

AGRONOMY

Roll No

080760

Question Booklet No

050259

Date: 19 May 2007

Time: 10 00-12 30 h

READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING THE QUESTIONS

1. This Question Booklet contains 160 questions.
2. Question numbers 1 to 150 are of multiple choice type. Each question (1 to 150) has four responses, and of these, only one is the most appropriate, which is required to be marked by HB pencil by the candidate by darkening the appropriate circle completely. Each question is of four marks. There will be negative marking for a wrong answer. For each wrong answer, one mark will be deducted from the total score.
3. Question numbers 151 to 160 are of cross matching type. There are five sub-questions in each question. Each question is of 5 marks. There will be negative marking for wrong answer. For each wrong answer of a sub-question, 0.20 mark will be deducted from total score.
4. No mark will be deducted if a question is not attempted. More than one answer will be treated as a wrong answer and will get negative marks.
5. Do not forget to complete the entries on side 1 of the OMR answer sheet such as Name, Roll Number, Centre of Examination and subject Code with ball pen only. Fill all the entries on side 2 with HB pencil only.
6. Use of unfair means will disqualify the candidate.
7. Use of calculator or any electronic device in the examination hall is not allowed.
8. Please hand over your Question Booklet and OMR Sheet before leaving the examination hall to the Invigilator.
9. Candidate can do rough work or calculations on the Booklet, but not on the OMR Sheet.

PLEASE CHECK THAT YOU GOT THE QUESTION BOOKLET FOR YOUR SPECIFIED SUBJECT

Agriculture Pathshala

AGRONOMY

1. Soil air contains
(A) 0.25% CO₂
(C) 2.5% CO₂
(B) 0.03% CO₂
(D) 3% CO₂
2. Non edible oilseed plant suitable for biodiesel is
(A) Corn
(C) Coconut
(B) Rapeseed
(D) Jatropha
3. Sulphur containing amino acid is
(A) Glutamine
(C) Glycine
(B) Lysine
(D) Methionine
4. Acid soil can be reclaimed by
(A) Pyrite
(C) Gypsum
(B) Lime
(D) Potassium
5. Most suitable crop for dryland farming in heavy black soils is
(A) Chickpea
(C) Linseed
(B) Safflower
(D) Mustard
6. Anaerobic nitrogen fixer is
(A) Clostridium
(C) Nitrobacter
(B) Azotobacter
(D) Nitrosomonas
7. Biosuper is
(A) Rock phosphate
(B) Rock phosphate + S - Oxidizing bacteria
(C) Rock phosphate + S + Thiobacillus
(D) Rock phosphate + S + Zn
8. Crop having maximum area under irrigation
(A) Wheat
(C) Cotton
(B) Rice
(D) Sugarcane
9. Crop having maximum number of pests
(A) Rice
(C) Cotton
(B) Sugarcane
(D) Wheat

Agriculture Pathshala

10. Higher seed rate is required when
(A) Sowing is timely
(C) Sowing is early
(B) Sowing is delayed
(D) Sowing time does not affect

11. Disease caused of Zn deficiency
(A) Khaira
(C) Mosaic

- (B) Whiptail
(D) Molya

12. Second degree function is

- (A) Linear function
(C) Cubic function

- (B) Quadratic function
(D) Cobb-Doglus function

13. Water stress can be measured by

- (A) Hygrometer
(C) Manometer

- (B) Barometer
(D) Potometer

14. 'Karnal Bunt' is caused by
(A) *Tolyposporium penicillariae*
(C) *Neovossia indica*

- (B) *Tolyposporium ehrenbergii*
(D) *Neovossia horridi*

15. The specific heat of water is

- (A) 1 cal/g
(C) 2 cal/g

- (B) 1 cal/kg
(D) 10 cal/g

16. Optimum time for harvesting jute for fibre purpose is

- (A) Pre-flowering
(C) Before pod formation

- (B) After flowering
(D) After pod formation

17. Delinting of cotton seed can be done with

- (A) Sulphuric acid
(C) Nitric acid

- (B) Hydrochloric acid
(D) Citric acid

18. Topping in tobacco means

- (A) Removal of all axillary buds
(B) Removal of panicle bud
(C) Removal of leaves
(D) Burning of leaves

19. Sugarcane inflorescence is

- (A) Compound
(C) Capitulum

- (B) Racemose
(D) Spikelet

20. Number of three budded sets required for sowing one hectare sugarcane is

- (A) 20-30 thousands
(C) 40-50 thousands

- (B) 30-40 thousands
(D) 50-60 thousands

- (C) Rill erosion
(D) Gully erosion

22. The critical leaf colour chart (LCC) reading for N top dressing in transplanted rice ranges from

- (A) 0-1
(C) 3-6

- (B) 5-6
(D) 1-2

23. Biurate content in urea is

- (A) 1.5%
(C) 3%

- (B) 2%
(D) 5%

24. The major predominant cropping systems followed in India are

- (A) 20
(C) 25
(D) 35

- (B) 30
(D) 35

25. Maize is

- (A) Self pollinated
(C) Cross pollinated

- (B) Often self pollinated
(D) Often cross pollinated

26. Short range weather forecast is valid for

- (A) 3 days
(C) 10 days

- (B) 3-10 days
(D) >10 days

27. Crop weather calendar has

- (A) 1 part
(C) 3 part

- (B) 2 part
(D) 4 part

28. Green house gas having largest contribution to global warming

- (A) Methane
(C) Nitrous oxide

- (B) Chlorofluorocarbon
(D) Carbon di-oxide

29. Rice nursery area is usually

- (A) 1/5th of the main field area
(C) 1/15th of the main field area

- (B) 1/10th of the main field area
(D) 1/20th of the main field area

30. 'Propping' is done in

- (A) Sugarcane
(C) Cotton

- (B) Tobacco
(D) Groundnut

31. 'Little leaf' in Cotton is due to the deficiency of

- (A) Nitrogen
(C) Molybdenum

- (B) Zinc
(D) Boron

'Witch weed' is

- (A) ~~Cuscutta~~
- (C) ~~Striga~~

- (B) ~~Loranthus~~
- (D) ~~Orobanchae~~

'Frankia' is

- (A) Actinomycetes biofertilizer
- (B) Fungal biofertilizer
- (C) Bacterial biofertilizer
- (D) Algal biofertilizer

Cultivation of crop regrowth after harvest is

- (A) Coppicing
- (B) Lopping
- (C) Pruning
- (D) Ratooning

'DHB-105' is a hybrid of

- (A) Cotton
- (B) Rice
- (C) Maize
- (D) Sunflower

CAN contains nitrogen in

- (A) Ammonical form
- (B) Nitrate form
- (C) Amide form
- (D) Ammonical and nitrate form

Conservation of inorganic to organic forms of nutrient in soil is

- (A) Nutrient fixation
- (B) Mineralization
- (C) Immobilization
- (D) Nutrient cycle

The climatic region having major area of arable soils falls under

- (A) Arid
- (B) Semi arid
- (C) Humid
- (D) Sub humid

Organic carbon content of soil indicates

- (A) N status of soil
- (B) P status of soil
- (C) K status of soil
- (D) Carbon status of soil

'Critical limit' approach is more suited for

- (A) Macronutrients
- (B) Micronutrients
- (C) Secondary nutrients
- (D) Labile nutrients

Root nodules in non-leguminous plants are produced by

- (A) Actinomycetes
- (B) Azotobacter
- (C) Rhizobium
- (D) Fungi

Volatilization loss of N occurs in

- (A) Neutral soil
- (B) Acidic soil
- (C) Alkaline soil
- (D) Highly acidic soil

(C) Nitrogen

(D)

The ideal ratio for use of NPK fertilizer for cereal is

- (A) 8:2:1
- (B) 4:2:1
- (C) 7:1:1
- (D) 7:1:2

Rhizobium in pure culture for first time was established by

- (A) Hellriegel
- (B) Frank
- (C) Beijerinck
- (D) Warrington

Nutrient mobility concept was introduced by

- (A) Bray
- (B) Black
- (C) Jackson
- (D) Heltner

Denitrification is a major process of nitrogen loss from

- (A) Pasture land
- (B) Fallow land
- (C) Well drained soil
- (D) Submerged soil

Mo is required for N-fixation because

- (A) It is a component of nitrogenase
- (B) It stimulates the synthesis of nitrogenase
- (C) It is a component of cytochrome system
- (D) It stimulates ferredoxin synthesis

Reaction of calcium ammonium nitrate in soil is

- (A) Acidic
- (B) Basic
- (C) Neutral
- (D) Both acidic & basic

Most efficient soil amendments used for improvement of saline-alkaline soils is

- (A) Dolomite
- (B) Calcite
- (C) Siderite
- (D) Pyrite

Rhizosphere is

- (A) Sphere around the nodules
- (B) Sphere around the roots
- (C) Sphere on the root surface
- (D) Sphere away from roots

Plant available water in soil is held between potential of

- (A) 0 to -20 bar
- (B) -1 to -15 bar
- (C) -1/3 to -15 bar
- (D) -1/2 to -20 bar

Soil having maximum water holding capacity is

- (A) Clay soil
- (B) Sandy soil
- (C) Clay loam soil
- (D) Loam soil

$$\frac{0.20 \times 3}{800} \times 100 = \frac{\text{Required kg} \times 0.1}{W.F} \times 100$$

The quantity of S mazine W.P. (50% a.i.) required to be sprayed for 0.20 ha crop

3.0 kg a.i./ha would be

- (A) 0.50 kg
(C) 1.25 kg

- (B) 0.75 kg
(D) 1.87 kg

$$3 \times \frac{1.25}{100} = 3.75$$

In furrow method of irrigation, the furrow is wetted only

- (A) 1/4th
(C) 4/5th

- (B) 1/2
(D) 3/4th

Herbicides containing carbon and hydrogen in their molecules are called

- (A) Salt
(C) Organic herbicide

- (B) Acid
(D) Arsenic

The non-selective herbicide is

- (A) Alrazine
(C) Butachlor

- (B) Paraquat
(D) Fluchloralin

Botanical name of little millet is

- (A) *Panicum miliaceum*
(C) *Echinochloa frumentacea*
(B)

- (B) *Panicum sumatrense*
(D) *Setaria italica*

Sprouted mungbeén seeds contain

- (A) Vitamin A
(C) Vitamin C
(C)

- (B) Vitamin B
(D) Vitamin D

Seed rate for transplanting pearl millet is

- (A) 1 kg
(C) 3 kg

- (B) 2 kg
(D) 4 kg

Bonneville, Early Badger, Arkel are the improved varieties of

- (A) Soybean
(C) Pea

- (B) Sunflower
(D) French bean

Double cross hybrid maize production technique was introduced by

- (A) E.M. East
(C) Mendel

- (B) G.H. Shull
(D) D.F. Jones

Rancidity in sunflower oil is due to

- (A) Esterification
(C) Reduction

- (B) Oxidation
(D) Nitrification

Mat nursery is related to

- (A) Rice
(C) Onion

- (B) Tobacco
(D) Onillies

- (A) Primary tillage
(B) Hoeing before germination
(C) Hoeing in standing crop
(D) Summer ploughing

The crop having the highest pesticides use is

- (A) Cotton
(C) Oilseeds
(B) Rice
(D) Vegetables

Crop having double symbiotic relationship with nitrogen fixing bacteria is

- (A) *Sesbania rostrata*
(B) *Phaseolus vulgaris*
(C) *Glycine max*
(D) *Cajanus cajan*

If the moisture content of a soil on oven dry weight basis is 15% and bulk density is 1.4 g/cc, the moisture content of soil on volume basis would be

- (A) 18%
(C) 24%
(B) 21%
(D) 27%

LER = 1/LER x value of combined intercrops represents

- (A) LER
(C) LAI
(B) IER
(D) MAI

'Luxury consumption' is related to

- (A) N
(C) K
(B) P
(D) S

A group of biotypes adapted to a specific environmental niche is known as

- (A) Biota
(C) Ecotype
(B) Ecotome
(D) Ecad

'A' value concept was given by

- (A) Fried and Dean
(C) Beckett
(B) Schofield
(D) Sorenson

'Crop logging' is used in

- (A) Sugarbeet
(C) Sugarcane
(B) Rice
(D) Maize

Neutron scattering method of soil moisture estimation is not useful in

- (A) Organic soils
(C) Acidic soils
(B) Alluvial soils
(D) Lateritic soil

Agriculture Pathshala

139. 'Akiuchi' disease is related to
(A) Wheat
(C) Pearl millet
(B) Rice
(D) Groundnut

- Aggregate of climatic condition is
(A) Season
(C) Weather
(B) Environment
(D) Climate

141. Growing of plants of different height in same field at same time is called
(A) Mixed cropping
(C) Alley cropping
(B) Double cropping
(D) Multistoreyed cropping

142. The weed propagated through tubers is
(A) Cynodon
(C) Allium
(B) Cyprus
(D) Sorghum

143. Crop responding notably to silicon application is
(A) Rice
(C) Triticale
(B) Wheat
(D) Sorghum

144. Spatial and time distribution of crops in a region is
(A) Cropping system
(C) Cropping scheme
(B) Cropping pattern
(D) Rotational cropping

145. Maize-potato-sugarcane-ratoon-green gram is a crop rotation for
(A) 1 year
(C) 3 years
(B) 2 years
(D) 4 years

146. The study of relationship of agricultural crops and environment is called
(A) Auto-ecology
(C) Agro-meteorology
(B) Agro-climatology
(D) Agro-ecology

147. If 100 kg fertilizer is applied in 1 hectare crop then how much fertilizer will be required for 50 square metre crop area
(A) 0.5 kg
(C) 2.0 kg
(B) 1.0 kg
(D) 2.5 kg

148. Crop cultivation under adverse weather condition is
(A) Mixed farming
(C) Relay cropping
(B) Mixed cropping
(D) Contingent cropping

149. Ratio of runoff to volume of precipitation received in a watershed area is
(A) Runoff efficiency
(C) Runoff index
(B) Runoff coefficients
(D) Runoff intensity

E-16

- (C) Low root to leaves ratio
(D) Low root to leaves ratio

Cross matching type questions (nos. 151 to 160). Each sub-question carries One mark. Choose the correct answer (A,B,C,D,E) for each sub-question (I,II,III,IV,V) and enter your choice in the circle (by shading with a HB pencil) on the OMR-answer sheet. For each wrong answer 0.20 marks will be deducted.

151. Match the following

Institute	Place
(I) Central Rice Research Institute	(A) Kanpur
(II) Indian Institute of Pulses Research	(E) Mau Nath Bhanjari
(III) National Bureau of Agricultural	(C) Karnal
Important Microorganisms	
(IV) Project Directorate of Wheat Research	(D) Indore
(V) National Research Centre for Soybean	(E) Cuttack

152. Match the following

Weed	Crop
(I) Typha	(A) Tobacco
(II) Orobanche	(B) Lucerne
(III) Cuscuta	(C) Sorghum
(IV) Striga	(D) Wheat
(V) Wild Oat	(E) Rice

153. Match the following

Crop	Variety
(I) Rice	(A) H 777 S
(II) Groundnut	(B) Pusa 853
(III) Cotton	(C) Pusa Sugandh 31
(IV) Pigeonpea	(D) GBH 53E
(V) Pearl millet	(E) ICJG 92035

154. Match the following

Crop	Disease
(I) Rice	(A) Loose smut
(II) Wheat	(B) Blast
(III) Sorghum	(C) Downy mildew
(IV) Pearl millet	(D) Red rot
(V) Sugarcane	(E) Ergot

E-17

Agriculture Pathshala

32. 'Jirga' is mainly practiced in _____
 (A) Rajasthan (B) Madhya Pradesh
 (C) Chhattisgarh (D) Uttaranchal

33. The simplest measure of variability in a data set is
 (A) Mean (B) Median
 (C) Mode (D) Range

34. The concept of zero tillage was given by
 (A) Willcox (B) P.G. Holden
 (C) Triplett (D) John Woodward

35. Most effective instrument for measuring soil water content in-situ is
 (A) Tensiometer (B) TDR
 (C) Gypsum Block (D) Neutron Probe

36. 1 cusec water discharged for 1 hour is equal to
 (A) 101×10^3 litres (B) 101×10^2 litres
 (C) 106×10^3 litres (D) None of these

37. Most suitable crop for late onset of monsoon to reduce the risk of crop failure is
 (A) Pigeon pea (B) Rice
 (C) Soybean (D) Sunflower

38. The suitable wheat species for restricted irrigation is
 (A) *Triticum aestivum* (B) *Triticum dicoccum*
 (C) *Triticum durum* (D) *Triticum vulgare*

39. The gas responsible for acid rain is
 (A) CO_2 (B) NO_2
 (C) SO_2 (D) NO_2 & SO_2

40. The moisture content for safe storage of wheat is
 (A) 2-5% (B) 5-10%
 (C) 10-12% (D) 14-16%

41. Rainfed area in India is
 (A) 30 m ha (B) 40 m ha
 (C) 57 m ha (D) 65 m ha

42. Staple length of fine quality cotton is
 (A) 30-39 micronaire
 (B) 40-49 micronaire
 (C) 50-59 micronaire
 (D) 60-69 micronaire
- medium
Coarse
Very coarse

43. Total solar radiation
 (A) ... (B) ...
 (C) Total solar radiation (D) All radiation

44. Agri-silvi-pastoral system has
 (A) Crop + tree
 (B) Crop + pasture
 (C) Crop + animal
 (D) Crop + tree + pasture + animal

45. The mitigating stress with high degree of tolerance is
 (A) Drought tolerance (B) Drought resistance
 (C) Drought avoidance (D) Drought escaping

46. Puddling is done to
 (A) Kill weeds (B) Reduce percolation of water
 (C) Level the field (D) Pulverise soil

47. Mycorrhiza help in the uptake of
 (A) Phosphorus (B) Potassium
 (C) Boron (D) Nitrate

48. Agroclimatic zones in India are
 (A) 15 (B) 16
 (C) 17 (D) 18

49. Determine the delta for a crop which has a base period of 110 days and duty is 800 ha/cu m/sec
 (A) 117 cm (B) 119 cm
 (C) 121 cm (D) 123 cm
- $\Delta = \frac{B.P \times Base}{Duty}$
 $\Delta = \frac{110 \times 800}{110} = 800$

50. Process of preparing compost with earth worm is
 (A) Composting (B) Bioslurry
 (C) Vermicomposting (D) Azocomposting

51. 'Law of minimum' was given by
 (A) Clement (B) Liebig
 (C) Shelford (D) Blackman

52. When the fertility gradient of the field is in two directions, the most appropriate experimental design is
 (A) Completely randomized design
 (B) Randomized block design
 (C) Latin square design
 (D) Split plot design

139. 'Akiochi' disease is related to
(A) RA Fisher (B) Horace Secrist
(C) AL Bowley (D) Karl Pearson
138. An experiment has been conducted in RBD with 6 varieties and 4 replications, the error degree of freedom will be—
(A) 24 (B) 23 $(6-1)(4-1)$
(C) 15 (D) 10 (5×3) 15
99. The square of standard deviation is
(A) Standard deviation (B) Mean deviation
(C) Variance (D) Coefficient of Variance
100. The enzyme responsible for hydrolysis of urea is
(A) Urease (B) Catalase
(C) Amylase (D) Nitrate reductase
101. The degree of freedom for error ((B) of SPD having 4 main plot treatments, 5 sub plot treatments and 3 replications
(A) 6 (B) 20 $m(r-1)(s-1)$
(C) 32 (D) 60 $4(3-1)(5-1)$
 $4 \times 2 \times 4 = 32$
102. The principle of making use of greater homogeneity in groups of experimental units to reduce the experimental error is
(A) Replication (B) Randomisation
(C) Local control (D) Sampling
103. Most of the wheat cultivars are
(A) Quantitative long day plants (B) Qualitative long day plants
(C) Day neutral (D) Short day plants
104. Rice grain is deficient in
(A) Glycine (B) Lysine
(C) Isoleucine (D) Alanine
105. An ideal type of rice with small, thick and erect leaf was proposed by
(A) Yoshida (B) Tanaka
(C) Tsunoda (D) Murata
106. Biocontrol agent for lantana weed is
(A) *Ophiomyia lantanae*
(B) *Neochelina eichorniae*
(C) *Cryptobagus singularis*
(D) *Zygogramma bicolorata*

E-12

108. The ratio of economic yield to the biological yield is
(A) Total biomass (B) Total harvest
(C) Harvest index (D) Leaf area ratio
109. First man made cereal is
(A) Triticale (B) Maize
(C) Pomato (D) Raphanobrassica
110. Dwarfing gene in wheat is
(A) Opque (B) Norin-10
(C) Hipsoli (D) Dee-Ge-Woo-Gen
111. Maize inbred lines are maintained by
(A) Self pollination (B) Cross pollination
(C) Sib pollination (D) Open pollination
112. Most salt tolerant grass is
(A) Para grass (B) Rhodes grass
(C) Bermuda grass (D) Karnal grass
113. 'White alkali' soils are
(A) Saline soil (B) Saline sodic soil
(C) Sodic soil (D) Acid soil
114. The element which is indirectly related to drought resistance
(A) N (B) P
(C) K (D) Zn
115. The cropping intensity of a 20 hectares farm having 15 hectares each in *Kharif* and *Rabi* crops and 20 hectares in *Zaid* crops shall be
(A) 150% (B) 250%
(C) 300% (D) 400%
116. More wastages of herbicides by drift is due to
(A) Low volume sprayer (B) high volume sprayer
(C) Ultra-low volume sprayer (D) Hand sprayer
117. Sowing depth of dwarf wheat is related to
(A) Temperature (B) Humidity
(C) Radicle length (D) Coleoptile length

E-13

Agriculture Paternal

Match the following

Crop

- (I) Cotton (D)
- (II) Groundnut (E)
- (III) Wheat (A)
- (IV) Rice (B)
- (V) Pearl millet (C)

Critical stage of irrigation

- (A) C.R.I 3
- (B) Flowering 1
- (C) Ear head emergence 4
- (D) Boll development 5
- (E) Rod development 2

NUTRIENT

- (I) Phosphorus (A)
- (II) Potassium (E)
- (III) Sulphur (C)
- (IV) Boron (D)
- (V) Molybdenum (B)

Indicator plant

- (A) Maize
- (B) Potato
- (C) Lucerne
- (D) Sugarbeet
- (E) Legumes

Match the following

Name

- (I) Growth regulator (C)
- (II) Herbicide (E)
- (III) Nitrification inhibitor (B)
- (IV) Slow release (A)
- (V) Fruit ripner (D)

Chemical

- (A) IBDU 3
- (B) DCD 4
- (C) 2,4-D 2
- (D) Ethrel 5
- (E) Glyphosate 1

Match the following

Crop

- (I) Wheat (D)
- (II) Rice (A)
- (III) Barseem (C)
- (IV) Greengram (B)
- (V) Cotton (E)

Water requirement

- (A) 1680 mm 2
- (B) 500 mm 3
- (C) 350 mm 4
- (D) 700 mm 1
- (E) 900 mm 5

Match the following

Crop

- (I) Rice (D)
- (II) Cotton (A)
- (III) Maize (E)
- (IV) Mustard (C)
- (V) Green gram (B)

Test weight

- (A) 70 g 3
- (B) 25 g 5
- (C) 4 g 4
- (D) 22 g 1
- (E) 200 g 2

Match the following

Crop

- (I) Sorghum (E)
- (II) Castor (A)
- (III) Sunhemp (B)
- (IV) Groundnut (C)
- (V) Potato (D)

Purpose

- (A) Trap crop 5
- (B) Nurse crop 4
- (C) Cover crop 3
- (D) Truck crop 2
- (E) Silage crop 1

Agriculture Pathshala