368 PU M Sc Biochemistry and Molecular Biology

1 of 100
217 PU_2016_368_E
Which of the following methods for introducing DNA into cells is used only for plants?

- A gene gun
- Electroporation
- Microinjection
- Transformation of competent cells.

2 of 100
101 PU_2016_368_E
Among the following which hormone can induce flowering in short day plant grown under long duration of light:-

- Abscisic acid
- Cytokinin
- Auxin
- Gibberllic acid

3 of 100
164 PU_2016_368_E
Refsum's disease arises due to the accumulation of larger quantities of:-

- phytanic acid
- oxalic acid
- glutamic acid
- maleic acid

4 of 100
193 PU_2016_368_E
Cori cycle is:-

- Synthesis and reuse of glucose
- reuse of glucose
- uptake of glucose
- Synthesis of glucose

5 of 100
129 PU_2016_368_E
The blood pressure is high in:-

- capillaries
- veins
- arteries

- veins of portal system

6 of 100

152 PU_2016_368_E

Which among the following lipoprotein has the highest protein content?

- LDL.
- VLDL.
- HDL.
- chylomicrons

7 of 100

133 PU_2016_368_E

Blood of which of the following animal does not carry O_2

- Earthworm
- Frog
- Lung fish
- Insects

8 of 100

157 PU_2016_368_E

Which of the following phosphoglyceride possesses antigenic properties?

- plasmalogen
- cardiolipin
- lecithin
- phosphatidic acid

9 of 100

124 PU_2016_368_E

Green vegetables are good sources of:-

- vitamins and minerals
- Proteins
- Carbohydrates
- Fats

10 of 100

104 PU_2016_368_E

The beadlike unit of chromatin structure is the:-

- Nucleosome
- Solenoid
- Kinetochore

- Chromatid

11 of 100
169 PU_2016_368_E
Transcobalamin II delivers vitamin B12 to:-

- liver, bone marrow and the gastrointestinal tract
- gastrointestinal tract
- liver
- rapidly proliferating cells in the bone marrow

12 of 100
205 PU_2016_368_E
Pulses are rich in:-

- Tryptophan
- Methionine
- Phenylalanine
- Lysine

13 of 100
100 PU_2016_368_E
Which of the following gene involved in apoptosis?

- apc
- Caspase
- Cyl2
- bxl

14 of 100
165 PU_2016_368_E
Hormonal contraceptives:-

- fertilization
- mensutration
- inhibit ovulation
- inhibit ovulation and fertilization

15 of 100
113 PU_2016_368_E
Which one of the following essential micronutrients is associated with urease enzyme found in higher plants?

- Molybdenum
- Zinc

- Copper
- Nickel

16 of 100

177 PU_2016_368_E

Glycogen synthetase activity is depressed by:-

- Glucose
- Cyclic AMP
- Insulin
- Fructokinase

17 of 100

144 PU_2016_368_E

For which of the following, the units of rate constant and rate of reaction are same?

- 1^{st} order reaction.
- 2^{nd} order reaction.
- zero order reaction.
- 3^{rd} order reaction.

18 of 100

168 PU_2016_368_E

Iron is transported by:-

- cobalophilins
- hepcidin
- Ferritin
- transferrin

19 of 100

105 PU_2016_368_E

Which of the following metabolic process occurs in the mitochondria?

- Cholesterol synthesis
- Fatty acid synthesis
- Glycolysis
- Fatty acid -β oxidation

20 of 100

176 PU_2016_368_E

Glucose absorption may be decreased in:-

- Nephritis
- Oedema

- Rickets
- Osteomalitis

21 of 100
192 PU_2016_368_E
Two sugars differing only in configuration around a single carbon atom is called:-

- Epimers
- Anomers
- Optical isomers
- Stereoisomers

22 of 100
213 PU_2016_368_E
Organotrophic organisms feed on:-

- Inorganic things
- Other living things or their organic produce
- Nonliving things
- Energy from sun light

23 of 100
201 PU_2016_368_E
Which one is the largest organelle of the cytoplasm?

- Mitochondria
- Entoplasmic reticulum
- Golgi apparatus
- Lysosomes

24 of 100
149 PU_2016_368_E
nif genes which encode the nitrogenase complex and other enzymes involve:-

- nitrogen fixation.
- denitrificatrion.
- ammonification.
- nitrification.

25 of 100
140 PU_2016_368_E
The term translation refers to protein synthesis and a polysome is

- the lumen of endoplasmic reticulum
- a complex of mRNA with several ribosomes

- golgi apparatus
- a group of lysosomes

26 of 100
189 PU_2016_368_E
Lambda EMBL4 :-

- Lambda replacement vector which can carry up to 20 Kb of DNA insert size
- Lambda insertion vector which can carry up to 6 Kb of DNA insert size
- Lambda replacement vector which can carry up to 6 Kb of DNA insert size.
- Lambda insertion vector which can carry up to 20 Kb of DNA insert size

27 of 100
181 PU_2016_368_E
In coordinate geometry, the equation of the x-axis is:-

- y = x
- y = 0
- x = 0
- y = 1

28 of 100
200 PU_2016_368_E
Milk is deficient in?

- Vitamin B2
- Vitamin C
- Vitamin K
- Vitamin A

29 of 100
161 PU_2016_368_E
Which of the following vitamin deficiency leads to burning feet syndrome?

- pantothenic acid
- folic acid
- Vitamin B12
- Niacin

30 of 100
160 PU_2016_368_E
Which of the following vitamin's structure resembles monosaccharide in structure?

- Vitamin C
- Vitamin D

- Vitamin A
- Vitamin K

31 of 100

116 PU_2016_368_E

Out of the following matches of oncogenes with the proteins that each specifies, which one is incorrect?

- erbA- thyroid hormone receptor
- ras - guanine-nucleotide binding protein with GTPase activity
- erbB - epidermal growth factor receptor
- fos - platelet-derived growth factor

32 of 100

120 PU_2016_368_E

In which form of DNA, the number of base pairs per helical turn is 10.5?

- Z.
- X.
- A.
- B.

33 of 100

112 PU_2016_368_E

Which of the following is a mismatch between the plant drug and its source?

- Quinine - *Cinchona ledgeriana*
- Codeine - *Papaver somniferum*
- Digitalin - *Artemisia annua*
- Vinblastine - *Catharanthus roseus*

34 of 100

145 PU_2016_368_E

Why does hydroxylation increase the stability of the collagen triple helix?

- it promotes hydrogen bonding with water.
- it increases hydrogen bonding between polypeptide chains.
- it decreases the melting temperature of nascent collagen
- it expands the helix and allows the glycine residues to better fit in the interior.

35 of 100

172 PU_2016_368_E

HDL is synthesized and secreted from :-

- Muscle
- Kidney

- Pancreas
- Liver

36 of 100

184 PU_2016_368_E

During starvation, ketone bodies are used as a fuel by:-

- Brain
- Liver
- Erythrocytes
- All of these

37 of 100

212 PU_2016_368_E

As Prophase-I progresses, the homologous chromosomes form a four-chromatid structure called:-

- Bivalent
- Centrioles
- Sister chromatids
- Crossover

38 of 100

128 PU_2016_368_E

Human eye lens is:-

- Biconvex and can be moved forward
- spherical and can be moved forward
- spherical and cannot be moved forward
- Biconvex and cannot be moved forward

39 of 100

137 PU_2016_368_E

Blood groups are named based on antigens present in:-

- Blood plasma
- Platelet
- W.B.C
- R.B.C

40 of 100

185 PU_2016_368_E

Aspartate amino transferase uses the following for transamination:-

- Glutamic acid and pyruvic acid
- Aspartic acid and pyruvic acid

- Glutamic acid and oxaloacetic acid
- aspartic acid and keto adipic acid

41 of 100
108 PU_2016_368_E
An enzyme showing absolute specificity is:-

- Chymotrypsin
- Hexokinase
- Alkaline Phosphatase
- Urease

42 of 100
196 PU_2016_368_E
The main site of urea synthesis in mammals is:-

- Intestine
- Liver
- Skin
- Kidney

43 of 100
132 PU_2016_368_E
The infective stage of the malarial parasite Plasmodium sp. in man is:-

- Sporozoite
- Merozoite
- Schizont
- Cryptozoite

44 of 100
141 PU_2016_368_E
Bilirubin level increases in the blood when

- liver cells are severely damaged
- secretion of insulin is more
- HIV intrudes the body.
- secretion of glucagon is less

45 of 100
180 PU_2016_368_E
Which of the following is NOT a prime number?

- 21
- 41

- 31
- 11

46 of 100

208 PU_2016_368_E

Molecular formula of cholesterol is:-

- $C_{29}H_{47}OH$
- $C_{27}H_{45}OH$
- $C_{23}H_{41}OH$
- $C_{29}H_{48}OH$

47 of 100

204 PU_2016_368_E

Denaturation of proteins results in:-

- Breakdown of peptide bonds
- Irreversible changes in the molecule
- Disruption of primary structure
- Destruction of hydrogen bonds

48 of 100

109 PU_2016_368_E

During photosynthetic carbon reduction cycle in green leaves, net production of one molecule of glyceraldehyde 3-phosphate requires one of the following combinations of energy equivalents:-

- 6 NADPH and 9 ATP
- 9 NADPH and 6 ATP.
- 2 NADPH and 3 ATP
- 3 NADPH and 9 ATP

49 of 100

125 PU_2016_368_E

Virus mediated transfer of genetic material between one bacterial cell and another is termed as:-

- Transduction
- Nuclear Exchange
- Trasformation
- Conjugation

50 of 100

148 PU_2016_368_E

Each cycle of β-oxidation produces:-

- 1 $FADH_2$, 1 NAD+, and 1 acetyl-CoA.

- 1 $FADH_2$, 1 NADH and 1 acetyl-CoA.
- 1 FAD, 1 NAD+ and 2 CO_2 molecules.
- 1 $FADH_2$, 1 NADH and 2 CO_2 molecules.

51 of 100

197 PU_2016_368_E

Which of the following techniques is used to separate proteins based upon differences in their mass?

- Western blotting
- Dialysis
- SDS-gel Electrophoresis
- Isoelectric focusing

52 of 100

117 PU_2016_368_E

Which of the following pairs of subcellular compartments is likely to have same pH and electrolyte composition?

- Mitochondrial matrix and inter membrane space
- cytosol and lysosomes
- cytosol and endosome
- cytosol and mitochondrial inter membrane space

53 of 100

153 PU_2016_368_E

Proteins tagged with mannose 6-phosphate are transported to:-

- Mitochondrion
- Lysosomey
- Nucleus
- Golgi apparatus

54 of 100

188 PU_2016_368_E

The pUC vectors incorporate a:-

- Gam gene
- MCS in the lac Z sequence
- A cos site
- The purine initiation nucleotide

55 of 100

156 PU_2016_368_E

Which of the following is an essential fatty acid?

- lignoceric acid
- oleic acid
- palmitic acid
- linoleic acid

56 of 100
216 PU_2016_368_E
Anaerobic energy-yielding pathways are called as:-

- Reduction
- Glycolysis
- Fermentaion
- Oxidation

57 of 100
173 PU_2016_368_E
Metabolic disease caused by a defect in one amino acid is known as:-

- Liver fibrosis
- Galactosemia
- Cystic fibrosis
- Cystinuria

58 of 100
121 PU_2016_368_E
Tumor-suppressor genes:-

- Are involved in the cellular response to EGF
- Includes the widely studied myc gene
- Stimulates the binding of GTP
- Encode proteins that prevent binding of cyclins

59 of 100
209 PU_2016_368_E
During each cycle of β-oxidation:-

- Two carbon atoms are removed from the carboxyl end of the fatty acid
- One carbon atom is removed from the methyl end of the fatty acid
- Two carbon atoms are removed from the methyl end of the fatty acid
- One carbon atom is removed from the carboxyl end of the fatty acid

60 of 100
136 PU_2016_368_E
A gene is a section of DNA that codes for a protein and these unique sequences of bases are called:-

- Codons
- Transposons
- Introns
- Exons

61 of 100

252 PU_2016_368_M

In hemolytic jaundice, bilirubin in urine is:-

- Increased very much
- Usually present
- Usually absent
- Very low

62 of 100

257 PU_2016_368_M

It is believed that life evolved with RNA as the genetic material, but RNA has been replaced by DNA in all current cellular life. Which feature of DNA accounts for this?

- Only DNA can form the genetic material of viruses.
- DNA can direct its own replication while RNA cannot.
- DNA is a nucleic acid while RNA is not.
- DNA is more stable than RNA.

63 of 100

244 PU_2016_368_M

Which is an important function of cholesterol in cell membranes?

- It increases the fluidity of the membrane at 37°C
- It stabilizes the structure of mammalian membranes.
- It allows polar substances to pass through the membrane.
- It acts as fluidity barrier in bacterial membranes.

64 of 100

248 PU_2016_368_M

The reaction catalysed by phosphofructokinase:-

- Is inhibited by fructose 2, 6-bisphosphate
- Is activated by high concentrations of ATP and citrate
- Uses fruitose-1-phosphate as substrate
- Is the rate-limiting reaction of the glycolytic pathway

65 of 100

228 PU_2016_368_M

Aequorin is a calcium binding protein (CaBP) isolated from the coelenterate *Aequorea victoria*. Aequorin associated itself with which of the following structural feature:-

- EF hand.
- TIM barrel.
- rossman fold.
- leucine zipper.

66 of 100

256 PU_2016_368_M

Which mineral element controls the activity of Nitrate reductase?

- Fe
- Mo
- Zn
- Ca

67 of 100

221 PU_2016_368_M

During interphase _____ can be seen with a light microscope.

- Nucleosomes
- Chromatin
- Heterochromatin
- Introns

68 of 100

236 PU_2016_368_M

Which of the following mineral nutrient is directly involved in light absorption during photosynthesis :-

- Mg^{2+}
- Mn^{2+}
- Cu^{2+}
- Zn^{2+}

69 of 100

233 PU_2016_368_M

The Bead like structures found in the ultrastructure of eukaryotic chromatin is referred to as

- liposomes
- nucleosomes
- polysomes
- kinetochores

70 of 100

253 PU_2016_368_M
The caloric value of lipids is:-

- 9.0 Kcal/g
- 6.0 Kcal/g
- 15.0 Kcal/g
- 12.0 Kcal/g

71 of 100

229 PU_2016_368_M
Which of the following statements about retinal, the chromophore of rhodopsin, is incorrect?

- in the dark, it is covalently bound to opsin through a Schiff base linkage.
- in the dark, it is present as the 11-cis-retinal isomer.
- it becomes the all-cis isomer after absorbing light.
- the unprotonated Schiff base absorbs maximally at 440 nm and higher.

72 of 100

241 PU_2016_368_M
Phenylalanine ammonia-lyase (PAL) and chalcone synthase (CHS) are involved in biosynthesis of phenolic compounds in plants. Following are some statements regarding the actions of PAL and CHS:-

i) substrates for PAL and CHS are phenylalanine and chalcone, respectively
ii) PAL converts phenylalanine to trans-cinnamic acid
iii) PAL converts phenylalanine to p-coumaric acid
iv) p-coumaroyl-CoA is converted to chalcones by CHS

Which one of the following combination of the above statements is true?

- i) and iii)
- ii) and iv)
- i) and ii)
- ii) and iii)

73 of 100

237 PU_2016_368_M
The most variable stage of cell cycle is:-

- S
- G0
- G2
- G1

74 of 100

240 PU_2016_368_M
Which one of the following statement describes the process of phloem loading?

- Triose phosphate is transported from the chloroplast to cytosol

- Sugars are transported into the sieve elements and companion cells
- Solutes are transported from roots to the shoots
- Sugars are transported from producing cells in the mesophyll to cells in the vicinity of the sieve elements

75 of 100

245 PU_2016_368_M

Fluoride inhibits _____ and arrests glycolysis.

- Aconitase
- Enolase
- Glyceraldehyde-3-phosphate dehydrogenase
- Succinate dehydrogenase

76 of 100

224 PU_2016_368_M

The CO_2 acceptor in c4 plant is:

- ribulose-bis-phosphate
- 3-phosphoglyceric acid
- Outer membrane of chloroplast
- Phosphorenol pyruvate

77 of 100

225 PU_2016_368_M

The Z- DNA helix:-

- Is the most conformation of DNA
- Has fewer base pair turn than B-DNA
- Tends to found at 3'ends of genes
- Is favored by alternate GC base pairs

78 of 100

249 PU_2016_368_M

For glycogenesis, Glucose should be converted to:-

- Sorbitol
- Glucuronic acid
- UDP glucose
- Pyruvic acid

79 of 100

220 PU_2016_368_M

A transition mutation:-

- Results from insertion of one or two bases or base analogs into the DNA chain
- Results from the substitution of one purine for another or of one pyrimidine for another
- Occurs when a purine is substituted for a pyrimidine or vice versa
- Decreases in frequency in the presence of base analogous into the DNA chain

80 of 100

232 PU_2016_368_M

Cyclins and cyclin dependent kinases are proteins involved in regulation of:-

- cell-cycle
- synthesis of cAMP
- circadian rhythms
- membrane circulation via exocytosis and endocytosis

81 of 100

265 PU_2016_368_D

Bronze diabetes is associated with following mineral deposition?

- iron
- selenium
- copper
- magnesium

82 of 100

289 PU_2016_368_D

A nucleoside consists of:-

- Purine or pyrimidine base + sugar
- Purine or pyrimidine base + phosphorous
- Purine + pyrimidine base + sugar + phosphorous
- Nitrogenous base

83 of 100

288 PU_2016_368_D

A cup of strong coffee would be expected to:-

- Decrease the effect of glucagon
- Enhance the effect of epinephrine
- Provide the vitamin nicotinic acid
- Interfere with the synthesis of prostaglandins

84 of 100

272 PU_2016_368_D

Mumps is a disease caused by virus that affects:-

- Parotid glands
- submaxillary lansd
- Sublingual glands
- submandibular glands

85 of 100
293 PU_2016_368_D
The smallest RNA among the following is:-

- rRNA
- tRNA
- hnRNA
- mRNA

86 of 100
296 PU_2016_368_D
Dideoxynucleoside triphosphates ddNTPs) are used in sequencing DNA because:-

- ddNTPs are incorporated very efficiently into DNA by DNA polymerase.
- ddNTPs cannot be incorporated into DNA by DNA polymerase.
- ddNTPs are fluorescent.
- ddNTPs prevent further DNA synthesis once they are incorporated into the DNA sequence.

87 of 100
280 PU_2016_368_D
A cell undergoing meiosis produces four daughter cells, two of which are anuploids, while other two are haploids. This can occur due to:-

- non-disjunction during both first and second meiotic divisions
- non-disjunction during first meiotic division only
- non-disjunction during either first or second meiotic divisions
- non-disjunction during second meiotic division only

88 of 100
264 PU_2016_368_D
Which of the following is natural un-coupler?

- dopamine
- insulin
- thyroxine
- short chain fatty acid

89 of 100
297 PU_2016_368_D

Which of the following microscopy techniques relies on the specimen interfering with the wavelength of light to produce a high contrast image without the need for dyes?

- Fluorescence microscopy
- Phase contrast microscopy
- Conventional bright field light microscopy
- Electron microscopy

90 of 100

286 PU_2016_368_D

Glycogen synthetase activity is depressed by

- Insulin
- Fructokinase
- Glucose
- Cyclic AMP

91 of 100

269 PU_2016_368_D

The radius of the following helix types in proteins follows the order:-

- 3_{10} helix > pi helix > alpha helix.
- alpha helix > 3_{10} helix > pi helix.
- pi helix > alpha helix > 3_{10} helix.
- 3_{10} helix > alpha helix > pi helix.

92 of 100

277 PU_2016_368_D

Light signals for flowering is received by:-

- Apical bud
- Flower bud
- Leaves
- Flower bract

93 of 100

292 PU_2016_368_D

Initiation of protein synthesis begins with binding of:-

- Charging of tRNA with specific amino acid
- 60S ribosomal unit
- 40S ribosomal unit on mRNA
- Attachment of aminoacyl tRNA on mRNA

94 of 100

276 PU_2016_368_D
Which of the following is a typical feature of viruses?

- The ability to replicate independently.
- The ability to synthesize ATP.
- 3000-4000 genes.
- A genome that may be single or double-stranded DNA or RNA.

95 of 100

260 PU_2016_368_D
Holoandric inheritance is shown by:-

- Allosomes
- Autosomes
- X-chromosomes
- Y-chromosomes

96 of 100

261 PU_2016_368_D
The k_m of enzyme is-

- Substrate concentration that gives half-maximum velocity
- One half of the V max
- A dissociation constant
- Substrate concentration that gives max velocity

97 of 100

273 PU_2016_368_D
Barbara McClintock received Nobel prize in 1983 for discovering

- mobile genetic elements or jumping genes
- Reverse transcriptases
- Monoclonal antibodies
- PCR technique

98 of 100

268 PU_2016_368_D
The alpha helix can be called a 3.6_{13} helix. The numbers refer to: -

- the number of turns and diameter of the helix
- the number of residues and the pitch of the helix.
- the number of residues and number of atoms in the helix.
- the number of residues in a turn of the helix and the number of atoms in the hydrogen bond ring.

99 of 100

284 PU_2016_368_D
Excessive intake of ethanol increases the ratio of:-

- $FADH_2$: FAD
- FAD : $FADH_2$
- NADH : NAD^+
- NAD^+ : NADH

100 of 100

281 PU_2016_368_D
Which of the following is NOT an adaptive modification in a xerophytic plant?

- Strongly developed sclerenchyma
- Sparse stomata
- Presence of lacunar tissues
- Sunken stomata