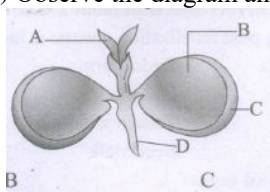


- 1) The unit of reproductive structure used in vegetative propagation is called as
 (a) Diplospores (b) Aplanospores (c) Diaspores (d) Conidiospores
- 2) Which of the following aquatic plant is popularly known as the "Terror of Bengal"?
 (a) Eichomia crassipes (b) Vallisneria spiralis (c) Pistia stratiotes (d) Zostera marina
- 3) The genetic ability of a plant cell to produce the entire plant is said to be _____
 (a) Multipotency (b) Totipotency (c) Pleuripotency (d) Differentiation
- 4) A typical anther is _____
 (a) Bisporangiate (b) Tetrasporangiate (c) Unisporangiate (d) Multisporangiate
- 5) Innermost layer of anther wall is _____
 (a) Endothecium (b) Endothecum (c) Endothelium (d) Tapetum
- 6) Name the person who discovered the pollen tube?
 (a) E. Strasburger (b) Hofmeister (c) Nehemiah Grew (d) G.B. Amici
- 7) Cleavage polyembryony is noticed in _____
 (a) Orchids (b) Casuarina (c) Balanophora (d) Syzygium
- 8) Pick out the non-sperous seed
 (a) Wheat (b) Sunflower (c) Bean (d) Orchids
- 9) The type of endosperm noticed in Hydrilla seed is _____
 (a) Ruminant endosperm (b) Nuclear endosperm (c) Cellular endosperm (d) Helobial endosperm
- 10) Which is not a part of mature seed?
 (a) Funiculus (b) Testa and tegma (c) hilum (d) Chalaza
- 11) Select the wrong statement(s) regarding cross-pollination.
 (a) Pollination depends on external agent and so it is certain.
 (b) New varieties are produced.
 (c) Continuous cross-pollination leads to weaker progeny.
 (d) Germination capacity is highly declined.
 (a) a and d (b) b and c (c) a, b and d (d) a, c and d
- 12) Which of the following characters does not exist in Ornithophilous flowers?
 (a) Huge sized flowers (b) Bright coloured (c) Scented flowers (d) Nectar is secreted in large
- 13) Which of the following plant was introduced as a contaminant into India along with wheat?
 (a) Parthenium hysterophorus (b) Zea mays (c) Rosa indica (d) Mangifera indica
- 14) The most common type of ovule noticed in dicots and monocots is
 (a) Orthotropous (b) Anatropous (c) Campylotropous (d) Amphitropous
- 15) Generally, the pollen grains are liberated from anther at _____
 (a) 2-celled stage (b) 4-celled stage (c) 6-celled stage (d) 8-celled stage
- 16) Assertion (A): Self - pollination is certain in cleistogamous flowers.
 Reason (R): Flowers never open and do not expose reproductive organs.
 (a) Both A and R are correct. (b) A is correct R is incorrect. (c) R explains A (d) Both A and R are correct. R is not a correct explanation for A.
- 17) Assertion (A): Entomophily is the most common type of pollination.
 Reason (R): Birds and animals bring out effective pollination.
 (a) Both A and R are correct. (b) A is correct R is incorrect. (c) R explains A (d) Both A and R are correct. R is not a correct explanation for A.
- 18) Statement 1: Primary sporogenous cell functions as megaspore mother cell.
 Statement 2: Megaspore mother cell undergoes mitotic division producing megaspores.
 (a) Statement 1 is correct and statement 2 is incorrect. (b) Statement 1 is incorrect and statement 2 is correct. (c) Both the statements 1 and 2 are correct. (d) Both the statements 1 and 2 are incorrect.
- 19) Statement 1: Apomixis does not involve meiosis and syngamy.
 Statement 2: The term Apomixis was introduced by Winkler.
 (a) Statement 1 is correct and statement 2 is incorrect. (b) Statement 1 is incorrect and statement 2 is correct. (c) Both the statements 1 and 2 are correct. (d) Both the statements 1 and 2 are incorrect.
- 20) Statement 1: The pollen grains are deposited on the receptive surface of style.
 Statement 2: After landing, the first visible change in pollen is hydration.
 (a) Statement 1 is correct (b) Statement 1 is incorrect (c) Both the statements are correct (d) Both the statements are incorrect.

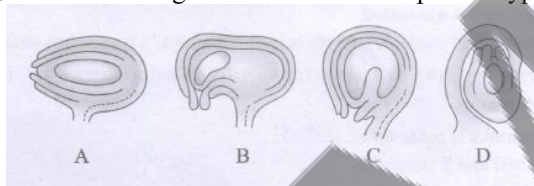
- and statement 2 is incorrect. incorrect and statement 2 is correct. statements 1 and 2 are correct. statements 1 and 2 are incorrect
- 21) Identify the incorrect statement regarding vegetative reproduction.
 (a) Only one parent is required for propagation. (b) New individuals are genetically dissimilar. (c) Easy mode of reproduction (d) Variation does not exist.
- 22) Identify the mismatched pair:
 (a) Epidermal layer - Protective infunction (b) Eridothecium layer in dehiscence of anther (c) Middle layer - Persistent layer (d) Tapetum - Nutritive in function
- 23) Identify the mismatched pair:
 (i) Sucker - Chrysanthemum
 (ii) Bulbils - Agave
 (iii) Stolon - Fragaria
 (iv) Runner - Lilium
 (a) i only (b) ii only (c) iii only (d) iv only
- 24) Assertion (A): Epidermis is protective in function.
 Reason (R): Epidermis is outermost unilayer of another wall.
 (a) A is correct R is incorrect. (b) R explains A. (c) Both A and R are correct. (d) Both A and R are correct. R does not explain A.
- 25) Assertion (A): Microspores are the first cell of male gametophyte.
 Reason (R): Microspores undergo development and form pollen grains.
 (a) A is correct R is incorrect. (b) R explains A. (c) Both A and R are correct. (d) Both A and R are correct. R does not explain A.
- 26) Assertion (A): Carica papaya is a dioecious plant.
 Reason (R): Both male and female flowers are borne on same plant.
 (a) A is correct R is incorrect. (b) R explains A. (c) Both A and R are correct. (d) Both A and R are correct. R does not explain A.
- 27) Assertion (A): Anemophilous pollination occurs by animals.
 Reason (R): Pollen grains are sticky for easy attachment on animals.
 (a) A is correct R is incorrect. (b) R explains A. (c) Both A and R are correct. (d) Both A and R are correct. R does not explain A.
- 28) Assertion (A): Fusion of male and female gametes results in zygote.
 Reason (R): Product of triple fusion is PEN.
 (a) A is correct R is incorrect. (b) R explains A. (c) Both A and R are correct. (d) Both A and R are correct. R does not explain A.
- 29) Assertion (A): Zea mays is a monocotyledonous plant.
 Reason (R): Shield shaped cotyledon is called scutellum.
 (a) A is correct R is incorrect. (b) R explains A. (c) Both A and R are correct. (d) Both A and R are correct. R does not explain A.
- 30) Assertion (A): In Bryophyllum, vegetative propagation occurs through leaf.
 Reason (R): Epiphyllous buds are noticed in Bryophyllum.
 (a) A is correct R is incorrect. (b) R explains A. (c) Both A and R are correct. (d) Both A and R are correct. R does not explain A.
- 31) Assertion (A): Androecium and Gynoecium are essential whorls of flower
 Reason (R): Androecium and Gynoecium assist the reproduction.
 (a) A is correct R is incorrect. (b) R explains A. (c) Both A and R are correct. (d) Both A and R are correct. R does not explain A.
- 32) Identify the correct statement.
 (a) Grafting is a modern method of artificial propagation. (b) The plant which is used for graft is Scion. (c) In tongue grafting, the scion bud is placed inside the incision beneath bark. (d) Grafting is usually carried out in monocot plants.
- 33) Statement 1: Flower is a highly condensed shoot for reproductive purpose.
 Statement 2: A complete flower possesses four whorls.
 (a) Both the statements are incorrect. (b) Statement 1 is correct and Statement 2 is incorrect. (c) Both the statements are correct. (d) Statement 1 is incorrect and statement 2 is correct.
- 34) Identify the incorrect statement.
 (a) One seeded fruit of paddy is caryopsis. (b) Primitive root is called coleorhiza. (c) Scutellum is a part of mono cot seed. (d) Embryonic axis above the cotyledon is epicotyl.
- 35) Identify the incorrect statement.
 (a) The stalk of the ovule is funiculus. (b) Nucellus is composed of sclerenchymatous tissue. (c) Basal region of the ovule is chalazal end. (d) Micropyle is always oriented opposite to chalaza
- 36) Identify the parthenocarpic fruit

- (a) Banana (b) Pear (c) Papaya (d) More than one option is correct
- 37) A mature angiospermic embryo sac is _____
 (a) 8 celled and 8 nucleated (b) 8 celled and 8 nucleated (c) 8 celled and 7 nucleated (d) 7 celled and 8 nucleated
- 38) Identify the type of ovule, where the nucellus acquires a horse-shoe shaped structure.
 (a) Anatroplus (b) Hemianatroplus (c) Campylotropus (d) Amphitropus
- 39) The egg apparatus is made up of _____
 (a) 1 egg cell and 2 antipodals (b) 1 egg cell and 2 polar nuclei (c) 1 egg cell and 1 secondary nuycleus (d) 1 egg cell and 2 synergids
- 40) Product of triple fusion is _____
 (a) PEN (b) PEG (c) PVC (d) PPT
- 41) Ex-albuminous seeds are _____
 (a) Pea, castor, paddy (b) Paddy, Coconut, Groundnut (c) Beans, coconut, castor (d) Groundnut, pea, beans
- 42) The white edible part of coconut is _____
 (a) Epicarp (b) Endosperm (c) Embryo (d) Mesocarp
- 43) Observe the diagram and select the correct option mentioning the parts A, B, C and D



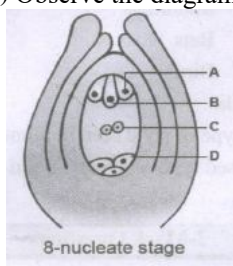
(a)				(b)				(c)				(d)			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Radicle	Cotyledon	Testa	Plumule	Plumule	Cotyledon	Testa	Radicle	Cotyledon	Testa	Plumule	Radicle	Plumule	Radicle	Testa	Cotyledon

- 44) Examine the figures and name the respective type of ovule.



(a)				(b)				(c)			
A	B	C	D	A	B	C	D	A	B	C	D
Campylotropus	Amphitropus	Circinotropus	Anatroplus	Anatroplus	Hemianatroplus	Amphitropus	Campylotropus	Campylotropus	Circino		

- 45) Attractants and rewards are required for _____
 (a) Anemophily (b) Entamophily (c) Malacophily (d) Cheiropterophily
- 46) Filiform apparatus is a special cellular thickening which is seen in _____
 (a) Antipodals (b) Polar nuclei (c) Nucellus (d) Synergids
- 47) In anatropous ovule, the micropyle faces _____
 (a) Right side (b) Left side (c) Upward (d) Downward
- 48) Observe the diagram and select the correct option mentioning the parts A, B, C and D.



(a)				(b)				(c)				(d)			
A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Synergid	Egg	polar nuclei	Antipodals	Antipodals	Synergid	polar nuclei	Egg	Egg	Synergid	Antipodals	polar nuclei	Antipodals	polar nuclei	Egg	Synergid

- 49) Which of the following post fertilization change is incorrectly matched?
 (a) Secondary nucellus - Endosperms (b) Antipodals - Degenerates (c) Nucellus - Testa and tegma (d) Funicle - Seed stalk
- 50) Identify the correct adaptation that checks autogamy
 (a) Homogamy (b) Cleistogamy (c) Herkogamy (d) None of the above
- 51) In monoecious plants,
 (a) Both autogamy and geitonogamy are prevented (b) Both autogamy and geitonogamy are prevented (c) Autogamy takes place preventing geitonogamy (d) Autogamy is prevented whereas geitonogamy takes place
- 52) Identify the correct sequence of anther wall layers from periphery towards core part.

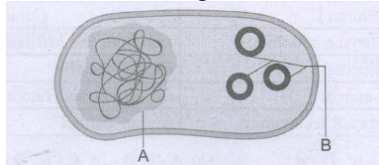
- (a) Epidermis → endothelium → stomium → lapetum
(b) Epidermis → middle layer → endothelium
(c) Epidermis → endothelium → middle layers → tapetum
(d) Epidermis → endothelium → endothecium → tapetum
- 53) The proteins responsible for rejection reaction present in exine cavities of pollen is a derivative of _____
(a) Stomium (b) Endothecium (c) Tapetum (d) Ubisch bodies
- 54) Pick out the mismatched pair:
(a) Entomophily - Insects (b) Malacophily - Mammals (c) Cheiropterophily - Bats (d) Omithophily - Birds
- 55) Which is the most common type of style seen in monocots
(a) Open type (b) Closed type (c) Solid type (d) Half closed type
- 56) The term 'Genetics' was introduced by _____
(a) Gregor Mendel (b) Bateson (c) Hugo de Vries (d) Carl Correns
- 57) Which is not a correct statement?
(A) Variations are the raw materials for evolution
(B) Variations provide genetic material for natural selection
(C) It helps the individual to adapt to the changing environment
(D) Variations allow breeders to improve the crop field
(a) A and D (b) B only (c) C and D (d) none of the above
- 58) An allele is _____
(a) another word for a gene (b) Alternate forms of a gene (c) morphological expression of a gene (d) genetic make up of an organism
- 59) Gregor Mendel _____
(i) was born in Czechoslovakia
(ii) did his experiments in *Pisum fulvum*
(iii) was the first systemic researcher in genetics
(iv) Published his results in the paper "Experiments on Plant Hybrids"
(a) All are correct (b) (ii), (iii), (iv) are correct (c) (i), (iii), (iv) are correct (d) (i), (iii), (iv) are correct
- 60) How many characters studied by Mendel in *Pisum sativum*
(a) Three (b) Five (c) Seven (d) Nine
- 61) Mendel's work were rediscovered by _____
(a) Hugo de Vries (b) Tschermak (c) Carl Correns (d) all the above
- 62) Crossing of F₁ to anyone of the parent refers to _____
(a) selfing (b) back cross (c) test cross (d) all of the above
- 63) In an intergenic interaction, the gene that suppresses the phenotype of a gene is said to be _____
(a) Dominant (b) Inhibitory (c) Epistatic (d) Hypostatic
- 64) Assertion (A): Test cross is done between F₂ hybrid with F₁ recessive
Reason (R): It helps to identify the homozygosity of hybrids
(a) A and R are correct R explains A (b) A and R are incorrect (c) A is correct R is incorrect (d) A is incorrect R is correct
- 65) Assertion (A): Codominance is an example of intragenic interaction
Reason (R): Interaction takes place between the alleles of the same gene
(a) A and R are correct R explains A (b) A and R are incorrect (c) A is correct R is incorrect (d) A is incorrect R is correct
- 66) Assertion (A): Pleiotropic gene affects multiple traits
Reason (R): ABO blood group is an example for Pleiotropism
(a) A and R are correct R explains A (b) A and R are incorrect (c) A is correct R is incorrect (d) A is incorrect R is correct
- 67) Assertion (A): Cytoplasmic male sterility is a Mendelian inheritance
Reason (R): The genes for cytoplasmic male sterility in pearl maize is located at mitochondrial DNA
(a) A and R are correct R explains A (b) A and R are incorrect (c) A is correct R is incorrect (d) A is incorrect R is correct
- 68) What is the phenotypic ratio in case of incomplete dominance?
(a) 9: 7 (b) 3: 1 (c) 1: 2: 1 (d) 1: 1: 1: 1
- 69) Identify the mismatched pair
(a) Chloroplast inheritance - Gregor Mendel (b) Polygenic inheritance - H. Nilsson - E. Baur (c) Lethal genes - dominance - Carl Correns (d) Incomplete dominance - Carl Correns
- 70) Statement 1: Intergenic gene interaction occurs between alleles at the same locus
Statement 2: Co-dominance is an example of intergenic gene interaction
(a) Statement 1 is correct (b) Statement 1 is incorrect (c) Both (d) Both Statements

- & Statement 2 is incorrect incorrect & Statement 2 is correct Statements 1 & 2 are correct 1 & 2 are incorrect
- 71) Statement 1: Test cross is done between F1 individual with homozygous recessive
Statement 2: If F1 individual is homozygous, the rate of a monohybrid cross will be 1:1
(a) Statement 1 is correct (b) Statement 1 is incorrect & Statement 2 is correct (c) Both Statements 1 & 2 are correct (d) Both Statements 1 & 2 are incorrect
- 72) Identify the incorrect statement
(a) In incomplete dominance, the traits are blended not the genes (b) Incomplete dominance is noticed in *Mirabilis jalapa* by Carl Correns (c) It is a type of intragenic gene interaction (d) Incomplete dominance F2 ratio is 1 : 3 : 1
- 73) In case of co-dominance, monohybrid F1 _____ is 1 : 2 : 1
(a) Genotype ratio (b) Phenotype ratio (c) Both genotype & Phenotype ratio (d) Ratio is wrong
- 74) Identify the wrong statement(s)
(i) Monohybrid cross involves the inheritance of two alleles of a gene
(ii) The dwarf traits reappeared in F2
(iii) Law of dominance was proved by monohybrid cross
(iv) F1 monohybrid was an heterozygous
(a) i and ii (b) iii and iv (c) i only (d) none of the above
- 75) Result of incomplete dominance is _____
(a) Intermediate genotype (b) Intermediate phenotype (c) Recessive phenotype (d) Epistasis
- 76) Heterozygous Tall monohybrid is crossed with homozygous dwarf. What will be characteristic of offspring?
(a) 25 % recessive dominant (b) 75 % recessive dominant (c) 50 % recessive dominant (d) All are dominants
- 77) ABO blood group is a classical example for _____
(a) Polygenic inheritance (b) Incomplete dominance (c) Epistasis (d) Dominance
- 78) RR (Red) flower of *Mirabilis* is crossed with White (WW) flowers. Resultant offspring are pink RW. This is an example of _____
(a) Epistasis (b) Co-dominance (c) Incomplete dominance (d) Pleiotropism
- 79) How many genetically different gametes are produced by a plant having genotype TtYyRr?
(a) 2 (b) 4 (c) 6 (d) 8
- 80) When a single gene influences multiple traits then the phenomenon is called _____
(a) Pleiotropy (b) Polygenic inheritance (c) Epistasis (d) Atavism
- 81) According to Mendel which character shown dominance
(a) Yellow flower color (b) Yellow cotyledon color (c) Wrinkled seeds (d) Inflated pod
- 82) Ratio of recessive epistasis is _____
(a) 12 : 3 : 1 (b) 9 : 7 (c) 9 : 3 : 4 (d) 9 : 6 : 1
- 83) According to Mendel, which is not a dominant trait?
(a) Wrinkled seeds (b) Purple flower (c) Inflated pod form (d) Axial flower portion
- 84) Identify the allelic interaction
(a) Dominant epistasis (b) Co-dominance (c) Recessive epistasis (d) Duplicate genes
- 85) 'Gametes are never hybrid' is concluded by _____
(a) Law of dominance (b) Law of segregation (c) Law of independent environment (d) Law of lethality
- 86) Factor hypothesis was proposed by _____
(a) Reginald Punnett (b) W. Bateson (c) Gregor Mendel (d) Carl Correns
- 87) The 1 : 2 : 1 ratio of co-dominance process Mendel's _____
(a) Law of dominance (b) Law of recessiveness (c) Law of segregation (d) Law of independent assortment
- 88) Name the scientist(s) who rediscovered the Mendelian work?
(i) Hugo de Vries
(ii) Carl Correns
(iii) Tschermak
(iv) T.H. Morgan
(a) i and iv (b) i, ii and iv (c) i, ii and iii (d) ii, iii and iv
- 89) Which is not a feature of the chromosomal theory of inheritance?
(a) Somatic cells of organisms are derived from zygote by repeated meiosis. (b) Chromosomes retain their structural uniqueness throughout the life of an organism. (c) Mendelian factors are located in chromosomes (d) Sutton and Boveri independently proposed the theory.
- 90) The following sequence represents the location of genes in a chromosome. A - B - C - M - R - S - y - Z. Which of the gene pairs will have least chance of getting inherited together?
(a) A and M (b) S and Y (c) M and Z (d) A and Y

- 91) Number of chromosomes (2n) in Ophioglossum is _____
 (a) 1226 (b) 1622 (c) 1262 (d) 2126
- 92) Identify the syntenic gene from the given genes sequence of a chromosome G-H-I-J-K-L-M-A-B
 (a) G and H (b) J, K and L (c) G and B (d) A and B
- 93) Incomplete linkage was reported by Hutchinson in _____
 (a) Drosophila (b) Maize (c) Neurospora (d) Lathyrus odoratus
- 94) Mechanism of crossing over involves the following stages. Select the correct sequence.
 (a) Tetrad stage ~ Synapsis ~ Bivalent stage ~ cross over
 (b) Syndesis ~ Tetrad ~ Crossing over ~ Terminalisation
 (c) Terminalisation ~ Tetrad ~ Bivalent ~ Cross over
 (d) Cross over ~ Bivalent ~ Tetrad ~ Terminalisation
- 95) During cross over, chiasma occurs between
 (a) Sister chromatids of non-homologous chromosomes
 (b) Non-sister chromatids of non-homologous chromosomes
 (c) Non-sister chromatids of homologous chromosomes
 (d) Sister chromatids of homologous chromosomes
- 96) At which stage of meiosis, does the chromosomes undergo recombination process
 (a) Leptotene stage of prophase I
 (b) Zygotene stage of prophase I
 (c) Diplotene stage of prophase I
 (d) Pachytene stage of prophase I
- 97) Which of the following statement(s) is/are wrong with respect to Recombination process?
 (i) Mitotic crossing over occurs rarely in somatic cells.
 (ii) Syndesis refers to pairing of non-homologous chromosome.
 (iii) Procentric synapsis starts from telomeres.
 (iv) A Bivalent has four chromatids.
 (a) i and iv (b) ii and i (c) ii and iii (d) All the above
- 98) Recombination frequency (RF) is equal to
 (a) $\frac{\text{No. of offsprings}}{\text{No. of recombinants}} \times 100$
 (b) $\frac{\text{No. of recombinants}}{\text{No. of parental strains}} \times 100$
 (c) $\frac{\text{No. of recombinants}}{\text{No. of offsprings}} \times 100$
 (d) $\frac{\text{No. of offsprings}}{\text{No. of parental strains}} \times 100$
- 99) In a population of 250 progenies produced, only 120 resemble the parental forms. Calculate the recombinant frequency.
 (a) 66% (b) 52% (c) 59% (d) 49%
- 100) Mutation theory was proposed by
 (a) T. H. Morgan (b) Hugo de Vries (c) Alfred Sturtevant (d) Sutton and Boveri
- 101) Identify the mutant variety of castor.
 (a) Sharbathi Sonora variety (b) Aruna variety (c) Reimei variety (d) Erectiform variety
- 102) Which is not a non-ionizing radiation?
 (a) X-rays (b) Gamma rays (c) Alpha rays (d) UV rays
- 103) Transition type of gene mutation is caused when
 (a) AC is replaced by GT
 (b) AG is replaced by TC
 (c) AC is replaced by TG
 (d) TC is replaced by AG
- 104) Pick out the co-mutagen from the following:
 (a) Eosin (b) Mustard gas (c) Ascorbic acid (d) Nitrous acid
- 105) Sharbati Sonara is a mutant wheat variety which is developed by irradiating the seeds with
 (a) Thermal neutrons (b) Gamma radiation (c) X-rays (d) UV radiations
- 106) Which one of the following ploidy is irrelevant to others?
 (a) Monosomy (b) Trisomy (c) Tetrasomy (d) Pentasomy
- 107) Statement 1: Euploidy involves entire sets of chromosomes
 Statement 2: Aneuploidy involves individual chromosomes within a diploid net.
 (a) Statement 1 is correct and Statement 2 is incorrect
 (b) Statement 1 is incorrect and Statement 2 is correct
 (c) Both the statements are correct
 (d) Both the statements are incorrect
- 108) Statement 1: In transversion mutation, single purine is changed to pyrimidine.
 Statement 2: In transition mutation, a purine replaced by another purine.
 (a) Statement 1 is correct and Statement 2 is incorrect
 (b) Statement 1 is incorrect and Statement 2 is correct
 (c) Both the statements are correct
 (d) Both the statements are incorrect
- 109) Statement 1: Pairing of homologous chromosome is called as syndesis.
 Statement 2: Proterminal synapsis occurs from telomeres.
 (a) Statement 1 is correct and Statement 2 is incorrect
 (b) Statement 1 is incorrect and Statement 2 is correct
 (c) Both the statements are correct
 (d) Both the statements are incorrect
- 110) Statement 1: The widely accepted DNA replication model is Holliday's hybrid DNA model.
 Statement 2: The vertical cut in the DNA results in heteroduplex with non-recombinants.

- (a) Statement 1 is correct and Statement 2 is incorrect (b) Statement 1 is incorrect and Statement 2 is correct (c) Both the statements are correct (d) Both the statements are incorrect
- 111) Statement 1: Self-sterility in *Nicotiana* is controlled by multiple alleles.
Statement 2: Multiple alleles are always responsible for the same character.
(a) Statement 1 is correct and Statement 2 is incorrect (b) Statement 1 is incorrect and Statement 2 is correct (c) Both the statements are correct (d) Both the statements are incorrect
- 112) One of the following is not the kind of euploidy
(a) Diploidy (b) Polyploidy (c) Hyperploidy (d) Autopolyploidy
- 113) The chromosomal condition $2n-2$ represents
(a) Monosomy (b) Nullisomy (c) Trisomy (d) Tetrasomy
- 114) Identify the autotriploid plant
(a) Potato (b) Coffee (c) Ground nut (d) Apple
- 115) Assertion (A): Polyploidy is common in plants.
Reason (R): Polyploids possess more than 2 basic sets of chromosomes.
(a) A is true R is false (b) Both A and R are false (c) A is true, R is not correct explanation for A (d) R explains A
- 116) Assertion (A): Complete linkage is noticed in male species of *Drosophila*.
Reason (R): Completely linked genes show some crossing over.
(a) A is true R is false (b) Both A and R are false (c) A is true, R is not correct explanation for A (d) R explains A
- 117) Assertion (A): Self-sterility is observed in *Nicotiana* species.
Reason (R): Because the genes are located on chromosome.
(a) A is true R is false (b) Both A and R are false (c) A is true, R is not correct explanation for A (d) R explains A
- 118) Observe the gene sequence and identify the types of aberration ABC BCD E F?
(a) Tandem duplication (b) Simple duplication (c) Reverse tandem duplication (d) Displaced tandem duplication
- 119) Which of the following person coined the term biotechnology?
(a) Ernst Hoppe (b) Stanley Cohen (c) Ian Wilmet (d) Karl Ereky
- 120) Zymology deals with _____
(a) Study of yeast fungus and its practical applications. (b) Study of fermentation and its uses. (c) Study of Bioreactors and their construction methodology. (d) Study of zymase producing microbes and its benefits.
- 121) Identify the incorrect statement:
(a) French chemist Louis Pasteur demonstrated the fermentation. (b) Fermentor is a vessel providing optimal condition for microbial action. (c) Solvent extraction is an upstream process of fermentation. (d) Distillation and filtration comes under down stream process.
- 122) Pick out the mismatched pair(s):
(i) Ampicillin - *Streptomyces notatum*
(ii) Penicillin - *Penicillium notatum*
(iii) Streptomycin - *Streptomyces griseus*
(iv) Tetracycline - *Streptomyces aureofaciens*
(a) i and ii (b) ii and iii (c) iii and iv (d) i only
- 123) Identify the non-fungal species used in SCP production.
(i) *Candida*
(ii) *Chlorella*
(iii) *Chlamydomonas*
(iv) *Cellulomonas*
(a) i and ii (b) ii and iii (c) ii, iii and iv (d) All the above
- 124) Select the correct restriction enzyme which breaks the phosphodiester bond within a DNA molecule.
(i) *Ba131*
(ii) *Hind II*
(iii) *BamHI*
(iv) *PvuI*
(a) i and iii (b) i, ii and iii (c) ii, iii and iv (d) i only
- 125) Cohesive ends are _____
(a) Blunt ends (b) Flush ends (c) Sticky ends (d) Symmetric cuts
- 126) Self-ligation is prevented by _____
(a) DNA Polymerase (b) Helicase (c) Alkaline phosphate (d) DNA lipase

127) Observe the diagram and name A



- (a) A - Plasmid B - Vector (b) A - Nucleoid - B - Plasmid (c) A - Bacterial chromosome B - Vector (d) A - Nucleoid - B - x phage DNA

128) A vector should _____

- (i) contain suitable marker
(ii) contain ori site
(iii) have poly linkers
(iv) be small in size
(a) i, ii and iii (b) ii, iii and iv (c) i, ii and iv (d) all the above

129) Number of base pairs does pBR 322 plasmid contains _____

- (a) 322 (b) 4322 (c) 4361 (d) 3264

130) pUC 19 is an example for _____

- (a) Shuttle vector (b) Expression vector (c) Cosmid (d) Phagemid vector

131) Statement 1: YAC plasmid behaves like a yeast chromosome.

Statement 2: Circular YAC multiplies in bacteria.

- (a) Statement 1 is correct and Statement 2 is also correct. (b) Statement 1 is correct and Statement 2 is incorrect. (c) Both the statements are incorrect. (d) Statement 1 is incorrect and Statement 2 is correct.

132) Statement 1: Liposomes are the artificial lipoprotein vesicles.

Statement 2: Liposomes are highly used in gene transfer.

- (a) Statement 1 is correct and Statement 2 is also correct. (b) Statement 1 is correct and Statement 2 is incorrect. (c) Both the statements are incorrect. (d) Statement 1 is incorrect and Statement 2 is correct.

133) Statement 1: DNA is a hydrophobic molecule.

Statement 2: T-DNA is a part of E-coli plasmid.

- (a) Statement 1 is correct and Statement 2 is also correct. (b) Statement 1 is correct and Statement 2 is incorrect. (c) Both the statements are incorrect. (d) Statement 1 is incorrect and Statement 2 is correct.

134) Statement 1: Bioventing procedure increases O₂ flow to accelerate degradation of pollutants.

Statement 2: Bioaugmentation uses microbes to recover metal pollutants from contaminated sites.

- (a) Statement 1 is correct and Statement 2 is also correct. (b) Statement 1 is correct and Statement 2 is incorrect. (c) Both the statements are incorrect. (d) Statement 1 is incorrect and Statement 2 is correct.

135) Assertion (A): Golden rice helps to overcome childhood blindness.

Reason (R): It is rich in β -carotene.

- (a) Both A and R are wrong. (b) A is right R is wrong. (c) R explains A. (d) A and R are right, R does not explain A.

136) Assertion (A): Expression vectors are suitable for expressing foreign proteins.

Reason (R): pBR 322 is an expression vectors.

- (a) Both A and R are wrong. (b) A is right R is wrong. (c) R explains A. (d) A and R are right, R does not explain A.

137) Assertion (A) : Pseudomonas putida is utilized in the production of Biological hydrogen.

Reason (R): During photosynthesis, it releases oxygen.

- (a) Both A and R are wrong. (b) A is right R is wrong. (c) R explains A. (d) A and R are right, R does not explain A.

138) Assertion (A): DMH -11 is a transgenic mustard.

Reason (R): It is developed by using bamase/ barstar technology.

- (a) Both A and R are wrong. (b) A is right R is wrong. (c) R explains A. (d) A and R are right, R does not explain A.

139) Green fluorescent protein (GFP) was isolated from _____

- (a) Aequorea victoria (b) Arabidopsis thaliana (c) Agrobacterium tumefaciens (d) Escherichia coli

140) Tetracycline is obtained from _____

- (a) S.nodosus (b) S.aureofacins (c) S.grises (d) P. chrysogenum

141) Today more than _____ restriction enzymes have been isolated.

- (a) 800 (b) 900 (c) 1000 (d) 870

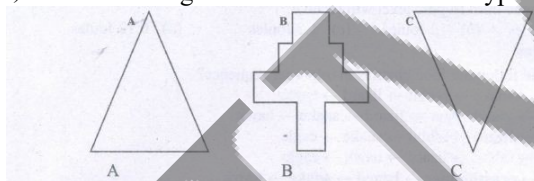
142) Which of the following statements does not hold true for restriction enzyme?

- (a) It recognizes a (b) It is an (c) It is (d) It produces the same kind of

- palindromic nucleotide sequence endonuclease isolated from viruses sticky ends in different DNA molecules
- 143) Identify the group of scientists who developed the intergenic hybrid - the pomato.
(a) Yamada et al. (b) Horsh et al. (c) Takebe et al. (d) Melchers et al.
- 144) The production of secondary metabolites require the use of _____.
(a) Protoplast culture (b) Organ culture (c) Cell suspension culture (d) Virus free germ culture
- 145) Which of the following condition favours callus induction?
(a) Temperature of $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ with 12 hours of photoperiod (b) Temperature of $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with 18 hours of photoperiod (c) Temperature of $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ with 14 hours of photoperiod (d) Temperature of $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ with 16 hours of photoperiod
- 146) Protoplast are the cells devoid of _____.
(a) Cell wall (b) Cell membrane (c) Plasma membrane (d) both A and B
- 147) A widely used fusogen in protoplast culture is _____.
(a) Polymethyl glycol (b) Polyethylene glycol (c) Polyethylene chloride (d) Polyvinyl chloride
- 148) Synseeds are developed by encapsulating embryoids with _____.
(a) Sodium chloride (b) Potassium iodide (c) Sodium alginate (d) Potassium dichromate
- 149) The optimal pH of culture medium is generally _____.
(a) Acidic (b) Basic (c) Neutral (d) Slightly basic
- 150) Identify the correct sequence regarding steps involved in PTC
(a) Sterilization → Incubation → Embryogenesis → Hardening
(b) Inoculation → Incubation → Sterilization → Hardening
(c) Induction → Incubation → Inoculation → Hardening
(d) Sterilization → Inoculation → Incubation → Embryogenesis → Hardening
- 151) Dimethyl sulfoxide is a _____.
(a) Solidifying agent (b) Cryoprotectant (c) Fusogenic agent (d) Stimulant
- 152) Assertion (A) : Incubation is followed by Inoculation.
Reason (R) : Explant is inoculated to media.
(a) Both A and R are correct but R is not a correct explanation to A (b) R explains A
- 153) Assertion (A) : Sterilization helps to overcome microbes.
Reason (R) : Explants are autoclaved.
(a) Both A and R are correct but R is not a correct explanation to A (b) R explains A (c) A is correct R is incorrect (d) Both A and R are incorrect
- 154) Assertion (A) : Protoplasts are cells devoid of cell wall.
Reason (R) : Secondary metabolites are synthesized by protoplasmic fusion.
(a) Both A and R are correct but R is not a correct explanation to A (b) R explains A (c) A is correct R are incorrect (d) Both A and R are incorrect
- 155) Assertion (A) : Development of root from callus is called caulogenesis.
Reason (R) : Caulogenesis is the final step of protoplasmic fusion.
(a) Both A and R are correct but R is not a correct explanation to A (b) R explains A (c) A is correct R are incorrect (d) Both A and R are incorrect
- 156) Assertion (A) : Liquid nitrogen is used in cryopreservation techniques.
Reason (R) : Gene bank DNA bank are the parts of germplasm conservation.
(a) Both A and R are correct but R is not a correct explanation to A (b) R explains A (c) A is correct R are incorrect (d) Both A and R are incorrect
- 157) Identify the cryoprotectant
(a) Dimethyl formamide (b) Fructose (c) Glycerol (d) Sodium alginate
- 158) Identify the wrong statement:
(a) Artificial seeds are stored for long time under cryopreservation (b) Somatic embryos are used for artificial seed production (c) Period of dormancy of artificial seeds is greatly reduced (d) Encapsulation of embryoids is done using cryoprotectant
- 159) Identify the plant tissue used for virus free germplasm
(a) Apical meristem (b) Intercalary meristem (c) Lateral meristem (d) Plate meristem
- 160) Identify the incorrect statement:
(a) Explants are surface sterilized (b) Nutrient media are autoclaved (c) Culture rooms are UV radiated for 15 minutes (d) Glasswares and accessories are autoclaved
(a) a only (b) b and c (c) d only (d) none of the above
- 161) The enzymatic mixture for chemical isolation of protoplast is
(a) 0.5% macrozyme, 2% onozuka cellulase, (b) 1.5% macrozyme, 0.5% onozuka cellulase, (c) 2% macrozyme, 0.5% onozuka cellulase, (d) 0.1% macrozyme, 2% onozuka cellulase,

- 13% mannitol cellulase, 12% sorbitol cellulase, 13% sorbitol 15% mannitol
- 162) The term used to define the ability of a cell to generate entire individual is
(a) Pluripotent (b) Totipotent (c) Multipotent (d) Unipotent
- 163) The phenomenon of reversion of mature cells to meristematic state leading to callus formation is _____
(a) Redifferentiation (b) Dedifferentiation (c) either (a) or (b) (d) none of these
- 164) Somatic hybridization is achieved through _____
(a) Protoplast fusion (b) r-DNA technology (c) Transformation (d) Grafting
- 165) Identify the mismatched pair:
(a) Digoxin - Digitalis purpurea (b) Codeine - Capsicum annum (c) Vincristine - Catharanthus roseus (d) Quinine - Cinchona officinalis
- 166) Autoecology deals with the study of _____.
(a) Community (b) Population (c) Individual species (d) Niche of species
- 167) Environment of any community is called
(a) Paratope (b) Ecotype (c) Opitope (d) Biotope
- 168) The study of soil is called as _____.
(a) Lithotripsy (b) Lithosphere (c) Pedology (d) Pedigree analysis
- 169) Identify the indicators of fire.
(a) Puccinia (b) Pyricularia (c) Pyronema (d) Peziza
- 170) Statement 1: Latitudes represent distance from the equator.
Statement 2: Height above the sea level from longitude.
(a) Statement 1 is correct. Statement 2 is incorrect (b) Statement 1 is incorrect. Statement 2 is correct (c) Both the statements are correct. (d) Both the statements are incorrect
- 171) Statement 1: Holoparasites depend totally on other organisms for nutrition.
Statement 2: Durnta is holoparasite.
(a) Statement 1 is correct. Statement 2 is incorrect. (b) Statement 1 is incorrect. Statement 2 is correct (c) Both the statements are correct. (d) Both the statements are incorrect
- 172) Statement 1: Ephemerals are drought evaders.
Statement 2: They are not true xerophytes.
(a) Statement 1 is correct. Statement 2 is incorrect. (b) Statement 1 is incorrect. Statement 2 is correct. (c) Both the statements are correct. (d) Both the statements are incorrect
- 173) Assertion (A) : Plains and valleys are rich in vegetation
Reason (R): Slow drain of surface water and better water retention is noticed.
(a) A is true R is false (b) R explains A (c) A and R are false (d) A and R are true. But R doesnot explain A
- 174) Utricularia is a _____.
(a) Rooted floating hydrophyte (b) Submerged floating hydrophyte (c) Rooted submerged hydrophyte (d) Amphibious hydrophyte
- 175) Earth day is observed on
(a) April 22nd (b) March 21st (c) July 07th (d) September 16th
- 176) Ecosystem is the structural and functional unit of ecology. This statement was given by
(a) Tansley (b) Odum (c) Charles Elton (d) Edwin
- 177) Identify the incorrect option among the following component sequence.
(a) air, water, sunlight and temperature (b) latitude, altitude, aptitude (c) soil air, pH of soil, saltwater and soil moisture (d) carbohydrate, protein, lipids and humic substances
- 178) Pick out the edaphic factor among the following.
(a) Rain fall (b) Temperature (c) Soil pH (d) Latitude
- 179) Which is not a macro consumer?
(a) Herbivore (b) Carnivore (c) Omnivore (d) Decomposer
- 180) Photosynthetically Active Radiation ranges between the wavelength of _____.
(a) 400 - 600 nm (b) 600 - 700 nm (c) 400 - 500 nm (d) 400 - 700 nm
- 181) Identify the incorrect statement
(a) Carbon stored in oil is referred as Grey carbon (b) Carbon stored in industrialized forests is referred as Blue carbon (c) Carbon stored in gas, died engine is referred as Green carbon (d) Carbon emitted from referred as Black carbon
- 182) Which group of organism occupies the third trophic level in an ecosystem?
(a) Primary consumers (b) Secondary consumers (c) Secondary carnivores (d) Omnivores
- 183) Which is irrelevant to the first law of thermodynamics?
(a) Energy can be transmitted (b) Energy transformation (c) Energy can (d) Energy in

- from one system to other in many forms. results in reduction of free energy. neither be created nor destroyed. the universe is constant.
- 184) If 1200 Joules of solar energy is trapped by producers, how much of Joules of energy does the organism in the third trophic level will receive?
 (a) 120 Joules (b) 12 Joules (c) 1.2 Joules (d) 0.12 Joules
- 185) Which of the following food chain is in improper sequence?
 (a) Plants ~ snake ~ rabbit ~ lizard ~ eagle (b) Plants ~ grasshopper ~ lizard ~ snake ~ hawk (c) Plants ~ lizard ~ rabbit ~ snake ~ eagle (d) Plants ~ rabbit ~ lizard ~ hawk ~ eagle
- 186) Which one of the following is not a functional unit of an ecosystem?
 (a) Productivity (b) Conductivity (c) Energy flow (d) Decomposition
- 187) The upright pyramid is not a feature of _____
 (a) Pond ecosystem (b) Grassland ecosystem (c) Forest ecosystem (d) Terminal ecosystem
- 188) The type of ecosystem with maximum net primary productivity is _____
 (a) Desert ecosystem (b) Deciduous forest ecosystem (c) Tropical rain forest ecosystem (d) Grassland ecosystem
- 189) Pyramid of numbers with broad base indicates _____
 (a) High population of old individuals (b) Low population of young individuals (c) High population of young individuals (d) Low population of old individuals
- 190) Spindle shaped pyramid is a character of _____
 (a) Pond ecosystem (b) Grassland ecosystem (c) Parasite ecosystem (d) Forest ecosystem
- 191) Read the statement and select the correct terminology for the same:
 "Carrying away of inorganic compounds of soil by water".
 (a) Eluviation (b) Fragmentation (c) Humification (d) Mineralisation
- 192) Complete the food chain by filling the link X:
 Paddy ~ Grassopper ~ Frog ~ X ~ Hawk
 (a) King cobra (b) Gorilla (c) Rabbit (d) Tasmanian wolf
- 193) Which of the following is abundant in rock deposits and guano?
 (a) Nitrogen (b) Phosphorous (c) Oxygen (d) Calcium
- 194) The bottom most zone of a pond is termed as .
 (a) Limnetic zone (b) Littoral zone (c) Benthic zone (d) Profundal zone
- 195) Observe the figures and select the correct type of pyramid of numbers.



(a)			(b)			(c)			(d)		
A	B	C	A	B	C	A	B	C	A	B	C
Grassland ecosystem	Forest ecosystem	Parasite ecosystem	Grassland ecosystem	Pond ecosystem	Forest ecosystem	Forest ecosystem	Grassland ecosystem	Parasite ecosystem	Pond ecosystem	Forest ecosystem	Grassland ecosystem

- 196) Lotic ecosystem refers to _____
 (a) Open water ecosystem (b) Running water ecosystem (c) Standing water ecosystem (d) Ocean water ecosystem
- 197) Identify the correct sequence of various zones from surface to depth in a pond ecosystem.
 (a) Profundal, limnetic, littoral and benthic (b) Benthic, littoral, profundal and limnetic (c) Limnetic, profundal, littoral and benthic (d) Littoral, limnetic, profundal and benthic
- 198) Which type of ecosystem service does the genetic resources comes under?
 (a) Provisioning services (b) Supporting services (c) Regulating services (d) Cultural services
- 199) Assertion (A): Pyramid of energy is upright.
 Reason (R): During the energy transfer at successive trophic levels from producers there will be a gradual decrease
 (a) Both A and R are right (b) A is right R is wrong (c) R explains A (d) A is right R is not the correct explanation for A
- 200) Assertion (A): In forest ecosystem, the pyramid of number is spindle shaped.
 Reason (R): Tropical level (T1) of the pyramid occupies large trees which are maximum in number.
 (a) Both A and R are right (b) A is right R is wrong (c) R explains A (d) A is right R is not the correct explanation for A
- 201) Succession initiating on a sand referred as
 (a) Hydrosere (b) Psammosere (c) Halosere (d) Lithosere
- 202) Statement (I): Allogenic succession occurs as a result of abiotic factors.
 Statement (II): Autogenic succession occurs as result of biotic factors.
 (a) Statement I is correct; (b) Statement I is wrong (c) Both Statements are correct (d) Both Statements are wrong

- Statement II is incorrect. incorrect; Statement II is I and II are correct. I and II are incorrect. correct.
- 203) Statement (I): The first invaded plants in a barren area are called as pioneers.
Statement (II): Marsh meadow stage of hydro sere succession is also called as amphibious stage.
(a) Statement I is correct; (b) Statement I is incorrect; (c) Both Statements (d) Both Statements
Statement II is incorrect. incorrect; Statement II is I and II are correct. I and II are incorrect. correct.
- 204) _____ is the climax community of hydro sere.
(a) Reed swamp stage (b) Marsh meadow stage (c) Shrub stage (d) Forest stage
- 205) _____ is not a method of waste water treatment.
(a) oxidation ponds (b) Anaerobic lagoons (c) Catalytic converter (d) Anaerobic bioreactor
- 206) Which is not a greenhouse gas?
(a) CO₂ (b) N₂O (c) O₃ (d) CFC
- 207) Identify the incorrect statement with regard to Global warming
(a) Leads to species enrichment (b) Decrease irrigation (c) Increases vector population (d) Frequent heat waves
- 208) The total ozone layer over the earth surface is _____
(a) 30 DU (b) 300 DU (c) 3000 DU (d) 0.3 DU
- 209) Methane is _____ times as effective as CO₂ at trapping heat.
(a) 5 (b) 10 (c) 20 (d) 100
- 210) Which is not a beneficial aspect of Agroforestry?
(a) Nutrient cycling is improved (b) Balance in O₂ - CO₂ composition (c) Suitable for wetland where rainfall is maximum (d) Reduces water run-off problem
- 211) Which is not reduced by deforestation?
(a) Amount of habitat (b) Amount of animal population (c) Amount of biodiversity (d) Amount of agricultural land
- 212) Identify the potent cause for deforestation.
(a) Agriculture (b) Soil erosion (c) Afforestation (d) Forest fire
- 213) Total number of forestry extension centres in Tamil Nadu is _____
(a) 16 (b) 32 (c) 18 (d) 51
- 214) Who is celebrated as Forest Man of India?
(a) Anand Mohan Chakrabarthi (b) Dr. M.S. Swaminathan (c) Jadav Molai Payeng (d) Choudhary Ram Dhan
- 215) Invasive species _____
(a) alter the soil system (b) are more adapted (c) are fast growing (d) all the above
- 216) Pick out the odd one out _____
(a) Biosphere reserve (b) National parks (c) Wild life sanctuaries (d) Botanical gardens
- 217) Which is not true with respect to prosopis juliflora?
(a) Invasive species native to Mexico (b) Arrest wind erosion (c) Absorb hazardous chemical from soil (d) Decreases O₂ content of water bodies
- 218) How many numbers of sacred grooves were documented in Tamil Nadu?
(a) 484 (b) 844 (c) 488 (d) 448
- 219) Biochar is _____
(i) a kind of char coal used as a soil amendment
(ii) a potent way of sequestering carbon
(iii) made from biomass via pyrolysis
(iv) a notable solid, rich in carbon.
(a) (i) and (ii) is correct (b) (ii) and (iv) is correct (c) (i) and (ii) is correct (d) all the above is correct
- 220) Which is not a true statement regarding rainwater harvesting?
(a) Mitigates groundwater quality (b) Reduces soil erosion (c) Decreases soil salinity (d) No wastage of land for storing
- 221) EIA stands for _____
(a) Ecological Information Analysis (b) Environmental Information Assessment (c) Environmental Impact Analysis (d) Environmental Impact Assessment
- 222) _____ is the 100th Satellite launched to watch border surveillance.
(a) GSAT-6A (b) SCAT SAT-I (c) INSAT 3DR (d) CARTOSAT-2
- 223) The ozone layer of _____ is called bad ozone.
(a) Stratosphere (b) Mesosphere (c) Troposphere (d) Exosphere
- 224) When does World Ozone Day is observed?
(a) June 17th (b) December 1st (c) October 12th (d) September 16th
- 225) Clean Development Mechanism (CDM) is defined in _____
(a) Copenhagen Acord (b) Montreal Protocol (c) Paris Agreement (d) Kyoto Protocol

- 226) _____ is a plant species which acts as an indicator of Nitrate pollution.
 (a) Petunia (b) Lichens (c) Gladiolus (d) Pinus
- 227) Identify the plant species that is not used as a live fence.
 (a) Sesbania grandiflora (b) Acacia species (c) Petunia species (d) Erythrina species
- 228) Assertion (A): CO₂ is a main cause for global warming
 Reason (R): Greenhouse gases trap the radiant heat from sun
 (a) A is correct R is incorrect. (b) A is incorrect R is correct. (c) R explains A. (d) Both A and R are incorrect.
- 229) Assertion (A): Ozone acts as a natural sunblock.
 Reason (R): UV rays reaching the earth are deviated from earth.
 (a) A is correct R is incorrect. (b) A is incorrect R is correct. (c) R explains A. (d) Both A and R are incorrect.
- 230) Assertion (A): Social forestry refers to management of forests and afforestation on barren lands.
 Reason (R): Afforestation involves the cutting of trees.
 (a) A is correct R is incorrect. (b) A is incorrect R is correct. (c) R explains A. (d) Both A and R are incorrect.
- 231) Assertion (A): Prosopis juliflora is native to Afghanistan.
 Reason (R): Alien species refers to non-native species.
 (a) A is correct R is incorrect. (b) A is incorrect R is correct. (c) R explains A. (d) Both A and R are incorrect.
- 232) Assertion (A): In zoological parks, the animals are maintained in their natural habitat.
 Reason (R): Ex-situ conservation refers to protecting species in their natural habitat.
 (a) A is correct R is incorrect. (b) A is incorrect R is correct. (c) R explains A. (d) Both A and R are incorrect.
- 233) _____ is the process of bringing a plant species under human control.
 (a) Emasculation (b) Hybridization (c) Domestication (d) Acclimatization
- 234) Which of the following scientist developed world's first cotton hybrid?
 (a) Dr. B.P. Pal (b) C.T. Patel (c) Dr. K. Ramiah (d) N.G.P. Rao
- 235) Identify the incorrect statement:
 (a) Bio-inoculants are efficient in solubilising ecofriendly organic phosphate (b) Bio-inoculants are agro outputs (c) Bio-inoculants are obtained from dead organic matters (d) Bio-inoculants are designed to improve soil fertility
- 236) Which is not a free-living nitrogen-fixing species?
 (a) Azotobacter (b) Clostridium (c) Nostoc (d) Anabaena
- 237) Arbuscular mycorrhizae is a symbiotic association between _____
 (a) Algae and fungi (b) Angiosperm roots and fungi (c) Blue-green algae and Azolla fern (d) Cyanobacteria and coralloid root
- 238) Azolla is best suited biofertilizer for _____
 (a) Sugar cane cultivation (b) Paddy cultivation (c) Wheat cultivation (d) Cotton cultivation
- 239) Assertion (A): SLF promotes vigorous growth and provide resistance against diseases.
 Reason (R): SLF is made from kelp containing more than 70 minerals.
 (a) Both A and R are true. R explains A. (b) A is true R is false. (c) A is false R is true. (d) Both A and R are false.
- 240) Assertion (A): Pure line varieties show homozygosity.
 Reason (R): Pure line species are obtained through cross-pollination.
 (a) Both A and R are true. R explains A. (b) A is true R is false. (c) A is false R is true. (d) Both A and R are false.
- 241) Assertion (A): Hybrids show increased growth and elevated yield.
 Reason (R): F1 hybrids show Heterosis.
 (a) Both A and R are true. R explains A. (b) A is true R is false. (c) A is false R is true. (d) Both A and R are false.
- 242) Statement (1): Trichoderma species is a free-living bacteria.
 Statement (2): It acts as a potent bio-control agent
 (a) Statement 1 is correct and Statement 2 is incorrect (b) Statement 1 is incorrect and Statement 2 is correct (c) Both the statements are correct (d) Both the statements are incorrect
- 243) Statement (1): Clonal selection is carried out in asexually propagating plants.
 Statement (2): Clones show similar genotypes.
 (a) Statement 1 is correct and Statement 2 is incorrect (b) Statement 1 is incorrect and Statement 2 is correct (c) Both the statements are correct (d) Both the statements are incorrect
- 244) Identify the proper sequence of hybridisation technique
 (a) Emasculation (b) Harvesting (c) Selection (d) Selection

- Selection → Selection → Harvesting → Emasculation
 → Bagging → Crossing → Crossing → Bagging
 → Crossing → Emasculation → Crossing
 → Harvesting → Bagging Bagging → Harvesting
- 245) Intraspecific hybridization is also termed as _____
 (a) Intravarietal hybridization (b) Intervarietal hybridization (c) Interspecific hybridization (d) Intergeneric hybridization
- 246) Superiority of hybrids over parents only in vegetative growth not in yield. This phenomenon is termed as _____
 (a) Euheterosis (b) Balanced euheterosis (c) Luxuriance (d) Mutational heterosis
- 247) The term green revolution was coined by _____
 (a) William S Gaud (b) M.S. Swaminathan (c) Dr. B.P. Pal (d) Dr. N.E. Borla
- 248) Who is popularly called as the "father of green revolution in India"?
 (a) Nel Jeyaraman (b) Dr. M.S. Swaminathan (c) Dr. Nammalvar (d) N.G.P. Rao
- 249) Pusa swarnim variety of Brassica species show resistance to _____
 (a) White rust (b) Leaf curl (c) Black rot (d) Hill bunt
- 250) The first established Atomic Garden in India was _____
 (a) Bhabha Atomic Research Institute (b) Indira Gandhi Centre for Atomic Research (c) Indian Agricultural Research Institute (d) Bose Research Institute
- 251) Triticale is polyploid breed of _____
 (a) Triticum cereale x Secale sativus (b) Triticum durum x Secale cereale (c) Triticum cereale x Secale sativus (d) Triticum sativus x Secale cereale
- 252) Raphanobrassica is an example for _____
 (a) Autopolyploid (b) Allopolyploid (c) Polyploid (d) Polysomy
- 253) Atlas 66 is an improved variety of _____
 (a) Rice (b) Maize (c) Wheat (d) Spinach
- 254) Pusa Sawani variety of okra is resistant against _____
 (a) Aphids (b) Fruit borers (c) Shoot and fruit borers (d) Jassids
- 255) Damping off of tomato is controlled by _____
 (a) Beauveria species (b) Trichoderma species (c) Acacia species (d) Pseudomonas species
- 256) Atomita 2 - rice is a product by _____
 (a) Polyploid breeding (b) Hybridization (c) Mutation breeding (d) Clonal selection
- 257) Luxuriance is the term used on par with _____
 (a) Heterosis (b) Anthesis (c) Hybrids (d) Mutant breeds
- 258) Paddy, Wheat and Sorghum, etc., comes under the category of cereals. All the members of cereals belong to which of the following family?
 (a) Fabaceae (b) Poaceae (c) Leguminosae (d) Caesalpiniaceae
- 259) Match the common names of the given plant species with their respective binomial
- | | |
|-------------------|-----------------------------|
| (A) Paddy | (I) Vigna radiata |
| (B) Lady's finger | (II) Triticum aestivum |
| (C) Wheat | (III) Oryza sativa |
| (D) Green gram | (IV) Abelmoschus esculentus |
- (a) A-iii, B-iv, C-ii and D-i (b) A-ii, B-iii, C-i and D-iv (c) A - i, B - iii, C - iv and D - ii (d) A - i, B - ii, C - iv and D - iii
- 260) Given below are the plant species and their parts used. Which is the incorrect pair(s)?
 (i) Cajanus cajan : Seeds
 (ii) Anacardium occidentale: nuts
 (iii) Borassus flabellifer: Endosperm
 (iv) Capsicum annum: leaves
 (a) i and ii (b) ii and iii (c) iii only (d) iv only
- 261) Identify the tamil name for flaked rice
 (a) Nel (b) Aval (c) Pori (d) Umi
- 262) Pigeon pea is the common name for _____
 (a) Vigna radiata (b) Vigna mungo (c) Cajanus cajan (d) Sorghum vulgare
- 263) Statement 1: Arachis hypogea belongs to Fabaceae
 Statement 2: It is a native of Brazil.
 (a) Statement 1 is correct and Statement 2 is also correct (b) Statement 1 is correct and Statement 2 is incorrect (c) Statement 1 is incorrect and Statement 2 is correct (d) Both the Statements are incorrect
- 264) Statement 1: Chinese discovered the paper.
 Statement 2: Eucalyptus and Casuarina are the widely used tree species for making paper pulp.
 (a) Statement 1 is correct and Statement 2 is also correct (b) Statement 1 is correct and Statement 2 is incorrect (c) Statement 1 is incorrect and Statement 2 is correct (d) Both the Statements are incorrect

- correct is incorrect is correct incorrect
- 265) Statement 1: *Andrographis paniculata* is known as King of Bitters.
Statement 2: The decoction of *Andrographis* is used against Diabetes mellitus.
(a) Statement 1 is correct and Statement 2 is also correct (b) Statement 1 is correct and Statement 2 is incorrect (c) Statement 1 is incorrect and Statement 2 is correct (d) Both the Statements are incorrect
- 266) Statement 1: *Aloe vera* belongs to the family Asphodelaceae.
Statement 2: *Jasminum grandiflorum* belongs to the family of Oleaceae.
(a) Statement 1 is correct and Statement 2 is also correct (b) Statement 1 is correct and Statement 2 is incorrect (c) Statement 1 is incorrect and Statement 2 is correct (d) Both the Statements are incorrect
- 267) Assertion (A): Turmeric is used to treat cancer.
Reason (R): Curcumin is biomolecule present in turmeric.
(a) A is right R is wrong (b) Both A and R are wrong (c) A is wrong R is right (d) A and R are right. R explains A.
- 268) Assertion (A): Black pepper is a spice.
Reason (R): Condiments are flavouring substances, generally added after the cooking of food.
(a) A is right R is wrong (b) R explains A (c) Both A and R are right. R is not correct explanation for A. (d) Both A and R are wrong
- 269) Select the new world species of cotton.
(i) *Gossypium hirsutum*
(ii) *Gossypium barbadense*
(iii) *Gossypium arboreum*
(iv) *Gossypium herbaceum*
(a) i and ii only (b) i and iii only (c) iii and iv only (d) ii and iv only
- 270) The plant source of Marijuana is _____
(a) *Andrographis paniculata* (b) *Phyllanthus maderaspatensis* (c) *Cannabis sativa* (d) *Papaver somniferum*
- 271) Identify the incorrect statements:
(a) Morphine is used as potent hepatoprotective.
(b) Phyllanthin is used as a strong analgesic in surgery.
(c) Indian *Acalypha* is used to cure skin diseases.
(d) *Cissus quadrangularis* is widely used for treating bone fractures.
(a) a and c (b) a and d (c) b and c (d) a and b
- 272) Identify the mismatched pair:
(a) Holy basil - *Ocimum sanctum* (b) Indian gooseberry - *Phyllanthus amarus* (c) Vilvam - *Aegle marmelos* (d) Veldt grape - *Cissus quadrangularis*