DU MSc Biochemistry

Topic:- DU_J18_MSC_BIOCHEM

1) Which of the following organism is exploited for transfer of genes in plants?

[Question ID = 51640]

1. *Clostridium perfringens* [Option ID = 86555]
2. *Staphylococcus aureus* [Option ID = 86553]
3. *Agrobacterium tumefaciens* [Option ID = 86552]
4. *Escherichia coli* [Option ID = 86554]

Correct Answer :-

- *Agrobacterium tumefaciens* [Option ID = 86552]

2) Which of the following defects in the adrenal cortex leads to lack of glucocorticoids and mineralocorticoids?

[Question ID = 51616]

1. Testosterone deficiency [Option ID = 86458]
2. Androstenedione deficiency [Option ID = 86457]
3. Estrone deficiency [Option ID = 86459]
4. C 21 hydroxylase deficiency [Option ID = 86456]

Correct Answer :-

- C 21 hydroxylase deficiency [Option ID = 86456]

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

[Question ID = 51585]

1. It always leads to a reduced binding of substrate [Option ID = 86335]
2. The inhibitor binds to some other site than the active site of the enzyme [Option ID = 86332]
3. The inhibitor binds to the active site of the enzyme [Option ID = 86333]
4. It causes the enzyme to work faster [Option ID = 86334]

Correct Answer :-

- The inhibitor binds to some other site than the active site of the enzyme [Option ID = 86332]

4) Which of the following is true about Michaelis-Menten kinetics?

[Question ID = 51571]

1. It assumes that covalent binding occurs between enzyme and substrate [Option ID = 86279]
2. K_m, the Michaelis constant, is defined as that concentration of substrate at which enzyme is working at maximum velocity [Option ID = 86276]
3. K_m, the Michaelis constant is defined as the dissociation constant of the enzyme-substrate complex [Option ID = 86278]
4. It describes single substrate enzymes [Option ID = 86277]

Correct Answer :-

- It describes single substrate enzymes [Option ID = 86277]

5) Which of the following increases Ca^{+2} release from ER

[Question ID = 51609]

1. Diacylglycerol (DAG) [Option ID = 86431]
2. Parathyroid hormone [Option ID = 86429]
3. Calcitonin [Option ID = 86430]
4. Inositol triphosphate [Option ID = 86428]

Correct Answer :-

- Inositol triphosphate [Option ID = 86428]

6) Intrinsic fluorescence of GFP is contributed by: [Question ID = 51644]

1. Cyclization and oxidation of residues: Ser-Tyr-Gly [Option ID = 86568]
2. Cyclization and oxidation of residues: Ser-Tyr-Pro [Option ID = 86571]
3. Cyclization and oxidation of residues: Ser-Pro-Gly [Option ID = 86569]
4. Cyclization and oxidation of residues: Tyr-Gly-Pro [Option ID = 86570]

Correct Answer :-

- Cyclization and oxidation of residues: Ser-Tyr-Gly [Option ID = 86568]

7) Intrinsic fluorescence of proteins is primarily contributed by: [Question ID = 51633]

1. Histidine [Option ID = 86526]
2. Proline [Option ID = 86527]
3. Cysteine [Option ID = 86524]
4. Tryptophan [Option ID = 86525]

Correct Answer :-

- Tryptophan [Option ID = 86525]

8) Angiotensin converting enzyme inhibitor are used to treat [Question ID = 51580]

1. Diabetes [Option ID = 86312]
2. Obesity [Option ID = 86315]
3. Hypertension [Option ID = 86313]
4. Hyperthyroidism [Option ID = 86314]

Correct Answer :-

- Hypertension [Option ID = 86313]

9) Hashimoto's disease is [Question ID = 51599]

1. a viral disease [Option ID = 86391]
2. an autoimmune disorder that causes hypoglycemia [Option ID = 86390]
3. an autoimmune disorder that causes hypothyroidism [Option ID = 86389]
4. an autoimmune disorder that causes hyperthyroidism [Option ID = 86388]

Correct Answer :-

- an autoimmune disorder that causes hypothyroidism [Option ID = 86389]

10) Lovastatin is a [Question ID = 51667]

1. Competitive inhibitor of HMG CoA synthetase [Option ID = 86661]
2. Non-competitive inhibitor of HMG CoA reductase [Option ID = 86662]
3. Competitive inhibitor of acetyl CoA carboxylase [Option ID = 86660]
4. Competitive inhibitor of HMG CoA reductase [Option ID = 86663]

Correct Answer :-

- Competitive inhibitor of HMG CoA reductase [Option ID = 86663]

11) FACS is used to measure two types of scatters, namely forward and side. What physical properties are determined by these parameters? [Question ID = 51572]

1. Forward- Granularity of the cell; Side-Size of the cell [Option ID = 86281]
2. Forward- Volume of the cell; Side-Size of the cell [Option ID = 86283]
3. Forward- Size of the cell; Side- Granularity of the cell [Option ID = 86280]
4. Forward- Size of the cell; Side-Volume of the cell [Option ID = 86282]

Correct Answer :-

- Forward- Size of the cell; Side- Granularity of the cell [Option ID = 86280]

12) Snake venom phosphodiesterase is a: [Question ID = 51601]

1. Restriction endonuclease [Option ID = 86398]
2. Lipase [Option ID = 86399]
3. Endonuclease [Option ID = 86397]
4. Exonuclease [Option ID = 86396]

Correct Answer :-

- Exonuclease [Option ID = 86396]

13) The active site of chymotrypsin consists of a catalytic triad composed of which of the following amino acid residues? [Question ID = 51603]

1. Serine, histidine and aspartate [Option ID = 86404]
2. Serine, histidine and glutamate [Option ID = 86405]
3. Threonine, histidine and aspartate [Option ID = 86406]
4. Methionine, histidine and aspartate [Option ID = 86407]

Correct Answer :-

- Serine, histidine and aspartate [Option ID = 86404]

14) Passive administration of antibodies is employed as a mechanism for providing immediate protection against several toxins and pathogens. Which of the following are treated by passive immunization? [Question ID = 51648]

1. Tuberculosis [Option ID = 86584]
2. Botulism [Option ID = 86585]
3. Typhoid [Option ID = 86586]
4. Leprosy [Option ID = 86587]

Correct Answer :-

- Botulism [Option ID = 86585]

15) Folic acid is important for [Question ID = 51606]

1. Fatty acid oxidation [Option ID = 86418]
2. Fatty acid synthesis [Option ID = 86417]
3. Gluconeogenesis [Option ID = 86419]
4. One carbon metabolism [Option ID = 86416]

Correct Answer :-

- One carbon metabolism [Option ID = 86416]

16) Patients with cystic fibrosis have mutation in the gene that codes for a [Question ID = 51577]

1. Chloride ion channel [Option ID = 86302]
2. Toll like receptor [Option ID = 86303]
3. IFN-γ receptor [Option ID = 86301]
4. Potassium channel [Option ID = 86300]

Correct Answer :-

- Chloride ion channel [Option ID = 86302]

17) Dolly sheep was created by: [Question ID = 51639]

1. Artificial insemination [Option ID = 86548]
2. Somatic cell nuclear transfer [Option ID = 86549]
3. Embryonic stem cell mediated gene transfer [Option ID = 86550]
4. Pronuclear microinjection [Option ID = 86551]

Correct Answer :-

- Somatic cell nuclear transfer [Option ID = 86549]

18) On exposure to a pathogen, diagnostic tests showed increase in neutrophil count. What kind of pathogen is the patient most likely to be affected with ?

[Question ID = 51634]

1. *Influenza* [Option ID = 86529]
2. *Staphylococcus aureus* [Option ID = 86528]
3. *Plasmodium* [Option ID = 86530]
4. HIV [Option ID = 86531]

Correct Answer :-

- *Staphylococcus aureus* [Option ID = 86528]

19) AB is a substrate for enzyme D which converts AB to AC. In the presence of an competitive inhibitor E in place of substrate AB, the enzyme's,

[Question ID = 51604]

1. K_m increases and V_{max} remains same [Option ID = 86409]
2. K_m increases and V_{max} decreases [Option ID = 86410]
3. K_m decreases and V_{max} increases [Option ID = 86408]
4. K_m and V_{max} both remains same [Option ID = 86411]

Correct Answer :-

- K_m increases and V_{max} remains same [Option ID = 86409]

20) In the liver gluconeogenesis is induced in response to which of the following molecules? [Question ID = 51660]

1. Insulin [Option ID = 86633]
2. cAMP [Option ID = 86632]
3. cGMP [Option ID = 86634]
4. ATP [Option ID = 86635]

Correct Answer :-

- cAMP [Option ID = 86632]

21) The rate limiting step of urea cycle is mediated by [Question ID = 51593]

1. Arginase [Option ID = 86367]
2. Carbamoyl phosphate synthetase I [Option ID = 86365]
3. Arginosuccinate synthetase [Option ID = 86366]
4. Ornithine transcarbamoylase [Option ID = 86364]

Correct Answer :-

- Carbamoyl phosphate synthetase I [Option ID = 86365]

22) How many ATP molecules are produced by one glucose in aerobic respiration? [Question ID = 51589]

1. 38 [Option ID = 86349]
2. 28 [Option ID = 86351]
3. 42 [Option ID = 86350]
4. 40 [Option ID = 86348]

Correct Answer :-

- 38 [Option ID = 86349]

23) A 32 year old man is fasting for religious purpose for several days. Which of the following will be utilized by the brain as an alternative source of energy? [Question ID = 51613]

1. Alanine [Option ID = 86446]
2. Beta-hydroxy butyrate [Option ID = 86447]
3. Fatty acids [Option ID = 86444]
4. Glycerol [Option ID = 86445]

Correct Answer :-

- Beta-hydroxy butyrate [Option ID = 86447]

24) Individuals with familial hypercholesterolemia have mutations in the:

[Question ID = 51612]

1. LDL receptor [Option ID = 86442]
2. Ferritin receptor [Option ID = 86441]
3. HDL receptor [Option ID = 86443]
4. Insulin receptor [Option ID = 86440]

Correct Answer :-

- LDL receptor [Option ID = 86442]

25) The process by which an amino acid catabolizes its carbon chain into acetoacetyl CoA is considered to be [Question ID = 51586]

1. Glycogenic [Option ID = 86336]
2. Both glycogenic and ketogenic [Option ID = 86338]
3. Neither glycogenic nor ketogenic [Option ID = 86339]
4. Ketogenic [Option ID = 86337]

Correct Answer :-

- Ketogenic [Option ID = 86337]

26) A human enzyme contains 4 disulphide bonds, essential for its folding. The enzyme was expressed in the oxidising environment of periplasm of *E. coli* host BL21 (DE3) RIL and was found to be inactive. However, the expression of the same enzyme in the oxidising environment of cytosol of *E. coli* Shuffle strain led to fully active enzyme. Which of the following is the likely reason for this observation?

[Question ID = 51631]

1. Cytosol of *E. coli* Shuffle provides cofactor required for enzyme's activity [Option ID = 86517]
2. Cytosol of *E. coli* Shuffle provides more space for enzyme to fold. [Option ID = 86516]
3. Periplasm is rich in proteases that inactivate the enzyme. [Option ID = 86519]
4. The enzyme for disulphide bond formation is only present in *E. coli* cytosol. [Option ID = 86518]

Correct Answer :-

- Cytosol of *E. coli* Shuffle provides cofactor required for enzyme's activity [Option ID = 86517]

27) An unknown bacteriophage has a base composition of 23 % A, 36 % T, 21 % G, and 20 % C. Its genome is likely to be: [Question ID = 51627]

1. Double stranded RNA [Option ID = 86502]
2. Double stranded DNA [Option ID = 86503]
3. Single stranded DNA [Option ID = 86501]
4. Single stranded RNA [Option ID = 86500]

Correct Answer :-

- Double stranded DNA [Option ID = 86503]

28) Deficiency of iodine will cause which of the following? [Question ID = 51614]

1. Decreased secretion of TSH [Option ID = 86450]
2. Increased basal metabolic rate [Option ID = 86451]
3. Increased secretion of TSH [Option ID = 86449]
4. Directly affect the synthesis of thyroglobin [Option ID = 86448]

Correct Answer :-

- Increased secretion of TSH [Option ID = 86449]

29) If enthalpy change for a reaction is zero, then ΔG° equals to

[Question ID = 51669]

1. $\ln k_{eq}$ [Option ID = 86671]
2. -ΔE° [Option ID = 86670]
3. -TΔS° [Option ID = 86668]
4. TΔS° [Option ID = 86669]

Correct Answer :-

- -TΔS° [Option ID = 86668]

30) Peptides get loaded on the MHC-Class I molecules in which part of the cell? [Question ID = 51596]

1. Lysosome [Option ID = 86378]
2. Mitochondria [Option ID = 86376]
3. Endoplasmic Reticulum [Option ID = 86379]
4. Cytosol [Option ID = 86377]

Correct Answer :-

- Endoplasmic Reticulum [Option ID = 86379]

31) Where do T-lymphocytes develop into fully competent but not activated T-cells? [Question ID = 51576]

1. The thyroid gland [Option ID = 86298]
2. The thymus gland [Option ID = 86296]
3. The bone marrow [Option ID = 86299]
4. The lymph nodes [Option ID = 86297]

Correct Answer :-

- The thymus gland [Option ID = 86296]

32) Lactose deficiency is characterized by the inability to hydrolyze: [Question ID = 51664]

1. Alpha-1,4-glucosidic bonds [Option ID = 86648]
2. Beta-1,6-galactosidic bonds [Option ID = 86649]
3. Beta-1,4-glucosidic bonds [Option ID = 86650]
4. Beta-1,4-galactosidic bonds [Option ID = 86651]

Correct Answer :-

- Beta-1,4-galactosidic bonds [Option ID = 86651]

33) DNA polymerase I does not contain the following activity: [Question ID = 51598]

1. 5′-3′ exonuclease activity [Option ID = 86386]
2. 3′-5′ exonuclease activity [Option ID = 86385]
3. 5′-3′ polymerase activity [Option ID = 86384]
4. 5′-3′ endonuclease activity [Option ID = 86387]

Correct Answer :-

- 5′-3′ endonuclease activity [Option ID = 86387]

34) If taken in equal amount, which of the following antibodies would be most efficient in causing agglutination of RBCs? [Question ID = 51625]

1. IgE [Option ID = 86495]
2. IgM [Option ID = 86492]
3. IgD [Option ID = 86493]
4. IgG [Option ID = 86494]

Correct Answer :-

- IgM [Option ID = 86492]

35) In bacteriophage λ life cycle high levels of CII protein leads to [Question ID = 51595]

1. High levels of C1 repressor and subsequent lytic cycle [Option ID = 86374]
2. High levels of C1 repressor and subsequent lysogeny [Option ID = 86375]
3. Low levels of C1 repressor and subsequent lysogeny [Option ID = 86373]
4. Low levels of C1 repressor and subsequent lytic cycle [Option ID = 86372]

Correct Answer :-

- Low levels of C1 repressor and subsequent lytic cycle [Option ID = 86372]

36) What happens if citrate concenteration is increased during glycolysis ? [Question ID = 51602]

1. Inhibits triose phosphate isomerase and increase glycolysis [Option ID = 86401]
2. Inhibits phosphoglyceratekinase and slows down glycolysis [Option ID = 86402]
3. Inhibits phosphofructokinase and slows down glycolysis [Option ID = 86400]
4. Inhibits phosphofructokinase and increases glycolysis [Option ID = 86403]

Correct Answer :-

- Inhibits phosphofructokinase and slows down glycolysis [Option ID = 86400]

37) A student performed immuno-precipitation with anti-J chain antibodies. Which of the following class of antibodies are expected to be immuno-precipitated predominantly? [Question ID = 51624]

1. IgG [Option ID = 86488]
2. IgM [Option ID = 86489]
3. IgE [Option ID = 86491]
4. IgD [Option ID = 86490]

Correct Answer :-

- IgM [Option ID = 86489]

38) A researcher wants to clone a PCR amplified insert (1 kb) into a PCR amplified vector backbone (4 kb) using blunt end ligation. The PCR was performed with Pfu DNA polymerase to reduce error rate. For successful cloning, the PCR amplified insert should be treated with which of the following enzymes before setting up the ligation reaction? [Question ID = 51575]

1. T4 DNA polymerase [Option ID = 86292]
2. Klenow fragment exo- [Option ID = 86293]
3. Terminal transferase [Option ID = 86295]

4. T4 polynucleotide kinase [Option ID = 86294]

Correct Answer :-

- T4 polynucleotide kinase [Option ID = 86294]

39) A researcher was trying to express a highly toxic protein cloned under T7 promoter in BL21 (DE3) host. However, the culture OD was insufficient for induction of expression and culture showed lysis. Which of the following strains is better suited for such an application? [Question ID = 51626]

1. BL21 (DE3) pLysS [Option ID = 86498]
2. BL21 (DE3) Shuffle [Option ID = 86499]
3. BL21 (DE3) Origami [Option ID = 86497]
4. BL21 (DE3) RIL [Option ID = 86496]

Correct Answer :-

- BL21 (DE3) pLysS [Option ID = 86498]

40) Secretion of progesterone from corpus luteum is stimulated by: [Question ID = 51655]

1. Thyroid stimulating hormone [Option ID = 86612]
2. Follicle stimulating hormone [Option ID = 86613]
3. Luteinizing hormone [Option ID = 86615]
4. Prolactin [Option ID = 86614]

Correct Answer :-

- Luteinizing hormone [Option ID = 86615]

41) In case of pET expression systems, the host strain can be transformed with pLysE plasmids, which allow expression of T7 Lysozyme. Which of the following properties of this enzyme are correct? [Question ID = 51600]

1. It promotes cell lysis and reduces the division time of host cells [Option ID = 86394]
2. It promotes cell lysis and inhibits transcription by T7 RNA polymerase [Option ID = 86392]
3. It promotes cell lysis and facilitates folding of expressed protein [Option ID = 86395]
4. It promotes cell lysis and promotes transcription by T7 RNA polymerase [Option ID = 86393]

Correct Answer :-

- It promotes cell lysis and inhibits transcription by T7 RNA polymerase [Option ID = 86392]

42) S-Adenosyl methionine is required for the synthesis of which of the following? [Question ID = 51617]

1. Serotonin [Option ID = 86462]
2. Melanin [Option ID = 86461]
3. Thyroid hormone [Option ID = 86460]
4. Epinephrine [Option ID = 86463]

Correct Answer :-

- Serotonin [Option ID = 86462]

43) The cells that tear down and remodel bone are the [Question ID = 51605]

1. Osteocytes [Option ID = 86413]
2. Macrophages [Option ID = 86415]
3. Osteoclasts [Option ID = 86414]
4. Osteoblasts [Option ID = 86412]

Correct Answer :-

- Osteoclasts [Option ID = 86414]

44) In which type of chromatography, solvents of increasing polarity are passed through a column of silica gel? [Question ID = 51574]

1. Thin layer chromatography [Option ID = 86289]
2. Gas-liquid chromatography [Option ID = 86291]
3. Adsorption chromatography [Option ID = 86290]
4. Lectin affinity chromatography [Option ID = 86288]

Correct Answer :-

- Adsorption chromatography [Option ID = 86290]

45)

An Indian student applied for post doctorate fellowship in Singapore and was asked to undergo test for Tuberculosis. He went to AIIMS, New Delhi for testing. The Tuberculin skin test (1st test) turned out to be positive, however, culture-based confirmation test (2nd test) revealed that he was negative for tuberculosis. What is the most likely reason for this observation? [Question ID = 51630]

1. The student was vaccinated with BCG. [Option ID = 86513]
2. The student had autoimmune antibodies [Option ID = 86512]
3. The 1st test was not performed correctly [Option ID = 86514]
4. The 2nd test was not performed correctly. [Option ID = 86515]

Correct Answer :-

- The student was vaccinated with BCG. [Option ID = 86513]

46) Melt curve analysis is routinely performed during real time PCR. It is used for: [Question ID = 51636]

1. Specificity of the reaction [Option ID = 86538]
2. Quantification of the amplicon. [Option ID = 86536]
3. Quantification of the amplicon. [Option ID = 86537]
4. Melting temperature of primers [Option ID = 86539]

Correct Answer :-

- Specificity of the reaction [Option ID = 86538]

47) What is the action of sildenafil? [Question ID = 51656]

1. Phosphodiesterase activator [Option ID = 86617]
2. Phosphodiesterase inhibitor [Option ID = 86616]
3. Phospholipase inhibitor [Option ID = 86618]
4. Phospholipase activator [Option ID = 86619]

Correct Answer :-

- Phosphodiesterase inhibitor [Option ID = 86616]

48) What is cas9 in CRISPR-Cas9-based DNA editing tool? [Question ID = 51646]

1. It is a RNA molecule that provides specificity to the editing process [Option ID = 86576]
2. It is a RNA molecule that cleaves target DNA. [Option ID = 86578]
3. It is a protein molecule that cleaves the target DNA [Option ID = 86577]
4. It is a protein molecule that cleaves the guide RNA. [Option ID = 86579]

Correct Answer :-

- It is a protein molecule that cleaves the target DNA [Option ID = 86577]

49) What is the phenotypic effect of Sam7 mutation on lambda bacteriophage? [Question ID = 51629]

1. It causes accumulation of bacteriophages in cells [Option ID = 86508]
2. It prevents packaging of DNA inside bacteriophage head [Option ID = 86510]
3. It makes lambda bacteriophage non-infectious [Option ID = 86509]
4. It inhibits bacteriophage replication [Option ID = 86511]

Correct Answer :-

- It causes accumulation of bacteriophages in cells [Option ID = 86508]

50) What is the correct order of use of different enzymes in a typical cycle of pyrosequencing reaction? [Question ID = 51623]

1. DNA polymerase, Apyrase, Luciferase, ATP sulphurylase [Option ID = 86486]
2. DNA polymerase, Luciferase, Apyrase, ATP sulphurylase [Option ID = 86487]
3. DNA polymerase, Luciferase, ATP sulphurylase, Apyrase [Option ID = 86485]
4. DNA polymerase, ATP sulphurylase, Luciferase, Apyrase [Option ID = 86484]

Correct Answer :-

- DNA polymerase, ATP sulphurylase, Luciferase, Apyrase [Option ID = 86484]

51) Surface Plasmon resonance (SPR) is widely employed to characterize antibodies. Which of the following cannot be determined using SPR? [Question ID = 51650]

1. Equilibrium dissociation constant of the antibody [Option ID = 86594]
2. Glycosylation of the antibody [Option ID = 86595]
3. Dissociation rate constant of the antibody [Option ID = 86593]
4. Association rate constant of the antibody [Option ID = 86592]

Correct Answer :-

- Glycosylation of the antibody [Option ID = 86595]

52) Phage display is an elegant technology to display proteins on bacteriophage surface. M13 bacteriophage is widely used for phage display. Which of the following proteins cannot be employed to display a peptide fragment on M13 bacteriophage surface? [Question ID = 51573]

1. gIVp [Option ID = 86287]
2. gVIIIp [Option ID = 86286]
3. gVIIp [Option ID = 86285]
4. gIIIp [Option ID = 86284]

Correct Answer :-

- gIVp [Option ID = 86287]

53) Iodine deficiency in an adult male will lead to: [Question ID = 51654]

1. Decreased secretion of thyroid stimulating hormone [Option ID = 86609]
2. Increased secretion of thyroid stimulating hormone [Option ID = 86608]
3. Increase metabolic rate [Option ID = 86611]
4. Increased heart rate and blood pressure [Option ID = 86610]

Correct Answer :-

- Increased secretion of thyroid stimulating hormone [Option ID = 86608]

54) During the growth of mammalian cells, the growth media was supplemented with radioactive amino acids. Which of the following molecules will be labelled? (I) Proteins (II) Ribosomes (III) RNA (IV) Glycolipids [Question ID = 51628]

1. I and IV [Option ID = 86506]
2. I and II [Option ID = 86504]
3. I and III [Option ID = 86505]
4. II and III [Option ID = 86507]

Correct Answer :-

- I and II [Option ID = 86504]

55) Lymphatic filariasis is caused by [Question ID = 51587]

1. Virus [Option ID = 86340]
2. Parasite [Option ID = 86342]
3. Bacteria [Option ID = 86341]
4. Fungi [Option ID = 86343]

Correct Answer :-

- Parasite [Option ID = 86342]

56) A patient diagnosed with Urticaria will have elevated levels of: [Question ID = 51638]

1. IgM [Option ID = 86547]
2. IgE [Option ID = 86546]
3. IgG [Option ID = 86545]
4. IgA [Option ID = 86544]

Correct Answer :-

- IgE [Option ID = 86546]

57) Cyanogen bromide is used for cleavage of proteins. The target site for cleavage is: [Question ID = 51653]

1. C-terminal end of methionine residue [Option ID = 86605]
2. C-terminal end of proline residue [Option ID = 86607]
3. C-terminal end of asparagine residue [Option ID = 86604]
4. C-terminal end of glycine residue [Option ID = 86606]

Correct Answer :-

- C-terminal end of methionine residue [Option ID = 86605]

58) The flow of electrons through the respiratory chain is uncoupled by which of the following: [Question ID = 51668]

1. Thermogenin [Option ID = 86666]

2. Carbon monoxide [Option ID = 86667]
3. Oligomycin [Option ID = 86665]
4. Cyanide [Option ID = 86664]

Correct Answer :-

- Thermogenin [Option ID = 86666]

59) Which of the following is an example of attenuated vaccine? [Question ID = 51641]

1. Tetanus [Option ID = 86557]
2. Hepatitis B [Option ID = 86558]
3. Yellow fever [Option ID = 86556]
4. Meningococcal [Option ID = 86559]

Correct Answer :-

- Yellow fever [Option ID = 86556]

60) Albinism is caused by the deficiency of [Question ID = 51662]

1. Tyrosinase [Option ID = 86640]
2. HMG CoA reductase [Option ID = 86642]
3. Phenylalanine hydroxylase [Option ID = 86641]
4. Arginase [Option ID = 86643]

Correct Answer :-

- Tyrosinase [Option ID = 86640]

61) The cause of vitamin B12 deficiency is [Question ID = 51584]

1. Thalassemia [Option ID = 86330]
2. Pernicious anemia [Option ID = 86331]
3. Sickle cell anemia [Option ID = 86329]
4. Hypertension [Option ID = 86328]

Correct Answer :-

- Pernicious anemia [Option ID = 86331]

62) An adult female was prescribed statins, which are a class of cholesterol reducing drugs. Which of the following is the target of these drugs? [Question ID = 51657]

1. ALT [Option ID = 86623]
2. Lipase [Option ID = 86622]
3. HMG CoA reductase [Option ID = 86620]
4. Cholecalciferol [Option ID = 86621]

Correct Answer :-

- HMG CoA reductase [Option ID = 86620]

63) Inclusion of salt during gel filtration is useful to [Question ID = 51621]

1. Reduce the proteolytic degradation of proteins during purification [Option ID = 86479]
2. Allow separation of proteins on basis of pI along with molecular weight [Option ID = 86477]
3. Allow separation of proteins of same molecular weight [Option ID = 86476]
4. Reduce non-specific interaction of proteins with gel matrix [Option ID = 86478]

Correct Answer :-

- Reduce non-specific interaction of proteins with gel matrix [Option ID = 86478]

64) Who discovered and described the blood groups (ABO) classification? [Question ID = 51570]

1. Theodor Kocher [Option ID = 86272]
2. Karl Hooper [Option ID = 86275]
3. Otto Warburg [Option ID = 86274]
4. Karl Landsteiner [Option ID = 86273]

Correct Answer :-

- Karl Landsteiner [Option ID = 86273]

65) Morphine is an analgesic that works similarly to which of the following endogenously produced substance? [Question ID = 51618]

1. Lipotropin [Option ID = 86467]
2. ACTH [Option ID = 86464]
3. Endorphin [Option ID = 86466]
4. Epinephrine [Option ID = 86465]

Correct Answer :-

- Endorphin [Option ID = 86466]

66) TA cloning is one of the most commonly employed technique for cloning inserts in desired vectors. Which of the following enzymes can be employed for preparing inserts for TA cloning? [Question ID = 51649]

1. Pfu DNA polymerase [Option ID = 86588]
2. Klenow exo- [Option ID = 86591]
3. Vent DNA polymerase [Option ID = 86589]
4. Adenylate kinase [Option ID = 86590]

Correct Answer :-

- Klenow exo- [Option ID = 86591]

67) Which of the following enzyme regulate nitrogen fixation? [Question ID = 51594]

1. Histidine Kinase [Option ID = 86371]
2. Dinitrogenase oxidase [Option ID = 86369]
3. Dinitrogenase reductase [Option ID = 86368]
4. Tyrosine Phosphatase [Option ID = 86370]

Correct Answer :-

- Dinitrogenase reductase [Option ID = 86368]

68) Which of the following hormone helps in increased reabsorption of water from the kidneys? [Question ID = 51619]

1. Cortisol [Option ID = 86470]
2. Aldosterone [Option ID = 86469]
3. Vasopressin [Option ID = 86468]
4. Glucagon [Option ID = 86471]

Correct Answer :-

- Vasopressin [Option ID = 86468]

69) Which of the following event occurs during the reduction of FAD? [Question ID = 51663]

1. A flavin group is transferred [Option ID = 86644]
2. The isoalloxazine ring becomes charged [Option ID = 86646]
3. Two hydrogen atoms are added to the isoalloxazine ring [Option ID = 86647]
4. An equivalent of a hydride ion is transferred [Option ID = 86645]

Correct Answer :-

- Two hydrogen atoms are added to the isoalloxazine ring [Option ID = 86647]

70) Which of the following is the correct combination of marker enzymes used to identify different organelles during subcellular fractionation of eukaryotic tissue? [Question ID = 51637]

1. Cytosol-Catalase; Mitochondria-Succinate Dehydrogenase; Lysosome-Acid phosphatase; Peroxisome-Lactate Dehydrogenase [Option ID = 86543]
2. Cytosol-Acid phosphatase; Mitochondria-Succinate Dehydrogenase; Lysosome-Lactate Dehydrogenase; Peroxisome-Catalase [Option ID = 86542]
3. Cytosol-Lactate Dehydrogenase; Mitochondria-Succinate Dehydrogenase; Lysosome-Acid phosphatase; Peroxisome-Catalase [Option ID = 86540]
4. Cytosol-Succinate Dehydrogenase; Mitochondria-Lactate Dehydrogenase; Lysosome-Acid phosphatase; Peroxisome-Catalase [Option ID = 86541]

Correct Answer :-

- Cytosol-Lactate Dehydrogenase; Mitochondria-Succinate Dehydrogenase; Lysosome-Acid phosphatase; Peroxisome-Catalase [Option ID = 86540]

71) Which of the following scientist was awarded Nobel Prize in Physiology or Medicine 1987 for his discovery of the genetic principle for generation of antibody diversity? [Question ID = 51652]

1. Neils Jerne [Option ID = 86600]
2. Susumu Tonegawa [Option ID = 86601]
3. Gerald Edelman [Option ID = 86603]
4. Frank Macfarlane Burnet and Peter Medawar [Option ID = 86602]

Correct Answer :-

- Susumu Tonegawa [Option ID = 86601]

72) Which of the following describe the phenomenon of antigenic drift in case of influenza virus? [Question ID = 51590]

1. Sudden emergence of a new subtype of influenza whose HA and possibly also NA are considerably different from that of the virus present in a preceding epidemic. [Option ID = 86353]
2. A series of spontaneous point mutations that occur gradually, resulting in minor changes in HA and NA. [Option ID = 86352]
3. A series of mutations that result in loss of antigenic HA and NA [Option ID = 86354]
4. A series of mutations that result in emergence of new antigenic components other than HA and NA. [Option ID = 86355]

Correct Answer :-

- A series of spontaneous point mutations that occur gradually, resulting in minor changes in HA and NA. [Option ID = 86352]

73) Which of the following is used as blood thinner? [Question ID = 51659]

1. VEGF [Option ID = 86629]
2. Sildenafil [Option ID = 86628]
3. Epinephrine [Option ID = 86631]
4. Coumadin [Option ID = 86630]

Correct Answer :-

- Coumadin [Option ID = 86630]

74) Which of the following is associated with Cushing's Syndrome? [Question ID = 51610]

1. Decreased production of vasopressin [Option ID = 86434]
2. Excessive production of cortisol [Option ID = 86435]
3. Excessive production of vasopressin [Option ID = 86433]
4. Decreased production of epinephrine [Option ID = 86432]

Correct Answer :-

- Excessive production of cortisol [Option ID = 86435]

75) Which of the following blocks the peptidyl transferase of 80S eukaryotic ribosomes? [Question ID = 51591]

1. Cholera toxin [Option ID = 86357]
2. Cyclohexamide [Option ID = 86356]
3. Diptheria toxin [Option ID = 86358]
4. Chloramphenicol [Option ID = 86359]

Correct Answer :-

76) Which of the following sequences are not palindromic? [Question ID = 51645]

1. ATGCATATGCAT [Option ID = 86575]
2. GGCCAATTGGCCAA [Option ID = 86574]
3. TTAAGGATCCTTAA [Option ID = 86573]
4. AGCGAATTCGCT [Option ID = 86572]

Correct Answer :-

- GGCCAATTGGCCAA [Option ID = 86574]

77) Which of the following are physiological effects of norepinephrine release? [Question ID = 51658]

1. Decreased heart rate [Option ID = 86624]
2. Increased heart rate [Option ID = 86625]
3. Increased insulin levels [Option ID = 86627]
4. Decreased blood glucose [Option ID = 86626]

Correct Answer :-

- Increased heart rate [Option ID = 86625]

78) Which of the following amino acid contains sulphur and yet cannot form disulfide bridge? [Question ID = 51578]

1. Cysteine [Option ID = 86304]
2. Cystine [Option ID = 86305]
3. Selenocysteine [Option ID = 86307]
4. Methionine [Option ID = 86306]

Correct Answer :-

- Methionine [Option ID = 86306]

79) Which of the following enzyme is primarily responsible for somatic hypermutation? [Question ID = 51643]

1. Activation induced cytidine deaminase [Option ID = 86565]
2. Phosphorylase [Option ID = 86567]
3. Recombinase [Option ID = 86564]
4. Exonuclease [Option ID = 86566]

Correct Answer :-

- Activation induced cytidine deaminase [Option ID = 86565]

80) Which of the following statements best describe the situation of a patient with familial hypercholesterolemia? [Question ID = 51615]

1. LDL receptors increases on hepatocytes [Option ID = 86453]
2. Excessive cholesterol is released by HDL [Option ID = 86452]
3. Serum cholesterol decreases [Option ID = 86455]
4. Cholesterol synthesis by hepatocytes is increased [Option ID = 86454]

Correct Answer :-

- Cholesterol synthesis by hepatocytes is increased [Option ID = 86454]

81) Which of the following statements about the formation of uric acid is correct? [Question ID = 51579]

1. Uric acid levels are increased by increasing the activity of the salvage pathway. [Option ID = 86311]
2. Overproduction of uric acid levels in hypoxanthine-guanine phosphoribosyl transferase (HGPRT) deficiency. [Option ID = 86309]
3. No change in the uric acid levels. [Option ID = 86310]
4. Uric acid levels are reduced by a deficiency of hypoxanthine-guanine phosphoribosyl transferase (HGPRT). [Option ID = 86308]

Correct Answer :-

- Overproduction of uric acid levels in hypoxanthine-guanine phosphoribosyl transferase (HGPRT) deficiency. [Option ID = 86309]

82) Which of the following statements about the asymmetry of membranes is true? [Question ID = 51666]

1. It is structural but not functional [Option ID = 86659]
2. It is absolute for phospholipids but is only partial for glycolipids [Option ID = 86657]
3. It is absolute for glycoproteins [Option ID = 86656]
4. It does not arise during biosynthesis [Option ID = 86658]

Correct Answer :-

- It is absolute for glycoproteins [Option ID = 86656]

83) Which of the following statement is true for the hormone glucagon? [Question ID = 51597]

1. Glucagon is secreted by the alpha cells of pancreases and reduces the blood glucose levels. [Option ID = 86381]
2. Glucagon is secreted by the alpha cells of pancreases and increases the blood glucose levels [Option ID = 86383]
3. Glucagon is secreted by the beta cells of pancreases and increases the blood glucose levels. [Option ID = 86382]
4. Glucagon is secreted by the beta cells of pancreases and reduces the blood glucose levels [Option ID = 86380]

Correct Answer :-

- Glucagon is secreted by the alpha cells of pancreases and increases the blood glucose levels [Option ID = 86383]

84) Which of the following components do not constitute a typical A-tailing reaction? [Question ID = 51620]

1. Blunt end DNA [Option ID = 86475]
2. Klenow exo- [Option ID = 86472]
3. Taq DNA polymerase [Option ID = 86474]
4. ATP [Option ID = 86473]

Correct Answer :-

- ATP [Option ID = 86473]

85) Which of the following components constitute the HAT medium used for hybridoma production? [Question ID = 51622]

1. Thiamine [Option ID = 86483]
2. Thymidylate synthase [Option ID = 86480]
3. Thymidine [Option ID = 86482]
4. Thymidine kinase [Option ID = 86481]

Correct Answer :-

- Thymidine [Option ID = 86482]

86) Which of the following metabolic defect would you expect to be associated with a patient with Acromegaly? [Question ID = 51611]

1. Inhibition of gluconeogensis [Option ID = 86439]
2. Increased protein synthesis [Option ID = 86436]
3. Decreased protein synthesis [Option ID = 86437]
4. Inhibition of lipolysis [Option ID = 86438]

Correct Answer :-

- Increased protein synthesis [Option ID = 86436]

87) Which of the following methods is not employed for affinity maturation of antibodies [Question ID = 51642]

1. Hotspot mutagenesis [Option ID = 86560]
2. Chain shuffling [Option ID = 86563]
3. Surface Plasmon Resonance [Option ID = 86562]
4. Error-prone PCR [Option ID = 86561]

Correct Answer :-

- Surface Plasmon Resonance [Option ID = 86562]

88) Which of the following conversion does the enzyme glucose isomerase catalyze? [Question ID = 51581]

1. Glucose to Fructose and Fructose to Glucose [Option ID = 86318]
2. Glucose to Fructose [Option ID = 86316]
3. Fructose to Glucose [Option ID = 86317]
4. Sucrose to Glucose and Fructose [Option ID = 86319]

Correct Answer :-

- Glucose to Fructose and Fructose to Glucose [Option ID = 86318]

89) Which of the following pairs of molecules are enantiomers? [Question ID = 51665]

1. D-Allose and D-talose [Option ID = 86654]
2. D-Xylose and D-lyxose [Option ID = 86652]
3. L-Arabinose and D-arabinose [Option ID = 86655]
4. Alpha-D- galactose and Beta-D-galactose [Option ID = 86653]

Correct Answer :-

- L-Arabinose and D-arabinose [Option ID = 86655]

90) Which of the following hormones is secreted in response to angiotensin II? [Question ID = 51661]

1. Cortisol [Option ID = 86636]
2. Aldosterone [Option ID = 86639]
3. Thyroxin [Option ID = 86637]
4. Estrogen [Option ID = 86638]

Correct Answer :-

- Aldosterone [Option ID = 86639]

91) Which of the following is true for oxygen binding proteins hemoglobin/myoglobin? [Question ID = 51583]

1. Binding of oxygen to myoglobin produces a sigmoidal curve [Option ID = 86324]
2. Binding of oxygen to myoglobin produces a hyperbolic curve [Option ID = 86325]
3. Binding of oxygen to hemoglobin and myoglobin in both produces a sigmoidal curve [Option ID = 86327]
4. Binding of oxygen to hemoglobin produces a hyperbolic curve [Option ID = 86326]

Correct Answer :-

- Binding of oxygen to myoglobin produces a hyperbolic curve [Option ID = 86325]

92) Glucose oxidase enzyme catalyses which of the following reaction? [Question ID = 51651]

1. Conversion of D-glucose to D-Gluconic acid and hydrogen peroxide [Option ID = 86596]
2. Conversion of D-glucose to D-Fructose and hydrogen peroxide [Option ID = 86597]
3. Conversion of D-glucose to glyceraldehyde and hydrogen peroxide [Option ID = 86599]
4. Conversion of D-glucose to glycerol and hydrogen peroxide [Option ID = 86598]

Correct Answer :-

- Conversion of D-glucose to D-Gluconic acid and hydrogen peroxide [Option ID = 86596]

93) Malonyl-CoA is an inhibitor of

[Question ID = 51607]

1. Carnitine Acyl Transferase II [Option ID = 86422]
2. Carnitine Acyl Transferase I [Option ID = 86421]
3. Fatty acid synthase [Option ID = 86423]
4. Thiokinase [Option ID = 86420]

Correct Answer :-

- Carnitine Acyl Transferase I [Option ID = 86421]

94) Centrifugation of a sample at 8,000 RPM in a microcentrifuge that has a rotor with a radius of 7 cm will deliver a centrifugal force of [Question ID = 51592]

1. 1,957 × g. [Option ID = 86360]
2. 2,987 x g [Option ID = 86361]
3. 3,459 x g [Option ID = 86363]
4. 5,009 x g [Option ID = 86362]

Correct Answer :-

- 5,009 x g [Option ID = 86362]

95) Proteins synthesized by ribosomes attached to rough ER are directed to which of the following organelles? [Question ID = 51647]

1. Mitochondria [Option ID = 86580]
2. Nucleus [Option ID = 86581]
3. Peroxisomes [Option ID = 86582]
4. Lysosomes [Option ID = 86583]

Correct Answer :-

- Lysosomes [Option ID = 86583]

96) Protein fragment complementation assays are routinely employed to study protein-protein interactions. The antibodies require oxidising environment for folding. Based on this information, which of the following assays will be most appropriate for studying antigen-antibody interactions? [Question ID = 51632]

1. Split kanamycin-based protein fragment complementation assay [Option ID = 86521]
2. Split beta-galactosidase-based protein fragment complementation assay [Option ID = 86523]
3. Split beta-lactamase-based protein fragment complementation assay [Option ID = 86520]
4. Split dihydrofolate reductase-based protein fragment complementation assay [Option ID = 86522]

Correct Answer :-

- Split beta-lactamase-based protein fragment complementation assay [Option ID = 86520]

97) The kind of covalent modification that occurs on both histones and DNA is: [Question ID = 51635]

1. Acetylation [Option ID = 86534]
2. Sumoylation [Option ID = 86535]
3. Phosphorylation [Option ID = 86532]
4. Methylation [Option ID = 86533]

Correct Answer :-

- Methylation [Option ID = 86533]

98) Myasthenia gravis is an [Question ID = 51582]

1. Autoimmune disease which results from generation of anti- double stranded DNA antibodies [Option ID = 86322]
2. Autoimmune disease which results generation of anti-topoisomerase antibodies [Option ID = 86323]
3. Autoimmune disease which results from antibodies that block or destroy nicotinic acetylcholine receptors [Option ID = 86320]
4. Autoimmune disease which results from antibodies that block or destroy insulin receptor [Option ID = 86321]

Correct Answer :-

- Autoimmune disease which results from antibodies that block or destroy nicotinic acetylcholine receptors [Option ID = 86320]

99) A sample of DNA contains 15.1% adenine on a molar basis. What is the % of guanine? [Question ID = 51608]

1. 34.9 [Option ID = 86424]
2. 69.8 [Option ID = 86425]
3. 30.2 [Option ID = 86427]

4. 15.1 [Option ID = 86426]

Correct Answer :-

- 34.9 [Option ID = 86424]

100) Down syndrome results from

[Question ID = 51588]

1. Trisomy of Chromosome 24 [Option ID = 86345]
2. Trisomy of Chromosome 22 [Option ID = 86344]
3. Trisomy of Chromosome 21 [Option ID = 86346]
4. Trisomy of chromosome 20 [Option ID = 86347]

Correct Answer :-

- Trisomy of Chromosome 21 [Option ID = 86346]