A 120 MINUTES

17235

- 1. Which among the following is a Gram positive bacterium?
 - A) Saccharomyces cerevisiae B) Escherichia coli
 - C) Lactobacillus lactis D) Haemophilus influenzae
- 2. In taxonomy, according to the Law of Priority,
 - A) When giving scientific names to animals the name of the genus should have priority before the species name.
 - B) When a new species is discovered, priority should be given to the name of the person who first described it.
 - C) The first properly published name of a species or genus takes precedence over any subsequently published one
 - D) A name once given to an organism should never be changed
- 3. Which among the following is true?
 - A) Prokaryotes lack mitochondrial mechanisms and hence depend only on NADPH as the energy currency.
 - B) Prokaryotes lack mitochondria, but have mitochondrial mechanisms which are capable of producing ATP.
 - C) Prokaryotes depend on fermentation pathways because they are incapable of producing ATP.
 - D) Prokaryotes have fully evolved mitochondria capable of producing ATP.
- 4. Which among the following is caused by a single nucleotide polymorphism?
 - A) Haemophilia B) Sickle cell anaemia
 - C) Down's syndrome D) Cri-du-chat syndrome
- 5. In mammals, the embryonic mesoderm gives rise to
 - A) Liver, pancreas and urinary bladder.
 - B) Trachea, lungs and the thyroid
 - C) Brain, spinal cord and notochord
 - D) Dermis, bone and connective tissue.
- 6. The international consortium for molecular taxonomy is
 - A)Linnaean societyB)IUCNC)COBOLD)ICZN
- 7. The difference between eukaryote and prokaryote mRNA is
 - A) Prokaryote mRNA has introns, while eukaryote mRNA has no introns.
 - B) Translation of mRNA into proteins occurs simultaneous with transcription in eukaryotes while it takes place separately in prokaryotes.
 - C) The eukaryote mRNA has a cap and a polyA tail while the prokaryote mRNA has no such parts.
 - D) Translation of mRNA in prokaryotes does not require ribosomes, while in eukaryotes, translation occurs in ribosomes.

- 8. The Lee–Boot effect is a phenomenon concerning the
 - A) Suppression or prolongation of oestrous cycles of mature mice, when females are housed in groups and isolated from males.
 - B) Suppression or prolongation of oestrous cycles of mature mice, when males are housed in groups and isolated from females.
 - C) Suppression or prolongation of oestrous cycles of mature mice, when females are housed in groups
 - D) None of the above
- 9. Which among the following is true with respect to an aqueous solution of DNA?
 - A) It is neutral B) It is acidic
 - C) It is alkaline D) DNA is not soluble in water
- 10. Which among the following is used for DNA barcode analyses?
 - A) Genes for cyclo-oxygenase B) Genes for cytochrome oxidase
 - C) Genes for LOX D) Genes from the sex chromosomes.
- 11. In a cladogram
 - A) The leaves denote clades, the nodes denote synapomorphs, the branches denote plesiomorphs and the length of the root denotes the evolutionary distances.
 - B) The leaves denote plesiomorphs, the nodes denote evolutionary distances, the branches denote synapomorphs and the length of the clades denotes evolutionary distances.
 - C) The leaves represent individual species, the nodes denote points of divergence, the branches denote lines of descendance and the length of the branches denote the evolutionary distances.
 - D) The leaves denote extant species, the nodes denote extinct species, the branches denote divergence and the length of the clades denote evolutionary distances.
- 12. The term "survival of the fittest" was coined by
 - A) Charles Darwin B) Hebert Spencer
 - C) Jeane Baptiste Lamark D) Alfred Russell Wallace
- 13. Class switching is the process by which
 - A) B-cells and T-cells differentiate in the bone marrow.
 - B) Different types of antibodies are produced by the same T-cell.
 - C) Different types of antibodies are produced by the same B-cell.
 - D) Pluripotent stem cells in the bone marrow change their potency and form blood and immune cells.
- 14. The five kingdom classification and the three domain system were proposed by ----- and ----- respectively.
 - A) Hugo-de Vries & Carl Woese
 - B) Robert Whittaker & Carl Woese
 - C) Charles Linnaeus & Carl Woese
 - D) Charles Darwin & Charles Linnaeus

- 15. Albedo values indicate the contributions of an ecosystem to global warming. Consider the following ecosystems and identify the correct sequence according to decreasing albedo values.
 1. Tundra; 2. Tropical evergreen forest; 3. Desert; 4. Prairies; 5. Taigas
 - A) 2, 4, 5, 3, 1 B) 1, 3, 5, 4, 2
 - C) 2, 5, 4, 3, 1 D) 3, 4, 5, 2, 1

16. The pesticidal action of DDT is effected by

- A) Shutting down Sodium ion channels
- B) Opening up Sodium ion channels
- C) Antifeedant activity
- D) Destruction of intestinal wall
- 17. Which among the following is an invertebrate group represented only in the marine environment?
 - A) Crustacea B) Cetacea
 - C) Hemichordata D) Cnidaria
- 18. The Aristotle's lantern is the
 - A) Excretory system of echinoderms
 - B) Excretory system of trematodes
 - C) Protrusible 5-sided masticatory apparatus of a sea urchin
 - D) Protonephridia of Nemerteans
- 19. The development of males in honey bees is an example of
 - A) Paternal imprinting B) Apomixis
 - C) Arrhenotoky D) Pseudo-arrhenotoky

20. In aquaculture, raft culture is best suited for growing

- A) Etroplus B) Ostrea
- C) Mytilus D) Pinctada
- 21. According to the punctuated equilibrium hypothesis,
 - A) Speciation occurs only by cladogenesis in response to rapid geological changes.
 - B) One species gradually evolves into another depending on geological changes.
 - C) Species seen in fossil records are those which have become extinct due to unstable evolutionary changes.
 - D) Speciation occurs by phyletic gradualism.
- 22. An evidence for the 'molecular clock' phenomenon is the
 - A) Evolution of the Cytochrome gene
 - B) Circadian rhythm
 - C) Evolution of oncogenes
 - D) Evolution of micro-satellites

- 23. With respect to biodiversity, which among the following statement/s is/are true?
 - Statement 1: Species Richness represents the total number of different organisms in the community but does not take into account the proportion and distribution of each species.
 - Statement 2: The Simpson Index accounts for the richness and the percent of each species from a biodiversity sample within the community, but assumes that the proportion of individuals in an area indicates their importance to diversity.
 - **Statement 3**: Shannon-Wiener index takes into account species richness and proportion of each species within the community.
 - A) Statements 1 and 2 only are true
 - Statements 2 and 3 only are true B)
 - C) Statements 1, 2 and 3 are true
 - Statement 3 alone is true D)
- 24. Which among the following results in the defective urea cycle?
 - Adenine deaminase deficiency. A)
 - Defects in lipid metabolism which supplies acetylcoA B)
 - C) Over-expression of L-arginase.
 - D) Deficiency of arginino succinic acid synthase.
- 25. The only extant and truly wild horse which is a descendant of *Equus ferus* and which has been confirmed as 'wild' by mitochondrial DNA analyses is
 - Equus quagga B) Equus przewalskii A)
 - C) Merychippus Amerhippus D)
- 26. The neutral theory of evolution is based on the principle that
 - At the molecular level most evolutionary changes and the variation within and between A) species is not caused by natural selection but by genetic drift of mutant alleles that do not necessarily cause immediate changes in the phenotype.
 - B) Changes in nucleotide sequences will remain neutral and will be expressed in the phenotype only when there is an adaptive pressure.
 - Natural selection drives changes in nucleotide sequences to create mutant alleles. C)
 - D) Single nucleotide changes that create polymorphic DNA are the root cause of variations that drive evolution
- 27. The form of learning in which an animal lessens and gradually ceases to respond to a stimulus is
 - A) Sensitisation B) Adaptation
 - Conditioning C) Habituation D)

28. A species that has a disproportionately large effect on its environment relative to its abundance and plays a critical role in maintaining the structure of the ecosystem is called

- A) Vulnerable species B) **Keystone** species
- C) Dominant species D)

Competitor species

- 29. The amendments to the Indian Forest Act of 1927 were enacted because
 - The Act of 1927 was created to serve the British need for timber. 1.
 - 2. It did not acknowledge the presence or rights of tribals living in forests.
 - 3. It did not acknowledge rights of people who traditionally depended on forests and forest produce.
 - A) Statements 1 and 2 are true B) Statements 2 and 3 are true
 - Statements 1 and 3 are true C) D) All 3 statements are true

30. The class of antibody that is implicated in hypersensitive immune responses is

- A) Ig G B) Ig M C) Ig D D) Ig E
- 31. Which among the following is a genetically modified organism?
 - Silver fish A) B) *Neon tetras*
 - C) Glo fish D) Bacillus thuringiensis
- 32. The extreme stench produced by putrefying sea fish is due to
 - The production and release of tertiary amines during decomposition. A)
 - B) The production and release of Hydrogen sulphide during putrefaction.
 - C) Ammonotelic nature of excretion.
 - Ureotelic nature of excretion. D)
- 33. A local population of polytypic species that actively interbreed with one another and share a distinct gene pool is called
 - Niche species A) B) Zoonose
 - C) Deme D) Metacommunity

34. Which among following statements qualify as a Biodiversity hot spot? **Statement 1**: It must contain at least 0.5% or 1,500 species of vascular plants as endemics.

- Statement 2: It should have lost at least 70% of its primary vegetation.
- **Statement 3**: Demographic diversity in surrounding areas should be high.
- A) Statements 1, 2 and 3 B) Statements 1 and 2 only
- C) Statements 2 and 3 only D) Statements 1 and 3 only

35. Abnormal levels of anti-nuclear antibodies are seen in

- Systemic Lupus Erythematosus Phenylketoneurea A) B)
- C) Cruntzfeldt Jakob's Disease D) Chronic HIV infection
- The cdks are involved in 36.
 - DNA repair Cell division A) B) C) Cell signalling Producing antibodies D)
- 37. Which among the following viruses affect the human nervous system?
 - HPV, HBV and Polio A) HIV; Polio and Rabies B)
 - Rabies, Polio and JEV D) EBV, Rubella and SARS C)
- 38. Deficiency of folic acid during pregnancy can lead to A)
 - Ventricular septal defect Atrial-septal defect B)
 - C) Wiskott-Aldrich syndrome D) Spina bifida

- 39. The visual acuity of hawks and eagles is due to the presence of
 - A) Tapetum

B) Pecten

Nasal cavity of mammals

- C) More rods than cones D) More cones than rods.
- 40. The Reissner's membrane is a part of the
 - A) Visual system in fishes
 - C) Auditory system D) Avian egg
- 41. **Assertion**: The range of visual, auditory and other sensory perception differs in different animals. For example, dogs can hear sounds of the ultrasonic range and reindeer can see in the ultraviolet region.

B)

- **Reason**: Stimulus filtering is a behavioural condition wherein useful sensory information is separated from thousands of stimuli and only potentially useful information is sent to the brain.
- A) The Assertion is wrong; the Reason is correct but does not supplement the Assertion.
- B) The Assertion is true, but the Reason given does not supplement the Assertion.
- C) Both Assertion and the Reason cited are wrong.
- D) The Assertion and the Reason are correct and the reason supplements the Assertion.
- 42. Which of the following describes the ninth vertebra of frog?
 - 1. It is acoelus
 - 2. The centrum has two concavities posteriorly and one concavity anteriorly.
 - 3. The centrum has two convexities posteriorly and one convexity anteriorly.
 - 4. The centrum has two convexities posteriorly and one concavity anteriorly.
 - 5. Anterior zygapophyses are absent while the posterior zygapophyses are present.
 - A) 1, 3 and 5 B) 2 and 5 C) 1 and 3 D) 4 and 5
- 43. In man the odontoid process articulates with the A) Skull B) Acetabulum of the pelvic bone
 - C) Glenoid fossa of the scapula D) Atlas
- 44. The enzyme activity of Taq polymerase is maximum at
 - A) 72° C and in the presence of Manganese ions.
 - B) 72° C and in the presence of Magnesium ions.
 - C) 72° C and in the presence of Zinc ions.
 - D) 94° C and in the presence of Magnesium ions.
- 45. Assertion: Defective genes sometimes give an evolutionary advantage.
 - **Reason 1**: People with heterozygous genes for HbS escape death from malaria
 - **Reason 2**: People with the genes for cystic fibrosis escape death from cholera
 - A) The Assertion and both Reasons are true and both Reasons support the Assertion.
 - B) The Assertion is true but both the Reasons are wrong.
 - C) The Assertion is true and the Reason 1 alone is true and supports the Assertion.
 - D) The Assertion is true and Reason 2 alone supports the Assertion.

- 46.In an ecosystem a community that is evolving towards its climax is termed as a ----- communityA)EcotonicB)SeralC)LoticD)Pioneering
- 47. A phenomenon related to the transport of CO_2 by the red blood cells is
 - A) Bohr effect B) Warburg effect
 - C) Hamburger effect D) Crabtree effect
- 48. The gene required for proper development of speech and language regions of the brain during embryogenesis is
 - A) LET 7 gene family B) COX gene family
 - C) Forkhead (FOX) gene family D) Calmodulin gene family
- 49. In ethology, Flehmen response is an act that
 - A) Results in maternal imprinting
 - B) Initiates courtship behaviour
 - C) Terminates courtship behaviour
 - D) Facilitates transfer of pheromones into the vomeronasal organ
- 50. Cells that secrete spicules are known as
 - A) Desmocytes B) Sclerocytes
 - C) Lophocytes D) Archaeocytes
- 51. Pesticide with very low biodegradation and strong affinity for fatty tissues is
 - A) Allerthrin B) Organochlorines
 - C) Organophosphates D) Pyrethroids
- 52. The largest nesting sites of Olive Ridley turtles is
 - A) Coromandel coast in Sri Lanka
 - B) Gahirmatha Coast in Odisha
 - C) Galapagos Islands
 - D) Nancite Coast in Costa Rica
- 53. Identity the false statement with respect to the characteristic of the Nieuwkoop centre
 - A) The site of entry of the sperm has no bearing on the position of the Nieuwkoop centre.
 - B) Relocating the Nieuwkoop centre induces a new dorso/ventral axis.
 - C) Once the Nieuwkoop centre is formed, it overrides the role of the dorsal lip of the blastopore.
 - D) The Nieuwkoop Centre arises due to a gradient of nodal related proteins
- 54. The organ of insemination in penaeid species is
 - A)Conglobate glandB)Utriculi majorisC)Purge completionD)Pergeneration
 - C) Bursa copulatrix D) Petasma
- 55. **Statement 1**: Eri silk is produced by *Artacus ricinii* while Tassar silk is produced by *Antharaea mylitta*
 - Statement 2: Eri silk is produced by *Antharaea mylitta* while Tassar silk is produced by *Artacus ricinii*.
 - Statement 3: The largest insect is the silk worm *Attacus atlas*.
 - A) Statements 1 and 3 are correct B) Statements 2 and 3 are correct
 - C) Statement 1 alone is correct D) Statement 3 alone is correct

56.	Whic A)	h among the fo Scoliodon	ollowing B)	is a viviparou Echidna	is anima	l? C)	Platypus	D)	Salamander	
57.	The s A)	scientific name of ship worm is Balanus B) Balanoglossus C) Teredo D) New								
58.	The n A) C)	minimum forest cover recommended for a stable ecosystem in India is17% of land area33% of land areaD)50 % of land area								
59.	Whic A)	h among the fo Veliger	among the following is a larval stage of <i>Sacculina</i> ? Veliger B) Kentrogen C) Tornaria D) T							
60.	The b A) C)	botryoidal tissue is seen in NematomorphaB)Cestoda D)NematodaD)Hirudinea								
61.	Signe A) C)	Signet ring stage is characteristic of the trophozoites of the malarial parasite in itsA)Cycle of ROSSB)Endo-erythrocytic cycleC)Extra-corporeal phaseD)Pre-erythrocytic cycle								
62.	Whic A) B) C) D)	hich among the following distinguishes terrestrial gastropods from aquatic gastropods? Presence of ommatophores in the aquatic gastropods, which is absent in terrestrial gastropods. Presence of ommatophores in the terrestrial, which is absent in aquatic gastropods. Presence of the osphradium in the aquatic gastropods, which is absent in the terrestrial gastropods. Presence of the osphradium in the terrestrial gastropods, which is absent in the terrestrial gastropods.								
63.	Whic A) C)	h among the fo Membrane f Synthesis of	ollowing luidity `hormon	is not attribut es	ed to cho B) D)	olestero Insula Enha	1? ation of nerve ncement of m	s embrane	permeability	
64.	Dorsa A) C)	al blood vessel Marsupials Invertebrates	and ven s	tral nerve cord	l is a cha B) D)	aracteris Echir Verte	stic feature of noderms ebrates			
65.	 The bluish colour of blood in some invertebrates is due to A) Respiratory pigment containing copper as the metal cofactor. B) Incomplete or inefficient oxygenation of the respiratory pigment. C) Having an open circulatory system. D) The auricle receiving both oxygenated and deoxygenated blood 									
66.	The o A) C)	organ of Bojan Auxillary he Excretory or	us which art gan	lies behind th	ne perica B) D)	rdium i Pace Respi	n certain moll maker iratory appara	uscs fun tus	ction as	
67.	Black A) C)	t pearls are obt Pinctada fuc Pinctada vu	ained fro cata lgaris	om	B) D) 8	Pinct Perne	ada margaritį a virdis	ifera		

- 68. Consider the following statements:
 - 1. Members of the Phylum Echinodermata are exclusively marine with the exception of a few species in the Sunderbans.
 - 2. Even though adult echinoderms show radial symmetry, the location of the madreporite in Asterias make them bilaterally symmetrical.
 - A) Both statements are wrong.
 - B) Both statements are correct.
 - C) Statement 1 is correct while statement 2 is wrong.
 - D) Statement 1 is wrong while statement 2 is correct.
- 69. A distinguishing feature seen in hemichordates is
 - A) Absence of ganglion in the nerve cord
 - B) Presence of both dorsal and ventral blood vessels.
 - C) Absence of pharyngeal gill slits.
 - D) Presence of a dorsal heart.
- 70. The guinea worm disease is caused by

A)	Log log	2	B)	Trichinella
C)	Trichuris trichura		D)	Dracunculus

- 71. Belt and spot desmosomes are members of the ----- family of proteins.
 - A) Selectins B) Serpins
 - C) Cadherins D) GPCR
- 72. Antheridia and archaegonia are
 - A) Microgametes of Chlamydomonas and Ceratium respectively.
 - B) Sexual microgametes of Chlamydomonas.
 - C) Sexual stages of Paramecium.
 - D) Products of plasmotomy in Actnosphaerium.
- 73. The bacterium that causes syphyllis is
 - A) Neisseria gonorrhoeae
 - B) Mycoplasma genitalium
 - C) Treponema pallidum
 - D) *Chlamydia trachomatis*
- 74. In Euglena the effective stroke and the recovery stroke results in
 - A) Forward movement associated with rotation around its axis.
 - B) 'Run and Tumble' motion.
 - C) Swimming backwards.
 - D) Bringing food materials to the cytostome.

75. Consider the following statements:

Statement 1: Trypanosoma brucei gambiense causes sleeping sickness in man.

Statement 2: Trypanosoma brucei rhodesiense is another pathogen causing sleeping sickness.

Statement 3: Sand flies serve as the vector for *Trypanosoma* parasites.

Statement 4: Trypanosoma is bacterium.

- A) Statements 1 and 3 are correct
- B) Statements 2 and 4 are correct.
- C) Statements 1 and 2 are correct.
- D) Statements 3 and 4 are correct
- 76. The mode of nutrition in *Vorticella* isA) Saprozoic B) Holozoic C) Parasitic D) Phagocytic
- 77. The vector that transmits plague to human beings is
 - A) Rats B) Aedes mosquito
 - C) Yersinia pestis D) Xenopsylla cheopis
- 78. Assertion: In chordates identical offspring can form only at the very early stages of embryogenesis.
 Reason: In chordates, cleavage is indeterminate which results in the formation of equ

Reason: In chordates, cleavage is indeterminate which results in the formation of equally potent blastomeres.

- A) The Assertion is correct and the Reason stated is true, but it does not substantiate the Assertion.
- B) The Assertion is correct, the Reason stated is true and it substantiates the Assertion.
- C) The Assertion is incorrect, but the Reason stated is true in itself even though it does not substantiate the Assertion.
- D) Both Assertion and the Reason given are wrong.
- 79. The most primitive metazoan is
 - A) Placozoa B) Scyphozoa C) Porifera D) Hydrozoa
- 80. Assertion: Metagenesis in Obelia is not considered as true alternation of generations.Reason: Both the sedentary asexual polypoid and the mobile sexual generation are diploid
 - A) Both Assertion and the Reason given are false
 - B) Both Assertion and the Reason given are true.
 - C) The Assertion is true but the Reason given is false.
 - D) The Assertion is false but the Reason given is true.

- 81. A patient admitted to a hospital was diagnosed to carry cysticerci in his muscle and brain tissues. The most plausible explanation for it could be
 - A) Accidental ingestion of food contaminated with human faeces.
 - B) Accidental ingestion of food contaminated with pig faeces.
 - C) Ingestion of improperly cooked pork.
 - D) Receiving blood from a person infected with *Taenia solium*.
- 82. The vitamin associated with coenzyme A is
 - A) Vitamin A B) Vitamin C
 - C) Pantothenic Acid D) Pyruvate
- 83. A characteristic feature of the nuclear pore complex is
 - A) They extend seamlessly into endoplasmic reticulum.
 - B) The presence of phenylalanine-glycine repeats.
 - C) Attachment of large number of mitochondria
 - D) Presence of Na+/ K+ pumps.
- 84. The limbs, ears, and other appendages of the animals living in cold climates tend to be shorter than in animals of the same species living in warm climates. This principle is known as
 - A) Allen's rule B) Bergmann's rule
 - C) Gloger's rule D) Hardy's rule
- 85. The rich colouration of coral reefs is due to
 - A) Deposition of sediments of different colours depending on the soil of the sea coast.
 - B) Remnants of dead zooxanthellae.
 - C) The presence of live zooxanthellae.
 - D) Bleaching caused by acidification and rise in temperature due to green house effect.
- 86. The scientific name for lung fluke is

A)	Fasciola hepatica	B)	Paragonimus westermani
C)	Fasciolopsis buski	D)	Diphyllobothrium

- 87. A drug that is designed to occupy the active site of an enzyme will be effective when
 - A) The thermodynamic energy is highest in its bound state.
 - B) The substrate concentration is very high.
 - C) It forms a stable complex within the active site.
 - D) It forms an unstable complex with the active site.
- 88. Antigens that cause non-specific activation of T-lymphocytes are called
 - A) Immunogens B) Pseudo-antigens
 - C) Super antigens D) Alloantigens
- 89. A woman who is having trouble in getting pregnant will be treated with
 - A) Human chorionic gonadotropin B) Oxytocin
 - C) Somatotropin D) Luteinisng hormone

- 90. In a colorimetric experiment that applies the Beer-Lambert's law, the concentration vs optical density graph will lose linearity when
 - A) The path length is constant
 - B) The wave length of incident light is constant.
 - C) Intensity of incident light does not change.
 - D) Extremes of concentration are reached
- 91. Lanolin secreted by the sebaceous glands of wool-bearing animals is a
 - A) Phospholipid B) Steroid hormone
 - C) Sugar D) Wax
- 92. In Chi-square analyses

Statement 1: A prior estimate of the outcome is necessary.

- Statement 2: Differences between the expected and observed values decide the truthfulness of the experiment.
- A) Both statements are true.
- B) Statement 1 is true while statement 2 is false.
- C) Statement 1 is false because estimating the outcome of an experiment before conducting it is wrong and unethical; statement 2 is correct.
- D) Both statements are false.
- 93. When the significance of the outcome of an experiment is expressed at probability of '5%' it means that:
 - A) The results of the experiment are true 5% of the number of times it is conducted
 - B) The null hypothesis is true 95% of the number of times the experiment is conducted
 - C) The null hypothesis is true 5% of the number of times the experiment is conducted
 - D) The experiment has been repeated 5 times.
- 94. The entropy of a biomolecule can be estimated using a
 - A) ColorimeterB) CalorimeterC) Flame photometerD) NMR spectroscope
- 95. Which among the following animal/s seen in the forests of Kerala is considered as 'most endangered'?
 - 1.Macaca silenus2.Nilgiritragus hylocrius3.Ocyceros griseus
 - A) 1 and 2 only B) 1 and 3 only C) 2 and 3 only D) 1 only
- 96. The development of the anterior-posterior axis in fruit flies is controlled by

A)	Homeotic genes	B)	Maternal effect genes
C)	Segmentation genes	D)	All of these

- 97. Glyceraldehyde is a
 - A) Dialdehyde B) Fatty aldehyde
 - C) Sugar D) Sugar derivative
- 98. Which one of the following enzyme is inhibited by Cyanide?
 - A) Amylase B) Cytochrome oxidase
 - C) Enolase D) Urease

- 99. In an odd chain fatty acid that is being catabolically degraded the last product is
 - A) Acetyl CoA only
- B) Acetyl CoA and propionyl-CoA
- C) Propionyl-CoA only. D) Carbonic anhydrase.
- 100. The rationale behind blue/white colony selection in rDNA technology is that
 - A) Bacteria carrying the inserted gene produce blue pigments while others do not.
 - B) Blue dye in the culture medium are decolourised by recombinant colonies.
 - C) Correct insertion of the gene inhibits the beta-galactosidase enzyme expressed by the lacoperon cassette.
 - D) Correct insertion of the gene disrupts alpha complementation of the lac-operon system.

B)

Fatigue

- 101. A person tries to lift a heavy object without success even though his muscles are fully extended. This type of muscle contraction is
 - A) Isotonic contraction
 - C) Distension D) Isometric contraction
- 102. Identify the correct match:

	List I		List	II			
1	Erythropoietin	Р	Atria	l septal defect			
2	Haldane effect	Q	Hom	eostasis			
3	von Villibrand Factor	R	Kidn	eys			
4	Foramen ovale	S	Resp	Respiration			
		Т	Haer	nostasis			
A)	1-Q; 2-S; 3-T, 4-P		B)	1-T; 2-S, 3-Q; 4-P			
C)	1-R; 2-S; 3-T; 4-P		D)	1-S; 2-Q; 3-T; 4-R			

- 103. According to the Ramachandran plot:
 - A) For a protein to be functional, all amino acids have to in the allowed regions i.e. in Quadrant I only.
 - B) For a protein to be functional, all amino acids have to be equally distributed within the allowed and disallowed regions i.e. between quadrants I and IV.
 - C) Glycine gives the least flexibility since it does not have a complex side chain.
 - D) The two torsion angles which describe the rotations of the polypeptide backbone around the bonds between N-C α and C α -C determine the structure of a protein.
- 104. The major fatty acid found on royal jelly, which is used in the nutrition of larvae and adult queen honeybees, is

A)	10-hydr	oxy-2-decenoic acid	B)	Arachidor	nic acid
(\mathbf{n})	D 1	· · · ·	D)	T ' 1 '	• 1

- C) Docosahexaenoic acid D) Linoleic acid
- 105. In a community, a particular inherited abnormality was seen to be an X-linked recessive trait. In one family, the following information is noted:
 - 1. The mother shows the abnormality.
 - 2. Their only child is a daughter who is normal.

If their next child is a son, what is the probability that he will show the abnormality? And what is the probability that the next child born will be a daughter showing the abnormality?

A) 1, 1 B) 1, 0 C) 0, 1 D) 0, 0

106.	Which A)	n among the following Lactobacillus species	among the following is used in probi- Lactobacillus species			tic formulations to treat diarrhoeal diseases?Clostridium species				
	C)	Escherichia coli		D)	Enterococcus species					
107.	The ex	xperimental laboratory	bred ar	nimal de	ficient	in thym	us which are u	sed for	immunological	
	A)	Sprague Dawley rats			B)	Nu/nu	mouse			
	C)	BALB/c mouse			D)	Bonobo monkeys				
100	The m	ualaatida caguanaa tha	rongorin	tion is						
108.	A) AUG					B) Shine-Dalgarno sequence				
	C)	Stop codon		D)	None	of the above				
	,	1			,					
109.	Down	's syndrome is an exam	nple for	ſ	D)	4.1		1 1 • 1		
	A) C)	Aberration due to and	euploid	У	B)	Aberra	ation due to po	olyploid ndrial a	y	
	C)	Chilomosoniai mutati	011		D)	Iviulal		nui iai g	,enes	
110.	The of	rganelle that functions	as the r	nicrotub	ule org	anising	centre (MTOO	C) is		
	A)	Nucleolus				Centri	ole			
	C)	Endoplasmic reticulu		D)	Tubulin					
111	A gen	e influences two or mo	ore seen	ningly III	nrelated	l nheno	typic traits is t	ermed a	15	
111.	A)	Pseudogene			B)	Co-dominant				
	C)	Pleiotropic			D)	Crypti	ic genes			
	T 1									
112.	The m	Colleger	cytoske	Tubuli	10	(\mathbf{C})	Contrialog	D)	Chandrooxtoo	
	A)	Collagell	D)	Tubuli	11	C)	Centrioles	D)	Chondrocytes	
113.	Which among the following is a condition for the activation of the trp-operon?									
	A)	Activation of the trp	Are							
	B)	Absence of tryptopha	in in the	e enviror	nment					
	C)	Presence of tryptophan in the environm								
	D)	Mutation in the trypto	opnan s	yntnesis	gene.					
114.	The d	istance between genes	in a chr	omoson	ne is ex	pressed	in			
	A)	Nucleotide base pairs	5		B)	Golds	tein distance			
	C)	Haldane index			D)	Centi	morgan			
115	Rigor	mortis sets in about fo	ur hour	s after d	eath W	hich an	nong the follow	vino are	e valid reasons for	
110.	the set	the setting in of rigor mortis?								
	1.	Production of ATP by glycolysis continues up to four hours post mortem and ceases								
		thereafter resulting in	n rigor r	nortis.						
	2.	Production of ATP by	y mitoc	hondria	continu	ies up to	o four hours po	ost mort	em and ceases	
	2	thereafter resulting in	n rigor r	nortis.	the di	into ar-	ting mits share	duio an -	vall as from	
	Э.	reserves in the cytosc	is releas	seu irom	i the als	sintegra	ing milochone	una as v	ven as from	
	4.	Degradation of myos	in head	S.						
					_	~				
	A)	1, 2 and 3 only	B)	1, 2, 3	and 4	C)	1 and 3 only	D)	4 only	

- 116. Sodium Dodecyl Sulphate (SDS) is a strong detergent used in Poly acrylamide Gel Electrophoresis (PAGE) of proteins. SDS makes the proteins
 - A) Multipolar B) Neutral
 - C) Positively charged D) Unipolar
- 117. The algorithm used in alignment of DNA sequences is:
 - A) BLAST B) Multalign
 - C) Needleman-Wunsch D) CLUSTAL
- 118. Lipinski's rules are applied in:
 - A) Tracking evolutionary pathways.
 - B) Applying thermodynamic principles in computing protein structure.
 - C) Computational drug discovery.
 - D) Population dynamics.

119. Codd rules are:

- A) Rules for the conduct of scientific research on human embryos.
- B) The moral and ethical aspects of building, maintaining and using biological databases.
- C) Rules for the ethical, legal and moral treatment of prisoners of war.
- D) Rules for the conduct of scientific research on experimental animals.

120.	Which among the following is/are secondary biological database/s?									
	1.	Swiss-PROT/UNII	PROT	2.	DDBJ	3.	PDB	4.	OMIM.	
	A)	1 and 4 only	B)	1, 3 a	and 4 only	C)	1, 2, 3 and 4	D)	2 only	