio

(C) income equivalent ratio

(D) None of the above

**84.** Two pesticides are tested against a pest. Treatment *A* reduces pest population from 200 to 50, while treatment *B* reduces from 200 to 80. Which treatment is more effective in terms of % reduction?

(A) Treatment *A* (75% reduction vs. 60%)

(B) Treatment *A* (57% reduction vs. 60%)

(C) Treatment *B* (75% reduction vs. 60%)

(D) Treatment *B* (57% reduction vs. 60%)

**85.** A number of bioassays have been devised for cytokinins, which are based in their physiological activities. They are

1. chlorophyll preservation test
2. cell division test
3. lettuce hypocotyl test
4. barley endosperm test

Which of the above are correct?

(A) 1, 2 and 3

(B) 1 and 2 only

(C) 2, 3 and 4

(D) 1, 3 and 4

**86.** Vernalin is a

1. hormone for root formation
2. hormone for shoot elongation
3. hormone for flowering
4. hormone for bud regeneration

Which of the above is/are true?

(A) 1 and 4 only

(B) 2 only

(C) 3 only

(D) 1, 2, 3 and 4

**87.** Among the three statements given below, which is/are correct?

1. Natural farming is unique chemical-free farming method, which integrates crops, livestock and tree, allowing natural biodiversity.
2. In natural farming, chemical insecticides are allowed.
3. Livestock is not considered as a component of natural farming.

(A) 3

(B) 2 only

(C) 1 only

(D) 1 and 2

**88.** An organism which has acquired a heritable variation as a result of sudden change in the heredity material is called

(A) hybrid

(B) mutant

(C) biotype

(D) albino

**89.** Sex form in most cucurbits including melons is

(A) hermaphrodite

(B) monoecious

(C) dioecious

(D) None of the above

**90.** The chromosome number in wheat endosperm is

(A) 21

(B) 42

(C) 63

(D) 14

**91.** An example of a heterozygous but homogenous population is

(A) pure line

(B) open-pollinated variety

(C) synthetic variety

(D) hybrid variety

**92.** Seed multiplication ratio in paddy is

(A) 1 : 80

(B) 1 : 40

(C) 1 : 100

(D) 1 : 10

**93.** In pulses, limiting amino acids are

(A) methionine

(B) tryptophan

(C) lysine

(D) Both (A) and (B)

**94.** DNA synthesis takes place in which stage?

(A) $G_1$ stage

(B) S phase

(C) $G_2$ stage

(D) None of the above

**95.** Nucleolus plays an important role in the production of

(A) rRNA

(B) tRNA

(C) mRNA

(D) All of the above

**96.** The 'Bhoot jolokia (Ghost pepper)'; once certified as the hottest chilli in the world, belongs to which species?

(A) *Capsicum annuum*

(B) *Capsicum frutescens*

(C) *Capsicum chinense*

(D) *Capsicum baccatum*

**97.** Which of these is a popular indigenous 'acid fruit' of Assam, often used to make refreshing summer drinks and pickles?

(A) Garcinia

(B) Dragon fruit

(C) Kiwi

(D) Avocado

**98.** The 'Kaji Nemu' is often referred to as the State fruit of Assam. What is its primary characteristic?

(A) It is elongated and seedless

(B) It has purple skin

(C) It is very sweet

(D) It is a type of berry

**99.** Maize cultivation is rapidly expanding in Assam. In which specific geographical areas it is most prominently grown?

(A) Urban industrial zones

(B) Hill tracts and Char (riverine) areas

(C) Flood plains with regular flood

(D) Deep forest areas

**100.** What is the unique physiological trait of 'Bao Dhan (deep-water rice)' of Assam?

(A) It can grow in low light

(B) It can grow with very minimum water

(C) Its stem elongates as water level rises in flood

(D) It has capacity to grow in hill top of N. C. Hills

**SPACE FOR ROUGH WORK**