

SECTION 1 - SECTION 1

Question No.1

A frame shift mutation will have minimum effect when it leads to

- Insertion of 2 bases
- Deletion of 2 bases
- Deletion of 1 base
- Insertion of 3 bases

Question No.2

The β subunit of polymerase has a function of

- Catalytic center
- Cation binding
- Promotor binding
- Template binding

Question No.3

The enzymes of glycolysis in a eukaryotic cell are located in the

- Intermembrane space
- Plasma membrane
- Mitochondrial matrix
- Cytosol

Question No.4

In the reversed phase HPLC there is

- Non-polar solvent/polar column
- Polar solvent/non-polar column
- Non-polar solvent/non-polar column
- Any of these

Question No.5

Which is fastest known enzyme?

- Catalase
- Peroxidase
- Alkaline Phosphatase
- Acetyl choline esterase

Question No.6

Which of the following is an aldotriose?

- dihydroacetone
- glyceraldehyde
- erythrose
- ribulose

Question No.7

Pyridine is not present in

- pyridoxine
- niacin
- Vitamin B complex
- uracil

Question No.8

Turner's syndrome is

- XO
- XXY
- XYY
- XXX

Question No.9

Any agents that may stimulate the immune system and enhance the response without having any specific antigen effect by itself

- Carriers
- Allergens
- Adjuvants
- Antigens

Question No.10

Tiny air sacs of the lungs which allow for rapid gaseous exchange are

- Microglia
- Epiglottis
- Parietal cells
- Alveolus

Question No.11

Total number of transition and transversion that can take place in genome is

- 4 and 6
- 6 and 4
- 2 and 6
- 4 and 8

Question No.12

Which is called the ripening hormone

- Gibberellins
- Ethylene
- cytokinins
- Auxins

Question No.13

Melting of DNA would lead to

- Increase in Fluorescence
- Decrease in UV absorption
- Increase in UV absorption
- Decrease in fluorescence

Question No.14

Which of the categories of hypersensitivities involves a T-cell response?

- Type IV
- Type I
- Type II
- Type III

Question No.15

The percentage of human genome which encodes proteins is approximately

- 25%
- Less than 2%
- 99%
- 5%

Question No.16

Which of the forms of plasmid DNA can be differentiated by electrophoresis on agarose gel?

- i. Covalently closed
- ii. Open circular
- iii. Supercoiled
- iv. Linear

- ii, iii, iv
- i, ii, iii, iv
- i, ii, iii
- i, iii, iv

Question No.17

If a double stranded DNA has 20% Thymine, the percentage of Guanine in the DNA

- 40%
- 10%
- 30%
- 90%

Question No.18

The length of an α -helical section of a polypeptide chain of 20 residues would be

- 54A
- 30A
- 2.0A
- 5.4A

Question No.19

Choose the incorrect statement about mRNA.

- Methylation takes place at 2'-hydroxy and the N6 of adenylyl residues.
- Poly (A) tail is added to the 3' end.
- Cap is added to the 5' end.
- Histone mRNAs lack 5' cap.

Question No.20

Na^+ glucose transporter is an example of

- Symport
- Facilitated diffusion
- ATP driven active transport
- Antiport

Question No.21

For an enzyme which follows Michaelis-Menten kinetics, an increase in the amount of enzyme will

- Decrease K_m
- Increase V_{max}
- decrease V_{max}
- Increase K_m

Question No.22

Which of the following is a function of chaperone protein?

- It rescues proteins that have folded improperly and allows them to refold properly
- It degrades proteins that have folded properly
- It provides a template for how the proteins should fold
- It degrades proteins that have folded improperly

Question No.23

A patient is admitted with severe substernal chest pain of 4 hours duration. Lab tests reveal increased level of the serum creatine kinase. This is most likely due to:

- Increased endoplasmic reticulum
- Damage of plasma membranes
- Nuclear lysis
- Mitochondrial swelling

Question No.24

The pH of the blood can be maintained by

- Myoglobin
- Globulins
- Albumins
- Carbonate/bicarbonate salt

Question No.25

Which position of a codon is said to wobble?

- Third
- Second
- Fourth
- First

Question No.26

In the binding of oxygen to hemoglobin, a plot of the fractional saturation of hemoglobin versus the partial pressure of oxygen can best be described as

- Linear with a positive slope
- Linear with a negative slope
- Sigmoidal
- Hyperbolic

Question No.27

The released energy obtained by oxidation of glucose in glycolysis is stored as

- ATP
- ADP
- NAD⁺
- A concentration gradient across a membrane

Question No.28

The major enzyme required for the production of a chimera molecule is

- Integrase
- Restriction endonuclease
- Polymerase
- Reverse transcriptase

Question No.29

Which of the following is a neutral mutation?

- Replacement of Thr by Tyr
- Replacement of AAA by UAA
- Replacement of a Glu by Val
- Replacement of Lys by Arg

Question No.30

Mitochondria in the human sperm cell are occupied at

- Mid piece
- Sperm tail
- No mitochondria in the sperm
- Sperm head

Question No.31

X rays causes mutation by

- Base substitution
- Deletion
- Transition
- Transversion

Question No.32

Genetic variation can be introduced in to the bacteria by all of the methods except

- Transduction
- DNA amplification
- Mutation
- Transformation

Question No.33

Serine proteases have 3 prominent amino acids in its active site, they are

- Serine, cysteine, aspartic acid.
- Serine. Histidine, Aspartic acid
- Serine, leucine, lysine
- Valine, serine, Histidine

Question No.34

Which is the rate limiting enzyme in glycolysis

- Phosphofructokinase
- Pyruvate kinase
- Hexokinase
- Aldolase

Question No.35

Electrical impulses are generated in which part of the heart

- Purkinje fibres
- Left ventricle
- Sinoatrial node
- Atrioventricular node

Question No.36

Which of the following is NOT true, the active site of an enzyme

- Contains a catalytic region
- Contains a substrate binding region
- Can be formed from amino acids located throughout the protein
- is typically located at amino terminus of the protein

Question No.37

Lactose consists of

- Mannose + Glucose
- Glucose + Fructose
- Galactose + Glucose
- Glucose + Glucose

Question No.38

The terminal electron acceptor during mitochondrial respiration is

- NAD⁺
- O²
- ATP
- FAD-F

Question No.39

Which the recognition site for ribosomes in prokaryotic Mrna

- CpG site
- Shine dalgarno sequence
- Poly A site
- TATA box

Question No.40

How many different genotypes are possible from a cross between the parents RR and rr

- Three
- Two
- One
- Four

Question No.41

Which of this subunit is not a part of core DNA polymerase?

- Beta
- Eta

- Alpha
- Theta

Question No.42

Leventhal's paradox represents concept of

- Enzyme kinetics
- Pharmacodynamics
- Protein folding
- Drug kinetics

Question No.43

Which of these properties do not agree with trp operon attenuator?

- Ribosome stalls at the attenuator
- It brings about repression of trp operon
- It has two codons for tryptophan in sequence
- It consists of one stem loop system

Question No.44

A Geiger counter is able to provide an indirect measure of radioactivity because radiation has a property of

- making matter glow in the dark
- attracting electrons
- fogging photographic film
- ionization

Question No.45

What is meant by degenerate codon?

- Codons are not having a gap
- Two codons can code for same amino acid
- Two codons can be read in different frame or give different amino acids
- Specific codon codes for specific amino acid

Question No.46

Water is liquid at room temperature because of

- High melting point of water
- High boiling point of water
- High heat of vaporization of water
- Cohesive forces due to hydrogen bonds in water

Question No.47

Which of the following is an example for irreversible inhibitor?

- Disulfiram
- DIPF
- Oseltamivir
- Protease inhibitors

Question No.48

Which of the following is an example of the tertiary structure in a protein?

- A globular domain
- A β -pleated sheet
- A multimeric protein
- An α -helix

Question No.49

Which of the following sequences is not palindromic?

- TTAAGGATCCTTAA
- AGCGAATTCGCT
- ATGCATATGCAT
- GGCCAATTGGCCAA

Question No.50

Which of the following amino acids does not act as inhibitory neurotransmitter?

- Glycine
- Alanine
- D-serine
- GABA

Question No.51

A mixture of Cytochrome-C (MW-11.7 KD) and Myoglobin (MW-17.2 KD) are to be separated by polyacrylamide gel electrophoresis. Their isoelectric pH values are 9.6 and 7.2 ,respectively. In which direction will each protein migrate at pH 8.5?

- myoglobin will migrate to anode and cytochrome-C will migrate to cathode
- both will migrate to anode
- myoglobin will migrate to cathode and cytochrome-C will migrate

- to anode
- both will migrate to cathode

Question No.52

Restriction endonucleases cleaves the inter nucleotide bond between

- Carbon and Oxygen
- Oxygen and Phosphate
- Nitrogen and phosphate
- Carbon and phosphate

Question No.53

Which of the following can be used as an enzyme marker for inner mitochondrial membrane?

- Succinate dehydrogenase
- Succinyl Co-A synthase
- Cardiolipin
- ATP synthase

Question No.54

EDTA is chelating agent which chelates

- Divalent cations
- Divalent anions
- Monovalent anions
- Monovalent cations

Question No.55

Minimum number of carbon required for a monosaccharide ?

- 1
- 4
- 2
- 3

Question No.56

In catabolic reaction complex molecules are broken down into smaller molecules releasing

- Energy
- Oxygen
- Water
- Nutrients

Question No.57

What is the composition of nucleotide?

- Base + Sugar
- Base + Sugar + Phosphate
- Sugar + Phosphate
- Base + Phosphate

Question No.58

Which of the following statements is true

- All immunogens are antigens and all antigens are immunogens
- All immunogens are proteins and all proteins are immunogens
- All immunogens are not antigens but all antigens are immunogens
- All immunogens are antigens but all antigens are not immunogens

Question No.59

Which of the following is wrong?

- Y linked gene like haemophilia passes from father to son
- X linked genes are inherited as criss cross
- Y chromosome lacks dosage compensation
- X linked recessive genes are carried by females

Question No.60

Trypsin specifically recognizes

- C terminal end of Arginine and lysine
- C terminal end of Arginine and leucine
- N terminal end of Arginine and lysine
- N terminal end of Arginine and leucine

Question No.61

Sickle cell anemia is caused

- When glutamic acid is replaced by valine in beta polypeptide chain
- When glutamic acid is replaced by valine in alpha polypeptide chain
- When valine is replaced by glutamic acid in beta polypeptide chain

- When valine is replaced by glutamic acid in alpha polypeptide chain

Question No.62

At pH below pI the amino acids will be

- No charge
 Net charge zero
 Cationic
 Anionic

Question No.63

A person with type A blood has what type of ABO antibodies in their plasma?

- Anti- A and Anti- B
 Anti- A
 Anti- O
 Anti- B

Question No.64

Corpus luteum secretes which hormone

- Luteinizing hormone
 Follicle stimulating hormone
 Progesterone
 Oestrogen

Question No.65

Which of the following is a non reducing sugar

- Ribulose
 Arabinose
 Erythrose
 Trehalose

Question No.66

In isoelectric focusing, proteins are separated on the basis of their

- relative content of positively and negatively charged residue
 relative content of positively charged residue only
 relative content of negatively charged residue only
 size

Question No.67

Which metal is used in galvanization process

- Ni-Chrome
- Aluminium
- Vanadium
- Zinc

Question No.68

Which of the following is not required for the expression of genes in the lactose operon?

- cAMP
- Allolactose
- lacI gene product
- Adenylatecyclase

Question No.69

Which out of the following is not a mediated transport?

- Simple diffusion
- a. Facilitated diffusion
- c. Secondary active transport
- b. Primary active transport

Question No.70

Which hormone is commonly expressed in transgenic livestock to increase their growth and productivity?

- bGH
- somatostatin
- erythropoietin
- insulin

Question No.71

_____ inversions reduce crossing over in _____

- Paracentric, Heterozygous
- Pericentric, Heterozygous
- Paracentric, homozygous
- Pericentric homozygous

Question No.72

Clover leaf structure precisely describes which biomolecule in the following

- Si-RNA
- Ribosomes
- t-RNA
- Ti- plasmid

Question No.73

Hsp 60 and 70 proteins are involved in

- Initiation of translation
- Protein folding
- Elongation of translation
- Termination of translation

Question No.74

Which of the following is true for allosteric inhibition of an enzyme?

- The inhibitor binds to the active site of the enzyme
- It causes the enzyme to work faster
- The inhibitor binds to some other sites than the active site of the enzyme
- It always leads to a reduced binding of substrate

Question No.75

Which of the following is an example of the tertiary structure in a protein?

- A globular domain
- A multimeric protein
- A P-pleated sheet
- An α -helix

Question No.76

Which of the following enzyme regulate nitrogen fixation?

- Dinitrogenasereductase
- Histidine Kinase
- Tyrosine Phosphatase
- Dinitrogenase oxidase

Question No.77

During anaerobic glycolysis: one glucose molecule will yield what net cellular increase of ATPs?

- 36
- 1
- 2
- 4

Question No.78

In agarose gel electrophoresis DNA moves towards

- Anode
- Cathode
- DNA doesn't move
- Moves slowly

Question No.79

The florescence occurs when

- A molecule returns to the electronic ground state from an excited triplet state by losing its excess energy as a photon
- A molecule returns to the electronic ground state from an excited singlet state by losing its excess energy as a photon
- A molecule lowers its vibrational energy by losing its excess energy as a photon
- None of these

Question No.80

Which cell is exclusively responsible for the formation of myelin sheath in Peripheral Nervous system (PNS)

- Microglia
- Astrocytes
- Oligodendrocytes
- Schwann cells

Question No.81

Which of the following amino acid contains sulphur and yet cannot form disulfide bridge?

- Cystine
- Methionine
- Selenocysteine
- Cysteine

Question No.82

The blood clotting protein thrombin usually contains which of the following modified amino acids?

- 6-N-methyl lysine
- Gamma-carboxy glutamate
- 4-hydroxy proline
- 5-hydroxy lysine

Question No.83

The end product of translation are

- lipids
- Polypeptides
- proteins
- Amino acids

Question No.84

Which is the major building block of agrochemical and pharmaceutical products

- Pyrrole
- Pyridines
- Thiophenes
- Furan

Question No.85

Galactose and Glucose are

- Isomers
- Epimers
- Ketose- Aldose isomers
- Anomers

Question No.86

Mendel developed his basic principles of heredity by

- Anatomical studies of Pea plant
- Breeding experiments with Drosophila
- Mathematical analysis of the offspring of Pea plant
- Microscopic study of chromosomes and genes

Question No.87

Which of the following bonds are not involved in tertiary type of protein structure?

- Disulfide bond
- Hydrophilic interactions
- Hydrogen bond
- Salt bridges

Question No.88

Which amino acids are popularly termed as helix breakers

- Valine and leucine
- Lysine and methionine
- Tyrosine and Tryptophan
- Proline and Glycine

Question No.89

The first step of PCR is

- Denaturation
- Annealing
- Primer extension
- None of these

Question No.90

Chromosome _____ trisomy leads to Edward's syndrome.

- 13
- 21
- 18
- 12

Question No.91

Transition type of gene mutation is caused when

- AT is replaced by GC.
- GC is replaced by TA
- CG is replaced by GC
- AT is replaced by CG

Question No.92

Animals cannot convert the fatty acids into glucose because

- Absence of α -ketoglutarate dehydrogenase
- Absence of dehydrogenase
- Absence of malate synthase

- Acetyl CoA cannot be converted to pyruvate

Question No.93

In an experiment, you culture the anthers and leaves of a flower. You see the plants so generated are

- Diploid
- Triploid
- Diploid and triploid
- Monoploid and diploid

Question No.94

A gene is transcribed to obtain mRNA. To detect which transcribed strand in vitro will use the newly synthesized strand for hybridization with mRNA. If mRNA hybridize with the newly replicated strand from 1st strand then the gene transcribed was in

- Same copy in both strands
- Dispersed
- 2nd strand
- 1st strand

Question No.95

You want bacterial culture to grow well so you made an enriched media with all forms of carbohydrates. Which of this carbohydrate should you restore first if you want the culture to keep growing at the same rate?

- Galactose
- Lactose
- Fructose
- Glucose

Question No.96

The ion exchange chromatography is based on the

- Partition chromatography
- Adsorption chromatography
- Electrostatic attraction
- Electric mobility of ionic species

Question No.97

Which of the following organisms cannot covert acetyl-coA derived from fatty acids into glucose?

- Bacteria

- Virus
- Plants
- Animals

Question No.98

Lampbrush chromosomes are seen in

- Mitotic metaphase
- Mitosis
- Meiotic prophase
- Prophase

Question No.99

By which process miss-incorporated base can change into a permanent mutation?

- Transcription
- Translation
- Transposition
- Replication

Question No.100

The consensus sequence for poly(A) addition is

- Downstream of cleavage site
- the site of poly(A) tail addition
- AAUAAA
- AAUAA