

PU M Sc Biotechnology

1 of 100

109 PU_2015_303

Which one of the following binding constants represents the highest affinity?

- $K_d = 1 \times 10^{-9} \text{M}$
- $K_d = 1.5 \times 10^{-9} \text{M}$
- $K_a = 1 \times 10^7 \text{M}^{-1}$
- $K_a = 2 \times 10^8 \text{M}^{-1}$

2 of 100

163 PU_2015_303

Mitogens stimulate the growth and activation of:-

- Epithelial cells
- Vascular endothelial cells
- Fibroblasts
- All three options

3 of 100

168 PU_2015_303

Which of the following information about TNF is not true?

- It is a disease
- Tumor necrotic factor
- Belongs to Cytokines family
- TNF alpha and TNF beta

4 of 100

206 PU_2015_303

The diaphragm separates the:-

- Heart and the Lungs
- Heart and the Liver
- Chest and the Abdomen
- Liver and the Lungs

5 of 100

181 PU_2015_303

Allergies result from the production of _____ antibodies directed against an antigen.

- IgG
- IgE
- IgA
- IgM

6 of 100

159 PU_2015_303

The sites for gluconeogenesis are:-

- Skin and pancreas
- Intestine and lens of eye
- Lung and brain
- Liver and kidney

7 of 100

127 PU_2015_303

Biological Oxygen Demand is a measurement of:-

- Increase in nitrogen over a period of time
- Growth of microorganisms using oxygen
- Increase in oxygen over a period of time
- Dissolved oxygen consumed by aerobic bacteria for biomass degradation

8 of 100

142 PU_2015_303

The terminal electron acceptor during mitochondrial respiration is:-

- O₂
- FAD⁺
- ATP
- NAD⁺

9 of 100

204 PU_2015_303

Which of the agricultural challenges below cannot be solved with transgenic techniques?

- Biotic stress killing the plant
- Public concern about having organic vegetables
- Heat stress killing the plant
- Public concern about the safety of synthetic herbicides

10 of 100

113 PU_2015_303

The cells of endosperm are:-

- Triploids
- Diploids
- Tetraploids
- Haploids

11 of 100

200 PU_2015_303

Which of the following is not directly associated with regulation of eukaryotic gene expression?

- methylation of histones
- methylation of DNA
- activation of caspases
- acetylation of histones

12 of 100

214 PU_2015_303

The common feature amongst nucleus, chloroplast and mitochondria is:-

- Flagella
- DNA
- Lamellae
- Cristae

13 of 100

184 PU_2015_303

Caspase is a:-

- Phosphatase
- Protease
- Kinase
- Glucosidase

14 of 100

111 PU_2015_303

Zymogen is:-

- Enzyme modulator
- Enzyme precursor
- Enzyme inhibitor
- Enzyme poison

15 of 100

101 PU_2015_303

Which one of the following genera fixes nitrogen non-symbiotically?

- Nitrosomonas*
- Nitrobacter*
- Azotobacter*
- Rhizobium*

16 of 100

105 PU_2015_303

Collagen is best described as:-

- A triple - helical fibrous protein
- An alpha - helical structural protein
- A coiled - coil found in hair
- A cross - linked globular protein

17 of 100

132 PU_2015_303

Protection of the body from infectious organisms is accomplished by which of these tissues?

- nerve
- blood
- cartilage
- muscle

18 of 100

156 PU_2015_303

Parallel venation is a characteristic of:-

- grasses
- legumes
- xerophytic plants
- parasitic plants

19 of 100

139 PU_2015_303

The junctions between nerve cells are known as _____.

- gap junctions
- villi
- synapses
- tight junctions

20 of 100

216 PU_2015_303

The term cistron, muton and recon were introduced by:-

- Mathew Meselson
- Thomas Hunt Morgan
- Seymour Benzer
- James Watson and Francis Crick

21 of 100

146 PU_2015_303

Phospholipids have hydrophilic and hydrophobic areas within the same molecule. This dual nature of the molecule is described by the term:-

- Amphipathic
- Non-polar
- Electrostatic
- Polar

22 of 100

172 PU_2015_303

Protein denaturants include:-

- Surfactants
- Acids
- Salt
- Base

23 of 100

151 PU_2015_303

A contaminated food was detected with cells of *Escherichia coli*. What may be the possible mode of contamination?

- Water
- Insects
- Aerosol
- Faecal

24 of 100

148 PU_2015_303

Which of the following takes part in opsonisation?

- Complement C3b
- Adjuvants
- Haptens
- Synergids

25 of 100

186 PU_2015_303

Which one of the following is an uncoupler of oxidative phosphorylation?

- DNA
- Dinitrophenol
- NaN_2
- Actinomycin-D

26 of 100

122 PU_2015_303

One of the following groups of compounds is secondary in origin in biological systems:-

- Organic acids
- Organic solvents
- Alkaloids
- Vitamins

27 of 100

158 PU_2015_303

The major protein responsible for the storage of iron:-

- Ferritin
- Ferredoxin
- Hemosiderin
- Transferrin

28 of 100

145 PU_2015_303

A mature messenger RNA is 336 nucleotides long, including the initiator and termination codons. The number of amino acids in the protein translated from this mRNA is:-

- 113
- 111
- 110
- 112

29 of 100

193 PU_2015_303

Enzyme required for removing RNA primer during DNA replication is:-

- DNA polymerase I
- DNA primase
- DNA polymerase III
- DNA ligase

30 of 100

161 PU_2015_303

Proteins synthesis takes place on structures called:-

- Ribosome
- Lysosome
- Golgibody
- Centriole

31 of 100

131 PU_2015_303

The blood cells that transport oxygen within the body are the ____.

- leukocytes
- erythrocytes
- macrophages
- platelets

32 of 100

202 PU_2015_303

Rice, corn, and wheat are:-

- Dicots
- Mosses
- Ferns
- Monocots

33 of 100

208 PU_2015_303

Nitrosomonas is:-

- Sulphur bacteria
- Nitrifying bacteria
- Ammonifying bacteria
- Denitrifying bacteria

34 of 100

118 PU_2015_303

Which one of the following group is amenable to artificial culturing in agar plates?

- Rust fungi (Uredinales)
- Smuts fungi (Ustilaginales)
- Ectomycorrhizal fungi
- Vesicular Arbuscular Mycorrhizal fungi

35 of 100

176 PU_2015_303

Porcine insulin differs from human insulin by:-

- Three Amino Acids
- Two Amino Acids
- One Amino Acid
- Four Amino Acids

36 of 100

210 PU_2015_303

The mad cow disease (jakobCreutzfeldt disease) is caused by certain:-

- Virus
- Bacterium
- Viroid
- Prion

37 of 100

164 PU_2015_303

Lethal dose of gamma radiations given to a living cell induce:-

- Both double strand breaks and damage to cell membrane
- Single strand breaks
- Damage to cell membrane
- Double strand breaks

38 of 100

103 PU_2015_303

Adenosine deaminase deficiency leads to:-

- Lesch-Nyhan syndrome
- Severe immunodeficiency disease
- Porphyria
- Gout

39 of 100

154 PU_2015_303

Pattern recognition molecules does not include:-

- LPS
- Oleic acid
- PAMPs
- Lipoteichoic acid

40 of 100

138 PU_2015_303

The first discovered antibiotic was _____.

- Keflex
- Penicillin
- AZT
- Zoltran

41 of 100

116 PU_2015_303

Water droplets assuming the spherical shape is due to:-

- Viscosity
- Water having low density
- Surface tension
- Density

42 of 100

179 PU_2015_303

Digitalis is:-

- Dried leaves of foxglove
- Dried root of foxglove
- Dried stem of foxglove
- Dried fruit of foxglove

43 of 100

115 PU_2015_303

Extra-chromosomal DNA is not found in:-

- Mitochondria
- Chloroplasts
- Plasmids
- Ribosomes

44 of 100

134 PU_2015_303

Who discovered X-Rays?

- Muller
- Wilhelm Conrad Rontgen
- Henri Becquerel
- Pierre & Marie Curie

45 of 100

183 PU_2015_303

The reactants of photosynthesis are:-

- CO₂ and H₂
- CO₂ and H₂O
- C and H₂
- C and O₂

46 of 100

191 PU_2015_303

The nitrogen bases which pair with two hydrogen bonds are:-

- Cytosine and adenine
- Adenine and cytosine
- Adenine and thymine
- Cytosine and guanine

47 of 100

124 PU_2015_303

Which one of the following is not true of Meiosis?

- Crossing over
- Reduction division resulting in 'n' number of chromosomes
- Pairing of homologous chromosomes
- Separation of chromatids during Anaphase I

48 of 100

166 PU_2015_303

Most frequently used amino acid for stabilization of the biopharmaceutical products is:-

- Proline
- Glycine
- Methionine
- Histidine

49 of 100

129 PU_2015_303

The Human growth hormone "hGH" is secreted by:-

- Thymus
- Pituitary gland
- Pancrease
- Hypothalamus

50 of 100

120 PU_2015_303

Alpha-ketoglutarate serves as one of the keto-substrate in the formation of:-

- nopaline
- histopine
- octopine
- agropine

51 of 100

107 PU_2015_303

The insertion of three nucleotides into an open reading frame cannot result in:-

- a missense mutation
- a frameshift mutation
- the destruction of a nonsense mutation
- a nonsense mutation

52 of 100

170 PU_2015_303

Haemoglobin shows:-

- Linear absorption curve for oxygen uptake
- Minimum oxygen saturation in arterial blood
- Non linear absorption curve for oxygen uptake
- Maximum oxygen saturation in veinal blood

53 of 100

174 PU_2015_303

Vancomycin is a:-

- Primary metabolite
- Popular microbe for industry
- Popular food supplement
- Glycopeptide

54 of 100

196 PU_2015_303

EcoRI is an:-

- Restriction enzyme
- Ligase
- Polymerase
- Gyrase

55 of 100

190 PU_2015_303

The first reaction in glycolysis is phosphorylation of glucose, which is catalyzed by:-

- Hexokinase
- Aldolase
- Caboxylase
- Triose isomerase

56 of 100

188 PU_2015_303

The key organic acid involved in amino acid formation in the TCA cycle is:-

- α -ketoglutaric acid
- Succinic acid
- Oxaloacetic acid
- Citric acid

57 of 100

141 PU_2015_303

The class of enzymes that are involved in triggering events in the cell cycle are called:-

- Nucleases
- Proteases
- Kinases
- Ligases

58 of 100

198 PU_2015_303

The 5'-3' exonuclease activity is associated with:-

- DNA pol III
- DNA pol IV
- DNA pol I
- DNA pol II

59 of 100

136 PU_2015_303

Which of these is required for aerobic cellular respiration?

- Carbon dioxide
- Sunlight
- Chlorophyll
- Oxygen

60 of 100

125 PU_2015_303

When pressure increases:-

- temperature decreases drastically
- temperature increases
- temperature decreases slightly
- temperature remains the same

61 of 100

251 PU_2015_303

Hybridoma is the:-

- Fusion of plant cell and microorganism
- Fusion of T cells and myeloma cell
- Fusion of plant and animal cell
- Fusion of B cells and myeloma cell

62 of 100

221 PU_2015_303

Living, unstained wild type cells and microorganisms can be best observed using:-

- Fluorescent Microscopy
- Phase contrast microscopy
- TEM
- Naked eye

63 of 100

247 PU_2015_303

One atomic mass unit equals:-

- 1.67×10^{-27} kg
- 1.67×10^{-26} kg
- 1.67×10^{-28} kg
- 1.67×10^{-25} kg

64 of 100

241 PU_2015_303

What is the average lifetime of erythrocytes after entering the blood?

- 200 days
- 120 days
- 10 days
- 360 days

65 of 100

255 PU_2015_303

Lichens are described as indicator of:-

- Soil pollution
- Water pollution
- Air pollution
- Agriculture productivity

66 of 100

233 PU_2015_303

Protoplast fusion could be encouraged by addition of:-

- Calcium chloride
- Nitrogen mustard
- Polyethelene glycol
- Ethidium bromide

67 of 100

239 PU_2015_303

Which of the following types of molecules is always found in prions?

- Protein
- DNA
- Lipid
- Carbohydrate

68 of 100

223 PU_2015_303

Ribosome display method is used to detect:-

- DNA-RNA interactions
- Protein-DNA interactions
- Protein-RNA interactions
- Protein-protein interactions

69 of 100

258 PU_2015_303

Locomotor organelle of *Amoeba* is:-

- Pseudopodia
- Flagella
- Cilia
- Pili

70 of 100

257 PU_2015_303

The loss of an electron by a molecule is called:-

- Induced fit
- Enthalpy
- Reduction
- Oxidation

71 of 100

229 PU_2015_303

A mutation deleting an upstream activating sequence for a single gene would be expected to be:-

- polar
- silent
- cis*-dominant
- trans*-dominant

72 of 100

235 PU_2015_303

The largest fragment of foreign DNA could be maintained in which of the following vector?

- Phage
- Cosmid
- YAC
- Plasmid

73 of 100

249 PU_2015_303

The process by which viruses bring about bacterial recombination is termed:-

- Induction
- Transduction
- Transformation
- Conjugation

74 of 100

227 PU_2015_303

Di-nitrophenol (DNP) uncouples mitochondrial electron transport from oxidative phosphorylation by:-

- dissociating the F₀ and F₁ units of the ATP synthase complex
- inhibiting cytochrome oxidase
- binding irreversibly to ubiquinone
- dissipating the proton gradient

75 of 100

245 PU_2015_303

The random movement of particles in solution towards a uniform distribution is termed:-

- Facilitated diffusion
- Repulsion
- Diffusion
- Osmosis

76 of 100

225 PU_2015_303

All of the following are proteins within the core nucleosome particle except:-

- H2A
- H3
- H1
- H2B

77 of 100

253 PU_2015_303

Protein which plays a significant role in ageing is:-

- Myosin
- Collagen
- Actin
- Elastin

78 of 100

237 PU_2015_303

Acid-Fast staining is used to identify:-

- Mycobacterium
- Bacillus
- Penicillium
- Pseudomonas

79 of 100

231 PU_2015_303

Where do the protons accumulate in mitochondria?

- intermembrane space
- outer membrane
- inner membrane
- matrix

80 of 100

243 PU_2015_303

Tiny cluster of microscopic particles of less than 100 nm are called:-

- Nanoparticles
- Macroparticle
- Mineral particles
- Microparticles

81 of 100

293 PU_2015_303

Antibodies or immunoglobulins are made up of:-

- lipoproteins
- phospholipids
- nucleoproteins
- glycoproteins

82 of 100

277 PU_2015_303

The portion of the cardiac glycosides to which a sugar molecule is bonded are:-

- carbohydrates
- proteins
- membranes
- steroids

83 of 100

297 PU_2015_303

The helices in the α supersecondary structure are held together primarily by:-

- Favorable R group interactions
- Charge – charge interactions
- Covalent cross links
- Main chain hydrogen bonding

84 of 100

283 PU_2015_303

Cotton Bollworm namely *Helicoverpaarmigera* belong to the order:-

- Arthropoda
- Lepidoptera
- Diptera
- Coleoptera

85 of 100

269 PU_2015_303

Sulfa drugs resemble *p*-aminobenzoate and acts as a competitive inhibitor and therefore are used as antibiotics. Which pathway do sulfa drugs act upon?

- Purine biosynthesis
- Peptidoglycan biosynthesis
- Folic acid biosynthesis
- Lipid biosynthesis

86 of 100

291 PU_2015_303

Water acts as a substrate in:-

- Osmosis
- Photosynthesis
- Transpiration
- Fertilization

87 of 100

281 PU_2015_303

The net gain of ATP in glycolysis is:-

- 8
- 38
- 2
- 4

88 of 100

275 PU_2015_303

Gause's hypothesis/principle is not related to:-

- No competition
- Niche specialization
- Principle of competitive exclusion
- Inter-specific competition

89 of 100

279 PU_2015_303

Which of the following is semisynthetic antibiotic?

- Penicillin G
- Penicillin
- Streptomycin
- Ampicillin

90 of 100

287 PU_2015_303

Quantitative trait refers to a trait controlled by:-

- Oligo gene
- No gene
- Multiple genes
- Cytoplasmic genes

91 of 100

299 PU_2015_303

Mitochondrial lipogenesis requires:-

- Acetyl CoA carboxylase
- Biotin
- NADPH
- Bicarbonate

92 of 100

271 PU_2015_303

Vitamins are essential to the human diet because they act as:-

- cofactors
- neurotransmitters
- coenzymes
- hormones

93 of 100

261 PU_2015_303

Methanogens do not use one of the following as food source:-

- Methanol
- Formic Acid
- H₂ + CO₂
- Acetic acid

94 of 100

289 PU_2015_303

Which one of the following types of RNA serves as precursor of mRNA and other RNAs?

- hnRNA
- scRNA
- snRNA
- tRNA

95 of 100

273 PU_2015_303

Penicillin-G is an antibiotic that inhibits peptidoglycan synthesis thereby blocking cell wall synthesis. If a gram positive bacterium is kept in an isotonic solution with an inhibitory concentration of penicillin, which of the following observation will be true?

- They will cease to grow, but remain alive
- They will be unable to synthesize cell wall and therefore get lysed
- They will be unable to synthesize cell wall but grow normally
- Penicillin will be unable to diffuse through the cell wall

96 of 100

263 PU_2015_303

What is the difference between apoptosis and necrosis?

- Apoptosis is cell death due to damage that occurs during embryogenesis; necrosis is cell death due to damage that occurs during adulthood
- Apoptosis is a programmed cellular destruction; necrosis is cell death due to damage
- Apoptosis is a property of differentiated cells; necrosis only occurs to undifferentiated cells
- Apoptosis is death of a differentiated cell; necrosis is the death of an undifferentiated cell

97 of 100

265 PU_2015_303

What is the full name of NDM-1?

- New-Delhi Metallo- β -lactam-1
- Non-Delhi Metallo- β -lactamase-1
- New-Delhi Metallo- β -lactamase-1
- Non-Delhi Metallo- β -lactam-1

98 of 100

285 PU_2015_303

Jumping genes were discovered by:-

- Bradford
- Sanger
- Barbara Maclintok
- Watson & Crick

99 of 100

295 PU_2015_303

A lysogen is:-

- Presence of colicin-producing plasmid in bacteria causing self-lysis
- Specific strains of *E.coli* which can produce restriction enzyme and self-protect against bacteriophage infection
- An extract obtained after lysis of bacterial cell by bacteriophage
- A bacteriophage DNA inserted into chromosome of bacterial cell

100 of 100

267 PU_2015_303

One of the following that is not useful in the diagnosis of HIV infection is:-

- antibodies by enzyme-linked immunosorbent assay
- polymerase chain reaction
- CD4:CD8 ratio
- CD2:CD4 ratio