Q.1 Match the characteristic feature given in column (A) with the species/family given in column (B):

Column A	Column B
(a) Male Germ Unit	(i) Hyacinthus orientalis
(b) Pseudo-embryo sac	(ii) Loranthaceae
(c) Pollen grain embryo sacs	(iii) Podostemaceae
(d) Composite endosperm	(iv) Plumbago zeylanica

Options:

(A) a-(i), b-(ii), c-(iii), d-(iv)

(B) a-(ii), b-(i), c-(iv), d-(iii)

(C) a-(iii), b-(iv), c-(ii), d-(i)

(D) a-(iv), b-(iii), c-(i), d-(ii)

(E) Not attempted

Q.2 Double fertilization was discovered in which of the following plants?

(A) Fritillaria and Lilium

(B) Lilium and Monotropa

(C) Fritillaria and Monotropa

(D) Lilium and Orchis

(E) Not attempted

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Q.3 Entry of pollen tube through the funiculus or through the integuments is known as

(A) Porogamy

(B) Chalazogamy

(C) Mesogamy

(D) Psuedogamy

(E) Not attempted

Q.4 If there are 50 microspore mother cells in an anther and 18 of them degenerate, the number of pollen grains in the anther would be

(A) 50

(B) 25

(C) 128

(D) 100

(E) Not attempted

Q.5 Match the type of meristem in column (A) with part of the plant where it is found in column (B):

Column A	Column B
(a) Lateral meristem	(i) Shoot and root apices
(b) Apical meristem	(ii) Internodes and leaf sheaths of monocots
(c) Intercalary meristem	(iii) Vascular and cork cambia

Options:

(A) a-(i), b-(ii), c-(iii)

(B) a-(ii), b-(iii), c-(i)

(C) a-(ii), b-(i), c-(iii)

(D) a-(iii), b-(i), c-(ii)

(E) Not attempted

Q.6 Match the term in column A with its correct definition in column B:

Column A	Column B
(a) Dedifferentiation	(i) Changes in form, structure, and function of progenies of meristematic derivatives, and their organization into tissues and organs
(b) Redifferentiation	(ii) Loss of previously acquired characteristics
(c) Differentiation	(iii) Acquisition of new characteristics

Options:

(A) a-(i), b-(ii), c-(iii)

(B) a-(iii), b-(ii), c-(i)

(C) a-(i), b-(iii), c-(ii)

(D) a-(ii), b-(iii), c-(i)

(E) Not attempted

Q.7 Assertion (A): The cork cambium (phellogen) is a good example of a secondary meristem

Reason (R): It arises from the epidermis or various parenchymatous tissues in the cortex and deeper layers of the bark

Choose the correct option:

(A) Both A and R are true, and R is correct explanation of the A

(B) Both A and R are true, but R is not the correct explanation of the A

(C) A is true, but R is false

(D) A is false, but R is true

(E) Not attempted

Q.8 Given below are two statements.

Statement I: The reaction centre consists of chlorophyll - a molecules

Statement II: A reaction centre transfers a light-excited photon from pigment molecules to molecules that can use this trapped energy to drive chemical reactions

Choose the correct option:

(A) Both Statement I and Statement II are incorrect

(B) Statement I is correct and Statement II is incorrect

(C) Statement I is incorrect and Statement II is correct

(D) Both Statement I and Statement II are correct

(E) Not attempted

Q.9 Assertion(A): Water is required as a reactant in photosynthesis

Reason (R): The splitting of water provides electrons for converting NADP to NADPH (which will be used in converting CO_2 to sugar in the Calvin cycle)

Choose the correct option:

(A) Both A and R are true, but R is not the correct explanation of the A

(B) Both A and R are true, and R is correct explanation of the A

(C) A is true, but R is false

(D) A is false, but R is true

(E) Not attempted

Q.10 Assertion(A): The Calvin cycle functions like a sugar factory within a chloroplast.

Reason (R): Using carbon from CO2, energy from ATP, and high-energy electrons from NADPH, it constructs an energy-rich sugar molecule called glyceraldehyde 3-phosphate

Choose the correct option:

(A) Both A and R are true, but R is not the correct explanation of the A

(B) Both A and R are true, and R is correct explanation of the A

(C) A is true, but R is false

(D) A is false, but R is true

(E) Not attempted

Q.11 Which of the following products of the reactions taking place in the thylakoids are consumed by reactions occurring in the stroma?

(A) H_2O and CO_2

(B) $NADP^+$ and ADP

(C) O_2 and AMP

(D) NADPH and ATP

(E) Not attempted

Q.12 Maximum ATP production occurs during which stage of the cellular respiration?

(A) Citric acid cycle

(B) Glycolysis

(C) Electron transport

(D) During conversion of pyruvic acid to Acetyl CoA

(E) Not attempted

Q.13 The number of ATP molecules produced from one molecule of glucose during fermentation is

(A) 4

(B) 2

(C) 1

(D) 3

(E) Not attempted

Q.14 ----------acid builds up in human muscle during strenuous activity/exercise?

(A) Carbonic

(B) Lactic

(C) Citric

(D) Malic

(E) Not attempted

Q.15 The two plant hormones involved in regulating seed dormancy and germination are

(A) Abscisic acid and gibberellins, respectively

(B) Ethylene and gibberellins, respectively

(C) Cytokinins and gibberellins, respectively

(D) Auxins and gibberellins, respectively

(E) Not attempted

Q.16 Which of the following activities of soil bacteria does not contribute to creation of usable nitrogen for plant use?

(A) Ammonium to nitrate conversion

(B) Assembly of amino acids into proteins

(C) Atmospheric nitrogen fixation

(D) Formation of ammonium from proteins in dead leaves

(E) Not attempted

Q.17 A non-allelic interaction where an allele of one gene has an overriding effect on the other gene is known as:

(A) Incomplete dominance

(B) Epistasis

(C) Codominance

(D) Multiple allelism

(E) Not attempted

Q.18 Polydactyly in spite of being an autosomal dominant human trait is not frequently observed in population because polydactyly gene has-

(A) low penetrance

(B) low expressivity

(C) incomplete dominance

(D) codominance

(E) Not attempted

Q.19 Which of the following is an example of multiple allelism?

(A) ABO blood typing

(B) Phenylketonuria

(C) Albinism

(D) Color Blindness

(E) Not attempted

Q.20 In a dihybrid cross, a true breeding parent with red and round seeds was crossed to another true breeding parent with yellow and wrinkled seeds, where red is dominant over yellow and round is dominant over wrinkled. All F1 progenies were with red and round seeds. On selfing the F1, one hundred and twelve progenies were produced in F2. How many out of 112 F2 progenies would have red and round seeds?

(A) 21

(B) 63

(C) 7

(D) 49

(E) Not attempted

Q.21 A gene affecting many phenotypic aspects simultaneously is known as:

(A) Polygenic

(B) Pleiotropic

(C) Epistasis

(D) Pseudogene

(E) Not attempted

Q.22 If the recombination frequency between two genes is less than 50% then the two genes are–

(A) present on the same chromosome and are linked

(B) present on different chromosomes and are not linked

(C) unable to show independent assortment

(D) Both A and C options are correct

(E) Not attempted

Q.23 Which one of the following is trait of a X-linked recessive gene mutation?

(A) The trait is shown equally in both male and female

(B) Males will be more affected than females

(C) The trait will be passed on from an affected father to all daughters as well as sons

(D) The trait can be passed on from the affected mother to daughters only and not sons

(E) Not attempted

Q.24 Height of a plant is a polygenic trait. If the base height of a plant is 6 cm and there are four genes controlling the plant height and each additive allele is contributing 6 cm to the base height then what will be the height of a plant with genotype AAbbCCDD?

(A) 42 cm

(B) 36 cm

(C) 18 cm

(D) 24 cm

(E) Not attempted

Q.25 Choose the correct statement for Sickle Cell Anemia

(A) It is a type of nonsense mutation

(B) It results due to replacement of Valine amino acid with Glutamine

(C) It results due to replacement of amino acid Glutamine with Valine

(D) It is an autosomal dominant mutation

(E) Not attempted

Q.26 A group of archegonia of a lobe in the disc of archegoniophore of Marchantia is covered by a common involucre or

(A) calyptra

(B) perigynium

(C) perichaetium

(D) wall layer

(E) Not attempted

Q.27 Hydroids and Leptoids in Bryophytes share analogy with:

(A) Phloem and Xylem parenchyma, respectively

(B) Phloem and Xylem tracheid, respectively

(C) Xylem and Phloem, respectively

(D) Phloem and Xylem, respectively

(E) Not attempted

Q.28 In Selaginella, the cortex and stele of the stem is connected by elongated cells known as:

(A) trabeculae

(B) inner cortical cells

(C) pericycle

(D) outer cortical cells

(E) Not attempted

Q.29 In Cycas, pollen grains are shed at how many celled stage?

(A) Four-celled stage

(B) Three-celled stage

(C) Two-celled stage

(D) Five-celled stage

(E) Not attempted

Q.30 The development of female gametophyte in Gnetum is:

(A) monosporic

(B) bisporic

(C) tetrasporic

(D) trisporic

(E) Not attempted

Q.31 Development of gametophyte directly from the vegetative cells of the sporophyte without the formation of spores is known as:

(A) apogamy

(B) apospory

(C) megasporogenesis

(D) microsporogenesis

(E) Not attempted

Q.32 Which of the following is correct about Manoxylic wood?

(A) Presence of many rings of xylem

(B) Presence of a single ring of xylem

(C) Wood is sparse with wide parenchymatous rays, large pith and cortex

(D) Wood is dense or compact with small xylem rays, and small pith and cortex

(E) Not attempted

Q.33 In Equisetum, vallecular canals are situated:

(A) below the furrows

(B) below the ridges

(C) between the ridges and furrows

(D) between endodermis and pith

(E) Not attempted

Q.34 Polysiphonia exhibits ----------type of alternation of generations.

(A) Haplontic Diplohaplont

(B) Diplontic

(C) Isomorphic

(D) Triphasic

(E) Not attempted

Q.35 Which of the following represents the correct way of writing a scientific name, including the authority and a synonym?

(A) Mangifera Indica Linnaeus (Syn. Mangifera domestica)

(B) mangifera indica L. (Syn. Mangifera domestica)

(C) Mangifera indica L. (Syn. Mangifera domestica)

(D) MANGIFERA INDICA Linnaeus (Syn. Mangifera officinalis)

(E) Not attempted

Q.36 Which of the following taxonomic systems is an Artificial System of Classification and is primarily based on observable features rather than evolutionary relationships?

(A) Linnaean

(B) Engler and Prantl

(C) Hutchinson

(D) Takhtajan

(E) Not attempted

Q.37 Match the plant in Column (A) with its respective secondary metabolite in Column (B):

Column A	Column B
(a) Digitalis	(i) Reserpine
(b) Datura	(ii) Hyoscyamine
(c) Ocimum	(iii) Eugenol
(d) Rauwolfia	(iv) Digitalin

Options:

(A) a-(iv), b-(ii), c-(iii), d-(i)

(B) a-(iii), b-(iv), c-(i), d-(ii)

(C) a-(iv), b-(iii), c-(ii), d-(i)

(D) a-(i), b-(iv), c-(ii), d-(iv)

(E) Not Attempted

Q.38 Type of wood that is formed in conifers growing on slopes when the tree bends in response to wind, landslides etc is:

(A) Heart wood

(B) Soft wood

(C) Compression wood

(D) Redwood

(E) Not attempted

Q.39 The process by which latex is collected from Papaver somniferum capsules by giving incisions is called as:

(A) Retting

(B) Combing

(C) Lancing

(D) Thrashing

(E) Not attempted

Q.40 Which of the following is an example of secondary anomalous growth due to abnormal cambial activity?

(A) Secondary growth in Helianthus

(B) Formation of included phloem in Boerhaavia

(C) Lack of secondary growth in Zea

(D) Development of fibrous roots in Saccharum

(E) Not attempted

Q.41 Match the Botanical Garden given in Column (A) with the place of location given in Column (B):

Column A	Column B
(a) Lal Bagh Botanical Garden	(i) Kolkata
(b) Tropical Botanical Garden	(ii) Bangalore
(c) Lloyd Botanical Garden	(iii) Thiruvananthapuram
(d) Acharya Jagadish Chandra Bose Botanical Garden	(iv) Darjeeling

Options:

(A) a-(ii), b-(iii), c-(iv), d-(i)

(B) a-(ii), b-(iv), c-(iii), d-(i)

(C) a-(i), b-(iii), c-(ii), d-(iv)

(D) a-(i), b-(ii), c-(iv), d-(iii)

(E) Not Attempted

Q.42 Which of the following mechanisms is a characteristic feature of gametophytic self-incompatibility (GSI) in flowering plants?

(A) The incompatibility reaction is controlled by the diploid genotype of the sporophyte

(B) Pollen tube growth is arrested in the style or ovary and is determined by genotype of pollen

(C) Incompatibility occurs due to structural barriers

(D) Compatibility occurs on due to different pollination strategies

(E) Not attempted

Q.43 Pollen tube is guided to grow towards the embryo sac due to:

(A) Hydrotropism

(B) Gravitropism

(C) Chemotropism

(D) Mechanical Signaling

(E) Not attempted

Q.44 The total amount of water held by a fully saturated soil sample against the force of gravity is called:

(A) Water Holding capacity

(B) Moisture Equivalent

(C) Wilting quotient

(D) Field Capacity

(E) Not Attempted

Q.45 Rat population is showing exponential growth in an area. If the initial population (N0) is 50 and the intrinsic growth rate (r) is 0.2 per year, what will be the population size (Nt) after 20 years?

(A) 2700 individuals

(B) 3780 individuals

(C) 4000 individuals

(D) 2730 individuals

(E) Not Attempted

Q.46 Which of the following processes is responsible for Sympatric speciation?

(A) Seasonal migration in plants

(B) Self-pollination in crops

(C) Polyploidy resulting from genome duplication

(D) Different mating strategies

(E) Not Attempted

Q.47 Choose any one of the statements given below that is indicative of speciation on account of adaptive radiation:

(A) The convergence of body shapes in sharks and dolphins

(B) The development of antibiotic resistance in bacteria

(C) The diversification of Darwin's finches into multiple species with different beak shapes

(D) The seasonal migration patterns of monarch butterflies

(E) Not Attempted

Q.48 Which of the following statements is correct regarding the relationship between vegetation type and biome?

(A) Vegetation types are randomly distributed across the landscape and do not reflect the underlying climatic or soil conditions

(B) Vegetation types are directly shaped by climatic, edaphic, and geographical factors, time and space thereby defining distinct biomes

(C) Vegetation types are determined solely by altitude, irrespective of climate or soil characteristics

(D) Vegetation types are influenced only by human activities, with natural environmental factors playing a negligible role in forming biomes

(E) Not Attempted

Q.49 Match the biosphere reserves given in Column (A) with the Indian states where they are located given in Column (B):

Column A	Column B
(a) Nokrek	(i) Tamil Nadu
(b) Simlipal	(ii) West Bengal
(c) Sunderbans	(iii) Odisha
(d) Agasthyamalai	(iv) Meghalaya

Options:

(A) a-(iv), b-(iii), c-(ii), d-(i)

(B) a-(iii), b-(ii), c-(iv), d-(i)

(C) a-(ii), b-(iv), c-(i), d-(iii)

(D) a-(i), b-(ii), c-(iii), d-(iv)

(E) Not attempted

Q.50 Plants differing in morphology but belonging to homogenous genetic stock are known as:

(A) Species

(B) Ecotypes

(C) Syntypes

(D) Ecophenes

(E) Not Attempted

Q.51 Bear population follows logistic growth in a forest ecosystem. The carrying capacity (K) of the ecosystem is 6000 individuals, and the intrinsic growth rate (r) is 0.5 per year. If the population size (N) is 100, what will be the growth rate (dN/dt)?

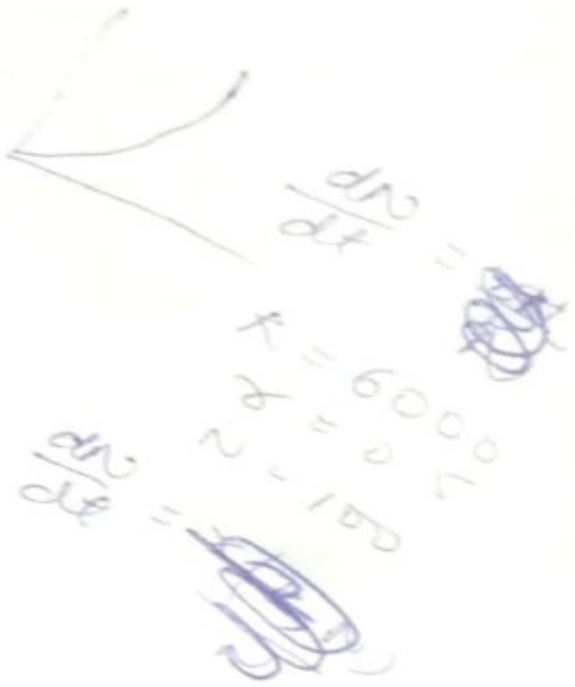
(A) 100 individuals per year approximately

(B) 500 individuals per year approximately

(C) 50 individuals per year approximately

(D) 500 individuals per year approximately

(E) Not Attempted



Q.52 For calculating the Species Diversity Index which of the given parameters are considered in the calculations?

(A) Basal and canopy cover

(B) Density and abundance

(C) Richness and evenness

(D) Frequency and Density

Q.53 Which of the following techniques is used for allele mining?

(A) TILLING (Targeting Induced Local Lesions in Genomes)

(B) Southern blotting

(C) Chromosome painting

(D) RAPD (Random Amplified Polymorphic DNA)

(E) Not attempted

Q.54 Roundup Ready Soybean, a transgenic plant is designed for one of the below given traits. Choose the correct one:

(A) Nutritional enhancement

(B) Viral disease resistance

(C) Herbicide resistance

(D) Insect resistance

(E) Not Attempted

Q.55 Which of the following statements is correct for RT-PCR?

(A) RT-PCR directly amplifies RNA without any prior conversion

(B) RT-PCR converts RNA into complementary DNA

(C) RT-PCR uses restriction enzymes to fragment RNA

(D) RT-PCR amplifies only double-stranded DNA templates

(E) Not Attempted

Q.56 BLAST (Basic Local Alignment Search Tool) is used for:

(A) To extract DNA

(B) To analyze gene expression

(C) To align protein sequences

(D) To align karyoptes

(E) Not Attempted

Q.57 rbcL and matK (from chloroplast DNA) are used as Barcoding regions for:

(A) Bacteria

(B) Fungi

(C) Plants

(D) Insects

(E) Not Attempted

Q.58 Which one of the following is not a recommended method for Proteome Analysis?

(A) Mass Spectroscopy

(B) Atomic Absorption Spectroscopy

(C) 2 D-Gel Electrophoresis

(D) de-novo Sequencing

(E) Not Attempted

Q.59 How does Pseudomonas syringae contribute to oil spill cleanup in marine environment?

(A) By directly consuming crude oil as a primary carbon source

(B) By secreting ice-nucleating proteins that solidify oil for easier removal

(C) By providing hydrogen degenerative pathways that help break down hydrocarbons in oil spills

(D) By fixing atmospheric nitrogen to enhance microbial degradation of oil

(E) Not Attempted

Q.60 Choose the best method that can be used to degrade the heavy metals at a landfill:

(A) Employ random microbial strains off site

(B) Utilize a genetically engineered microbial strains on site

(C) Use chelating agents

(D) Use mechanical incineration methods

(E) Not Attempted

Q.61 Why is Heterosis adopted in plant breeding?

(A) It produces F1 hybrids that exhibit superior growth

(B) It confers uniformity by self-pollination

(C) It imparts incompatibility

(D) It induces mutations

(E) Not Attempted

Q.62 A PCR based molecular marker, which is commonly used in DNA fingerprinting where a random decamer primer is used for template amplification is:

(A) RAPD

(B) AFLP

(C) RFLP

(D) Both A and B are correct

(E) not attempted

Q.63 Match the DNA sequencing technique in Column (A) with its methodology in Column (B):

Column A	Column B
(a) Maxam Gilbert sequencing method	(i) Chain termination by di deoxyribonucleotide
(b) Automated DNA sequencing	(ii) Four different chemical reaction to cleave DNA at A, G, C & T
(c) Next generation sequencing	(iii) Fluorescent dyes to detect chain by gel/capillary tube
(d) Sanger's sequencing method	(iv) DNA breakdown into many small fragments followed be computer aided assembly

Options:

(A) a-(iv), b-(ii), c-(ii), d-(i)

(B) a-(ii), b-(iii), c-(iv), d-(i)

(C) a-(ii), b-(iv), c-(iii), d-(i)

(D) a-(iii), b-(ii), c-(i), d-(iv)

(E) Not attempted

Q.64 In the 2D gel electrophoresis proteins in a mixture are separated based on following principle:

(A) First dimension pI, second dimension molecular weight

(B) First dimension molecular weight, second dimension pI

(C) First dimension conformation, second dimension molecular weight

(D) First dimension size, second dimension molecular weight

(E) Not attempted

Q.65 The lacz' gene present on pUC plasmid has the following property:

(A) It encodes for the complete β Galactosidase polypeptide

(B) It encodes only for the first 147 amino acids from the amino terminal fragment of β Galactosidase

(C) It can't show complementation with the mutant allele laczΔm15

(D) This gene is not located in the multiple cloning site (MCS) of the pUC plasmid

(E) Not attempted

Q.66 Which one of the following statements is not true for separation of protein mixture by PAGE in presence of SDS?

(A) SDS contributes a net positive charge on the protein

(B) SDS imparts similar charge to mass ratio on each protein in a mixture

(C) The native conformation of a protein is altered when it binds to SDS

(D) Electrophoresis in presence of SDS separates protein mixture exclusively on the basis of mass

(E) Not attempted

Q.67 Choose the correct statement for Edman Degradation method of protein sequencing

(A) This method is useful for sequencing long polypeptide

(B) This method alone can't determine complete sequence of polypeptide

(C) In this method the peptide is treated with phenylthiocyanate to convert the N-terminal amino acid into phenylthiocarbamoyl (PTC)

(D) This method labels and removes only the amino acid residue from C-terminal of the peptide

(E) Not attempted

Q.68 Which of the following combinations of plant growth regulators promotes callus formation rather than organogenesis in in vitro conditions?

(A) High cytokinin to low auxin ratio

(B) High auxin to low cytokinin ratio

(C) Equal concentrations of auxin and cytokinin

(D) No plant growth regulators added

(E) Not Attempted

Q.69 Sexual Incompatibility in plants with large sized ovaries can be best overcome by which of the following methods?

(A) X-ray treatment

(B) Intra-ovarian pollination

(C) Hybridization

(D) Test-tube pollination

(E) Not Attempted

Q.70 Datura innoxia anthers have been used as the material for carrying out tissue culture studies for production of:

(A) Diploids

(B) Haploids

(C) Triploids

(D) Polyploids

(E) Not attempted

Q.71 Which of the following linkages is present in cellulose?

(A) α-1,4 glycosidic linkage

(B) β-1,4 glycosidic linkage

(C) α-1,2 glycosidic linkage

(D) β-1,2 glycosidic linkage

(E) Not attempted

Q.72 Guanosine and Uridine contain which of the following components?

(A) A phosphate group

(B) Two phosphate groups

(C) Three hydroxyl groups

(D) A pyranose

(E) Not attempted

Q.73 In enzyme feedback inhibition, the

(A) pathway's last enzyme is blocked by its own product

(B) enzyme in a pathway gets blocked by its own product

(C) last enzyme in a pathway is inhibited by the end-product of the pathway

(D) first enzyme in a pathway is inhibited by the end-product of the pathway

(E) Not attempted

Q.74 Given below are two statements

Statement I: Lactose is the disaccharide sugar in milk.

Statement II: It is formed from glucose and galactose.

Choose the correct answer from the options given below:

(A) Both Statement I and Statement II are incorrect

(B) Both Statement I and Statement II are correct

(C) Statement I is correct and Statement II is incorrect

(D) Statement I is incorrect and Statement II is correct

(E) Not attempted

Q.75 Match the enzyme in column (A) with its function in column (B):

Column A	Column B
(a) Ligase	(i) Catalyses the addition of phosphate groups to molecules
(b) Isomerase	(ii) Joins two molecules together
(c) Kinase	(iii) Catalyses the rearrangement of bonds within a single molecule

Options:

(A) a-(i), b-(ii), c-(iii)

(B) a-(ii), b-(iii), c-(i)

(C) a-(iii), b-(ii), c-(i)

(D) a-(iii), b-(i), c-(ii)

(E) Not attempted

Q.76 Which of the following is the sweetest saccharide?

(A) Sucrose

(B) Fructose

(C) Maltose

(D) Glucose

(E) Not attempted

Q.77 Given below are two statements

Statement I: A protein's unique three-dimensional shape determines its proper functioning.

Statement II: Many diseases, such as Alzheimer's and Parkinson's, involve an accumulation of misfolded proteins.

Choose the correct answer from the options given below:

(A) Both Statement I and Statement II are incorrect

(B) Statement I is correct and Statement II is incorrect

(C) Both Statement I and Statement II are correct

(D) Statement I is incorrect and Statement II is correct

(E) Not attempted

Q.78 Lactose tolerance involves three of the four major classes of biological molecules. Choose the correct option to identify the three biological molecules.

(A) Carbohydrate, Protein, Nucleic acid

(B) Carbohydrate, Protein, Lipids

(C) Carbohydrate, Lipids, Nucleic acid

(D) Lipids, Protein, Nucleic acid

(E) Not attempted

Q.79 Given below are two statements

Statement I: Dietary fats and anabolic steroids are similar.

Statement II: Both are lipids and grouped together because they are hydrophilic molecules.

Choose the correct answer from the options given below:

(A) Both Statement I and Statement II are incorrect

(B) Both Statement I and Statement II are correct

(C) Statement I is correct and Statement II is incorrect

(D) Statement I is incorrect and Statement II is correct

(E) Not attempted

Q.80 Which gene of Lac operon can function in both cis as well as in trans position?

(A) Gene I^+

(B) Gene O^+

(C) Gene O^C

(D) Gene P

(E) Not attempted

Q.81 Histone protein which facilitates packaging of nucleosome into 30 nm solenoid structure is:

(A) H2A

(B) H2B

(C) H3

(D) H1

(E) Not attempted

Q.82 Match the transposon in column (A) to the organism where it is reported in column (B):

Column A	Column B
(a) Is Elements	(i) Zea mays
(b) Ac-Ds Elements	(ii) Bacteria
(c) P Elements	(iii) Human
(d) L1	(iv) Drosophila

Options:

(A) a-(iv), b-(i), c-(iii), d-(ii)

(B) a-(ii), b-(i), c-(iv), d-(iii)

(C) a-(iii), b-(i), c-(iii), d-(iii)

(D) a-(iv), b-(iii), c-(ii), d-(ii)

(E) Not attempted

Q.83 Which one of the following components provides porosity to the primary cell wall for macromolecules?

(A) Cellulose microfibrils

(B) Hemicellulose

(C) Pectin

(D) Structural proteins

(E) Not attempted

Q.84 Which one of the following statements is incorrect for facilitated diffusion?

(A) It exhibits saturation kinetics

(B) It depends on pH

(C) It requires a membrane bound transporter protein for transport

(D) It requires expenditure of energy in form of ATP for transport

(E) Not attempted

Q.85 Which one of the following statements is not true for Na+ /K+ exchange pumps on plasma membrane:

(A) For every two K+ pumped in three Na+ are pumped out

(B) For every three K+ pumped in two Na+ are pumped out

(C) ATP hydrolysis is required for the transport

(D) These pumps are called as electrogenic pumps

(E) Not attempted

Q.86 A marker enzyme of mitochondria which is located in matrix is:

(A) Citrate synthase

(B) Succinate dehydrogenase

(C) Fatty acid thiokinase

(D) Carnitine fatty acyl transferase

(E) Not attempted

Q.87 Which one of the following correctly defines the function of microfilaments?

(A) Helps in attachment of spindle fiber with kinetochore of chromosome

(B) Involved in forming specialized locomotory organs like cilia, flagella and lamellipodia

(C) Involved in pollen tube growth towards embryo

(D) Serves as a template for construction of cell wall

(E) Not attempted

Q.88 Choose the incorrect statement for START check point of cell cycle:

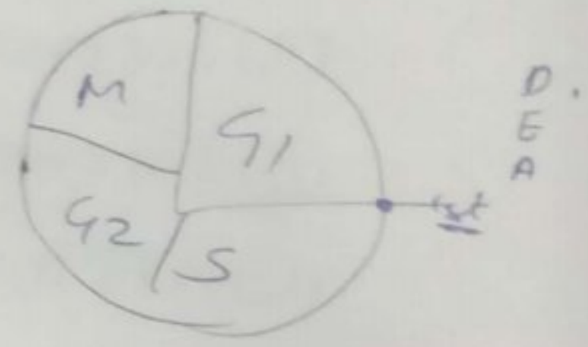
(A) It is located in the mid G1 phase of cell cycle

(B) It is located in the S phase of cell cycle

(C) It is regulated by d type cyclin along with CDK4

(D) It regulates entry of the cell in S- phase of the cell cycle

(E) Not attempted



Q.89 Match the organelle in column (A) with its correct function in column (B):

Column A	Column B
(a) Lysosomes	(i) Beta oxidation of fatty acids
(b) Peroxisomes	(ii) Packaging of secretary material for being discharged from the cell
(c) RER	(iii) Destruction of aged RBC and dead cells
(d) Golgi	(iv) Protein synthesis and their correct folding

Options:

(A) a-(iii), b-(i), c-(iv), d-(ii)

(B) a-(ii), b-(i), c-(iv), d-(iii)

(C) a-(iii), b-(iv), c-(iii), d-(ii)

(D) a-(i), b-(ii), c-(iv), d-(iii)

(E) Not attempted

Q.90 Match the enzyme in column (A) with its role in DNA replication process in column (B):

Column A	Column B
(a) DNA gyrase	(i) Covalent closure of nicks in the sugar-phosphate backbone
(b) Topoisomerase II	(ii) Transient single strand break
(c) DNA primase	(iii) ATP dependent transient double strand break
(d) DNA ligase	(iv) Synthesis of RNA primer

Options:

(A) a-(iii), b-(i), c-(iv), d-(ii)

(B) a-(ii), b-(iii), c-(iv), d-(i)

(C) a-(ii), b-(iv), c-(iii), d-(i)

(D) a-(iv), b-(ii), c-(iii), d-(i)

(E) Not attempted

Q.91 Which out of the following is a commonly used as a cryoprotectant in germplasm conservation?

(A) Sucrose

(B) Dimethyl Sulfoxide (DMSO)

(C) Xylene

(D) Butanol

(E) Not Attempted

Q.92 Which one of the following DNA repair mechanisms can remove chemically modified bases from DNA?

(A) Light dependent repair

(B) Nucleotide excision repair

(C) Base excision repair

(D) Mismatch repair

(E) Not attempted

Q.93 Defect in DNA repair mechanism does not cause:

(A) Xeroderma pigmentosum

(B) Ataxia

(C) Bloom syndrome

(D) Albinism

(E) Not attempted

Q.94 A subunit of prokaryotic RNA polymerase which is not a part of core enzyme but plays a significant role in transcription initiation process?

(A) β' (Beta prime)

(B) β (Beta)

(C) α (Alpha)

(D) σ (Sigma)

(E) Not attempted

Q.95 Addition of methyl guanosine cap, splicing of introns and A tailing, is specific for:

(A) messenger RNA

(B) transfer RNA

(C) ribosomal RNA

(D) microRNA

(E) Not attempted

Q.96 The seven nucleotides long conserved poly-purine tract located upstream of the AUG initiation codon in prokaryotic mRNA is known as:

(A) Pribnow box sequence

(B) Shine Dalgarno sequence

(C) Kozak sequence

(D) TATA box sequence

(E) Not attempted

Q.97 Which of the following is a transcription inhibitor?

(A) Actinomycin D

(B) Chloramphenicol

(C) Tetracycline

(D) Puromycin

(E) Not attempted

Q.98 Which of the following is an example of post- transcriptional gene regulation mechanism?

(A) Histone acetylation

(B) DNA methylation

(C) RNAi

(D) Nucleosome remodeling

(E) Not attempted

Q.99 Female Germ Unit consists of which of the following?

(A) Egg cell, Synergids, Central cell

(B) Egg cell, Synergids, Antipodals

(C) Egg cell, Central cell, Antipodals

(D) Synergids, Central cell, Antipodals

(E) Not Attempted

Q.100 Which of the following type of embryo sacs is the most heterogenous?

(A) Polygonum type

(B) Oenothera type

(C) Endymion type

(D) Adoxa type

(E) Not attempted