

Virtual University of Pakistan

BIO201 BIO202 BIO301 BIO302

MCQs for Midterms

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Group of VU Biologists

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BIO201 MCQs Mids

Q

.....energy is the energy of motion

- (a) **Kinetic**
- (b) Potential
- (c) Chemical
- (d) Atomic

Q

Ribosomes can be free or attached with

- (a) golgi apparatus
- (b) lysosomes
- (c) endoplasmic reticulum
- (d) **nucleus**

Q

Which organ/molecule can convert light energy

- (a) **NAD**
- (b) Retina
- (c) Biotin
- (d) Coenzyme A

Q

Beta pleated sheet is found in

- (a) Primary protein structure
- (b) **Secondary protein structure**
- (c) Tertiary protein structure
- (d) Quaternary protein structure

Q

Inhibitor that binds to a site other than active site of enzyme

- (a) Competitive inhibitor
- (b) **Irreversible inhibitor**
- (c) Reversible inhibitor
- (d) Non competitive inhibitor

Q

lipid act as a following in which many components of cell membrane floats

- (a) Pond
- (b) **Lake**
- (c) River
- (d) Stream

Q

How many macromolecules a cell has....

- (a) 2 (Maybe)
- (b) 4
- (c) 6
- (d) 8

Q

Beta pleated sheet is found in

- (a) **Secondary protein structure**

- (b) Primary protein structure
- (c) Tertiary protein structure
- (d) Quaternary protein structure

Q

Cell membrane expels particles by vesicle formation

- (a) pinocytosis
- (b) Phagocytosis
- (c) **Endocytosis**
- (d) Exocytosis

Q

Molecule of phospholipids has -----

- (a) hydrophobic & Hydrophilic domain
- (b) **hydrophobic only**
- (c) hydrophilic only
- (d) hydrogen linkage

Q

If one gene prevent the expression of other gene

- (a) Pleiotropy
- (b) **Epistasis**
- (c) Synapse
- (d) Tetrad

Q

Phenylalanine hydroxylase metabolizes

- (a) Phenylalanine to Lysine
- (b) **Phenylalanine to Tyrosine**
- (c) Tyrosine to Phenylalanine
- (d) Lysine to Phenylalanine

Q

Restriction enzymes inhibit the growth of

- (a) **Bacteriophage**
- (b) Bacteria
- (c) Algae
- (d) None

Q:

Missing of enzyme homogentisic acid oxidase caused

- (a) Phenylketonuria
- (b) Parkinson disease
- (c) **Alkaptonuria**
- (d) Cystic fibrosis

Q

Microtubules are originated from

- (a) Cytoskeletal
- (b) Nucleus
- (c) Proteins
- (d) **Centrosomes**

Q

The disintegration and condensation of nuclear material takes place in

- (a) prophase II
- (b) anaphase II
- (c) metaphase II**
- (d) telophase II

Q

RNAs in large subunit of Eukaryotic ribosome

- (a) 1
- (b) 2
- (c) 3
- (d) 4

Q

Centromeres separate during whose anaphase:

- (a) Mitosis
- (b) meiosis I
- (c) meiosis II**
- (d) None

Q

Enormous genetic information is present in

- (a) RNA
- (b) DNA.**
- (c) Nucleolus
- (d) Nucleoplasm

Q

Okazaki fragments are joined by

- (a) Ligase
- (b) Gyrase
- (c) Helicase**
- (d) Primase**

Q

How much water present in a cell.....

- (a) 50%
- (b) 60%
- (c) 70%
- (d) 80%**

Q

Charge on DNA is

- (a) Positive
- (b) Negative**
- (c) Neutral
- (d) None

Q

Which of the following stabilizes cell shape

- (a) DNA
- (b) RNA

- (c) **Actin**
- (d) Myosin

Q

.....energy is the energy of motion

- (a) **Kinetic**
- (b) Potential
- (c) Chemical
- (d) Atomic

Q

Space between double membrane structure of endoplasmic reticulum is called

- (a) Vesicles
- (b) Leumen
- (c) Cavity
- (d) **endoplasmic space**

Q

-----is one of the example of co-factor

- (a) **Copper**
- (b) Biotin
- (c) Haeme
- (d) All

Q

lipid act as a following in which many components of cell membrane floats

- (a) Pond
- (b) **Lake**
- (c) River
- (d) Stream

Q

DNA replicates during.....

- (a) G0 phase.
- (b) G1 phase
- (c) **G2 phase**
- (d) S phase

Q

Difference between the alpha 1-4 glycosidic and beta 1-4 glycosidic bonds is on the basis of :

- (a) **Specificity**
- (b) Stability
- (c) neutral pH
- (d) size and shape

Q

Example of variable expressivity

- (a) Dementia
- (b) **Huntington disease**
- (c) Alzheimer disease.
- (d) Pancreatic necrosis

Q

Following has a major role in down syndrome

(a) **Maternal age**

(b) Fraternal age

(c) Child age

(d) Relative age

Q

DNA replication obeys

(a) Dispersive model

(b) **Conservative model**

(c) Semi-conservative model

(d) Distractive model

Q

Missing of enzyme homogentisic acid oxidase caused

(a) Phenylketonuria

(b) Parkinson disease

(c) **Alkaptonuria**

(d) Cystic fibrosis

Q

The RNA is ----- while DNA is -----

(a) double stranded, double stranded

(b) **single stranded, double stranded**

(c) double stranded, single stranded

(d) partially double stranded, double stranded

Q

Ribosome after protein formation arrives at

(a) Lysosome

(b) **Rough endoplasmic reticulum**

(c) Smooth endoplasmic reticulum

(d) Golgi bodies

Q

The nucleus membrane is continuous with

(a) golgi apparatus

(b) ribosomes

(c) **endoplasmic reticulum**

(d) nucleus

Q

Power generating organelle of cell is:

(a) golgi bodies

(b) nucleus

(c) **mitochondria**

(d) cell membrane

Q

The disintegration and condensation of nuclear material takes place in

(a) prophase II

(b) anaphase II

(c) **metaphase II**

(d) telophase II

Q

An observable feature in the subject of genetics is called

(a) Trait

(b) Character

(c) Phenotype

(d) All

Q

Ribosome after protein formation arrives at

(a) Lysosome

(b) Rough endoplasmic reticulum

202 MCQs Mids BIO

Q

Glucose residues in amylose are linked by _____.

α (1,4) linkage

β (1,4) linkage

α (1,6) linkage

None of these

Q

The number of carbon atoms in lysine is _____.

4

6

8

10

Q

If the carbonyl group is present at the end of the monosaccharide then it is called _____.

Acid anhydride

Aldose

Ketose

None of these

Q

The number of stereoisomers for a molecule containing only one chiral carbon is _____.

16

2

4

8

Q

Seminal fluid is rich in _____.

Fructose

Lactose

Xylose
Arabinose

Q

Which of the following glycosidic linkage exists between two glucose units of maltose?

alpha 1,4
beta 1,4
alpha 1,6
alpha 1,4 and alpha 1,6

Q

Amino sugar is formed by the replacement of the hydroxyl group at ----- of the parent monosaccharide with amino group.

C-1
C-2
C-3
C-6

Q

Which one of the following is a structural homopolysaccharide?

Cellulose
Starch
Glycogen
All of these

Q

Which one of the following amino acids is not specified by three letter codon?

Serine
Proline
Selenocysteine
Methionine

Q:

Acid dissociation constants are designated as _____.

PKa

K
Pa
None of these

Q

The pI of glutamate is _____.

1.2
5.6
3.22

6.7

Q

Which of the following amino acid is negatively charged at physiological pH?

Aspartate

Lysine

Alanine

Proline

Q

Which of the following refers to particularly stable arrangements of amino acid residues giving rise to recurring structural patterns?

Primary structure

Secondary structure

Tertiary structure

Quaternary structure

Q

Keratin is present in _____.

Hair

Nail

Hoof

All of these

Q

Which of the following amino acid is involved in the hydrophobic interactions in the tertiary structure of protein?

Phenylalanine

Cysteine

Glycine

None of these

Q

The free energy of a protein molecule is influenced by _____.

Hydrophobicity

hydrogen bonds

electrostatic interactions

All of these

Q

Which of the following diseases is caused by protein misfolding?

Alzheimer's disease

Huntington's disease

Parkinson's disease

All of these

Q

Iron is a _____.

non-metal

metalloid

transition metal

halogen

Q

Myoglobin can bind _____ molecules of oxygen.

One

Two

Three

Four

Q

The partial pressure of oxygen (pO₂) in lungs is about _____.

30 mmHg

50 mmHg

100 mmHg

200 mmHg

Q

In sickle cell anemia, Glutamate is replaced with _____.

Arginine

Alanine

Methionine

Valine

Q

Oxy hemoglobin dissociation curve describe the relationship of -----

Available Oxygen

Amount of carbon dioxide carried by hemoglobin

Fibrinogen

Oxy-hemoglobin curve stability

Q

Which one of the following is made up of two molecules of glucose?

Maltose

Starch

Cellulose

Amylose

Q

Which bond exists between the carbonyl group and oxygen of a hydroxyl group in ring structure of glucose?

Ionic

Covalent

hydrophobic interaction

both ionic and covalent

Q

In Benedict test, the formation of cuprous oxide is indicated by the formation of _____.

blue ppt

silver mirror

red ppt

none of these

Q

Glucose 6 Phosphate is formed by the addition of phosphate group to C6 of glucose by _____ linkage.

Ether

Ester

Ionic

none of these

Q

E. coli convert lactose of milk to lactic acid by action of _____.

Beta galactosidase

Amyloglucosidase

Alpha amylase

Maltase

Q

At any pH above pI, glycine has a net _____ charge and will move towards the _____.

negative, anode

negative, cathode

positive, anode

positive, cathode

Q

Which of the following amino acids contain two COOH groups?

Alanine

Glutamate

Glycine

Valine

Q

Which of the following amino acid is positively charged at physiological pH?

Lysine

Aspartate

Tyrosine

Alanine

Q

Peptide bond is _____ linkage between two amino acids.

Ester

Amide

Ether

None of these

Q

Which of the following shows the greatest tendency to form α helices in most experimental model systems?

Glycine

Alanine

Proline

Serine

Q

Immunoglobulin G (IgG) consists of _____.

Two heavy chains and two light chains

Four heavy chains

Four light chains

None of these

Q

The free energy of a protein molecule is influenced by _____.

Hydrophobicity

hydrogen bonds

electrostatic interactions

All of these

Q

Proteins are denatured by _____.

Temperature

Ph

organic solvents

temperature, pH, organic solvents

Q

About _____ of amino acid residues in the myoglobin are found in alpha helices.

98%

78%

27%

10%

Q

Hemoglobin is found exclusively in _____.

white blood cells

red blood cells

platelets

platelets and white blood cells

Q

The partial pressure of oxygen (pO₂) in lungs is about _____.

30 mmHg

50 mmHg

100 mmHg

200 mmHg

Q

In sickle cell anemia, Glutamate is replaced with _____.

Alanine

Methionine

Valine

Arginine

BIO301 MCQs Mid

Q

Genetics can be studied by

One way

Two ways

Three ways

Four ways

Q

Example of Mendilian genetics

Gene linkage

Pliotropy

Epigenetic

None

Q

In nature variation is

Temporary

Consistent

Widespread

All

Q

Condition in which an intermediate phenotype is developed from cross of parental generation.

Co dominance

Incomplete dominance

Both

Over dominance

Q

Condition in which one gene prevent the expression of other gene

Polymorphism

Pleiotropy

Epistasis

Polygon

Q

Bacterial chromosome is made up of

DNA

Histone

Both

RNA

Q

structure for chromosome stability

Telomere

Centrosome

Centromere

Chiasmata

Q

Broken ends of chromosomes are

Fluffy

Sticky

Transparent

Non sticky

Q

Centromere is unable to work due to mutation in

CDE-I

CDE-II

CDE-III

CDE-IV

Q

XO system of sex is present in

Fruitfly

Grasshopper

Snake
Frog

Q
prokaryotic cell divides by
Budding
Grafting
Mitosis
Binary fission

Q
Chromosomes become fit in the central line
Anaphase
Metaphase
Telophase
Prophase
Q
Haploid cells are produced by
Mitosis
Meiosis
Both
Parthenogenesis

Q
Tetrads align at center
Telophase I
Prophase I
Metaphase I
Anaphase I
Q
Which one is true
Sister chromatids are not identical in mitosis
Sister chromatids are identical in meiosis
Sister chromatids are not identical in meiosis
Non sister chromatids are identical in mitosis

Q
Genes are present on chromosomes first time said by
Gregor Mendel
T.H.Morgan
Walther Flemming
T.J.Robert

Q
Cross for determination of genotype of an individual

Cross over

Hybrid cross

Dihybrid cross

Test cross

Q

In ABO blood group system

Allele A is dominant over allele B

Allele B is dominant over allele A

Alleles A and B show co-dominance

Alleles A and B show incomplete dominance

Q

If two genes are more close then frequency of cross over will be

High

Low

High and low

Medium

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Q:

The hydrophilic backbones of alternating deoxyribose and phosphate groups are inside the double helix, facing the surrounding water?

a) True

b) False

c) False in certain cases

d) a and c

Q:

Chromosomes are made up of.....

a) Protein and DNA

b) DNA and RNA

c) RNA and protein

d) a & c

Q:

Chromosome theory of inheritance by Thomas Hunt Morgan was presented in

a) 1913

b) 1912

c) 1911

d) 1910

Q:

Nucleotide consists of major molecules

a) 2

b) 3

c) 4

d) 5

Q:

How many amino acids are there in one complete turn of DNA...

a) 6.3

b) 3.6

c) 36

d) 4.6

Q:

Nucleosome fold to form the _____ fiber

a) 20 nm

b) 30 nm

c) 40 nm

d) 50 nm

Q:

On which media, cells are preferred to be grown?

a) N14

b) Pb

c) Cs

d) Ra

Q:

DNA polymerase has _____ domains

a) 3

b) 4

c) 5

d) 6

Q:

An E.Coli chromosome is estimated to have about.....super-coiled loops

a) 500

b) 400

c) 300

d) 200

Q:

Separation of DNA is accomplished by _____.

a) Type I topoisomerase

b) Type II topoisomerase

c) Type III topoisomerase

d) DNA polymease

Q:

Which one of the following is not an ionizing radiation?

a) X-rays

b) Ultraviolet light

c) Gamma rays

d) β rays

Q:

Hydrolytic deamination of cytosine is estimated to take place about

a) 1000 to 5000 times a day in a mammalian cell

b) 100 to 500 times a day in a mammalian cell

- c) 10 to 50 times a day in a mammalian cell
- d) 1 to 5 times a day in a mammalian cell

Q:

What will happen to the DNA exposed to N-methylguanine

- a) it will be oxidized
- b) it will make dimers of the bases
- c) it will lead to production of mono-adduct
- d) it will form a basic site

Q:

Aflatoxins are produced by

- e) Bacteria
- f) Virus
- g) Fungi
- h) Parasites

Q:

.....are similar enough to the proper bases to get taken up by cells converted into nucleoside triphosphate and incorporated into DNA during replication.

- a) Interclating agents
- b) Base analogs
- c) Amino acid analogs
- d) None of these

Q:

Cells infected with phageprovide the ideal system to find the true template for protein synthesis

- a) T4
- b) P4
- c) S4
- d) L4

Q:

RNA polymerase performs essentially the same reaction in the cells from bacteria to human that is the synthesis of

- a) cDNA
- b) DNA
- c) RNA
- d) DNA, RNA and Cdna

e) Q:

There are three human MutS homologs

- a) MSH1, MSH2, MSH3
- b) MSH2, MSH3, MSH4
- c) MSH2, MSH3, MSH6
- d) MSH2, MSH3, MSH5

Q:

In long patch repair, how many nucleotides are repaired...

- a) 1
- b) 4-6

c) 2-8

d) 10-14

Q:

Pyrimidine dimers are formed by...

UV radiation

Infra red

Ultrasound

nuclear radiation