ANIMAL BIOTECHNOLOGY ICAR SEPT 2022

Topic:- 12 ANIMAL BIOTECHNOLOGY_PG

1) The first clear cut evidence of a virus was given by[Question ID = 961][Question Description = 101_26_ANB_AUG22_Q01]

1. Mayer [Option ID = 3841]
2. Louis Pasteur [Option ID = 3842]
3. Robert Koch [Option ID = 3843]
4. Ivanovski [Option ID = 3844]

2) Which of the following statements about interferons is correct:

[Question ID = 962][Question Description = 102_26_ANB_AUG22_Q02]

1. They affect viral synthesis by interfering with binding of viral mRNA with ribosomes. [Option ID = 3845]
2. Interferon from one organism gives protection against viruses to cells of another organism. [Option ID = 3846]
3. A virus entering a cell containing interferons cannot multiply. [Option ID = 3847]
4. Interferons are produced by injecting a hapten into a cell. [Option ID = 3848]

3) Prokaryotes have one of the three basic shapes:[Question ID = 963][Question Description = 103_26_ANB_AUG22_Q03]

1. Spherical, rod-like or helically coiled [Option ID = 3849]
2. Ovoid, rod-like or helically coiled [Option ID = 3850]
3. Ovoid, spiral or helically coiled [Option ID = 3851]
4. Ovoid, rod-like or planner [Option ID = 3852]

4) Cell wall possesses minute cytoplasmic bridges between adjacent cells. They are called[Question ID = 964][Question Description = 104_26_ANB_AUG22_Q04]

1. Plasmodesmata [Option ID = 3853]
2. Middle lamella [Option ID = 3854]
3. Apoplasma [Option ID = 3855]
4. Desmosomes [Option ID = 3856]

5) Cell wall is the secretion product of[Question ID = 965][Question Description = 105_26_ANB_AUG22_Q05]

1. Plasmalemma [Option ID = 3857]
2. Tonoplast [Option ID = 3858]
3. Cytoplasm [Option ID = 3859]
4. Chloroplast [Option ID = 3860]

6) The _____ is a specialized region of the chromosome that plays a critical role in ensuring distribution of duplicated chromosomes to daughter cells during mitosis.[Question ID = 966][Question Description = 106_26_ANB_AUG22_Q06]

1. Telomere [Option ID = 3861]
2. Nucleosome [Option ID = 3862]
3. Chromatosome [Option ID = 3863]
4. Centromere [Option ID = 3864]

7) The five major type of histones are:[Question ID = 967][Question Description = 107_26_ANB_AUG22_Q07]

1. H1, H2, H3, H4 and H5 [Option ID = 3865]
2. H1, H2A, H2B, H3 and H4 [Option ID = 3866]
3. H1A, H1B, H2 and H3 [Option ID = 3867]
4. H1, H2, H3, H4A and H4B [Option ID = 3868]

8) The organelle with a single layer membrane is[Question ID = 968][Question Description = 108_26_ANB_AUG22_Q08]

1. Nucleus [Option ID = 3869]
2. Mitochondria [Option ID = 3870]
3. Ribosome [Option ID = 3871]
4. Lysosomes [Option ID = 3872]

9) Primary lysosomes are formed from[Question ID = 969][Question Description = 109_26_ANB_AUG22_Q09]

1. Directly from endoplasmic reticulum or indirectly from Golgi complex [Option ID = 3873]
2. Nuclear membrane [Option ID = 3874]
3. Plasma membrane [Option ID = 3875]

4. Mitochondrial membrane [Option ID = 3876]

10) The hydrolytic enzymes in lysosomes work most effectively in[Question ID = 970][Question Description = 110_26_ANB_AUG22_Q10]

1. Acidic pH [Option ID = 3877]
2. Basic pH [Option ID = 3878]
3. Neutral pH [Option ID = 3879]
4. Only in salty conditions [Option ID = 3880]

11) Cephalin is the term used to Describe

[Question ID = 971][Question Description = 111_26_ANB_AUG22_Q11]

1. Phosphatidylethanolamine [Option ID = 3881]
2. Phosphatidylserine [Option ID = 3882]
3. Phosphatidylcholine [Option ID = 3883]
4. Plasmalogens [Option ID = 3884]

12) The eukaryotic 80S ribosome consist of[Question ID = 972][Question Description = 112_26_ANB_AUG22_Q12]

1. 60S subunit and 20S subunit [Option ID = 3885]
2. 50S subunit and 30S subunit [Option ID = 3886]
3. 60S subunit and 40S subunit [Option ID = 3887]
4. 50S subunit and 40S subunit [Option ID = 3888]

13) The 60S subunit of the eukaryotic ribosome contains[Question ID = 973][Question Description = 113_26_ANB_AUG22_Q13]

1. 28S rRNA, 5S rRNA and 5.8S rRNA [Option ID = 3889]
2. 28S rRNA, 18S rRNA and 5.8S rRNA [Option ID = 3890]
3. 18S rRNA, 5S rRNA and 5.8S rRNA [Option ID = 3891]
4. 28S rRNA, 18S rRNA and 5S rRNA [Option ID = 3892]

14) Most proteins exported from the endoplasmic reticulum exit the organelle in vesicles budded from

[Question ID = 974][Question Description = 114_26_ANB_AUG22_Q14]

1. Mitochondria [Option ID = 3893]
2. Smooth Endoplasmic Reticulum [Option ID = 3894]
3. Golgi apparatus [Option ID = 3895]
4. Lysosomes [Option ID = 3896]

15) Which of the following functions is performed by smooth endoplasmic reticulum?

[Question ID = 975][Question Description = 115_26_ANB_AUG22_Q15]

1. Nucleic acid synthesis [Option ID = 3897]
2. Production of ATP [Option ID = 3898]
3. Detoxification of drugs and poisons [Option ID = 3899]
4. Degradation of proteins [Option ID = 3900]

16) The actual first phase of the mitosis is:[Question ID = 976][Question Description = 116_26_ANB_AUG22_Q16]

1. Anaphase [Option ID = 3901]
2. Metaphase [Option ID = 3902]
3. Telophase [Option ID = 3903]
4. Prophase [Option ID = 3904]

17) Which of the following statements is correct for meiosis[Question ID = 977][Question Description = 117_26_ANB_AUG22_Q17]

1. The meiotic division has only one division of a diploid cell resulting into two haploid cells. [Option ID = 3905]
2. The meiotic division has two divisions of a diploid cell resulting into four haploid cells. [Option ID = 3906]
3. The meiotic division has only one division of a diploid cell resulting into two diploid cells. [Option ID = 3907]
4. The meiotic division has two divisions of a haploid cell resulting into two haploid cells. [Option ID = 3908]

18) The alternating units in Heparin is[Question ID = 978][Question Description = 118_26_ANB_AUG22_Q18]

1. Sulfated glucosamine and sulfated iduronic acid [Option ID = 3909]
2. L-iduronic acid and N-Acetylgalactosamine [Option ID = 3910]
3. D-Glucoronic acid and N-Acetylglucosamine [Option ID = 3911]
4. D-Glucoronic acid and Galactose [Option ID = 3912]

19) Sphingosine is a[Question ID = 979][Question Description = 119_26_ANB_AUG22_Q19]

1. Basic amino acid [Option ID = 3913]
2. Fatty acid [Option ID = 3914]
3. Amino alcohol [Option ID = 3915]
4. Glycolipid [Option ID = 3916]

20) The imino acid found in proteins is:

[Question ID = 980][Question Description = 120_26_ANB_AUG22_Q20]

1. Arginine [Option ID = 3917]
2. Tyrosine [Option ID = 3918]
3. Phenylalanine [Option ID = 3919]
4. Proline [Option ID = 3920]

21) The bonds responsible for maintaining the quaternary structure of proteins is/are:[Question ID = 981][Question Description = 121_26_ANB_AUG22_Q21]

1. Disulfide bond [Option ID = 3921]
2. Peptide bond [Option ID = 3922]
3. Covalent bond [Option ID = 3923]
4. Hydrogen bonds, hydrophobic interactions, van der Waals interaction and ionic bonds [Option ID = 3924]

22) The number of base pairs present in each turn of B-DNA helix is:[Question ID = 982][Question Description = 122_26_ANB_AUG22_Q22]

1. 9 [Option ID = 3925]
2. 10 [Option ID = 3926]
3. 11 [Option ID = 3927]
4. 12 [Option ID = 3928]

23) Aptamers are

[Question ID = 983][Question Description = 123_26_ANB_AUG22_Q23]

1. Stereoisotopes of amino acids [Option ID = 3929]
2. Single-stranded oligonucleotides that fold into defined architectures and bind to targets such as proteins [Option ID = 3930]
3. Molecules formed by combination of nucleotide bases and carbohydrates [Option ID = 3931]
4. The molecules used to treat bone tumor [Option ID = 3932]

24) Tobacco mosaic virus self assembles with a long molecule of _____[Question ID = 984][Question Description = 124_26_ANB_AUG22_Q24]

1. DNA [Option ID = 3933]
2. RNA [Option ID = 3934]
3. Glucose [Option ID = 3935]
4. Glycerol [Option ID = 3936]

25) Why Niacin is not strictly a vitamin ?[Question ID = 985][Question Description = 125_26_ANB_AUG22_Q25]

1. Niacin is not needed by the body [Option ID = 3937]
2. Niacin is synthesized in the body from the essential amino acid tryptophan [Option ID = 3938]
3. Niacin acts as a co factor [Option ID = 3939]
4. Niacin is toxic in excess [Option ID = 3940]

26) Which cell organelle contains the hydrolase enzyme cathepsin ?[Question ID = 986][Question Description = 126_26_ANB_AUG22_Q26]

1. Lysosome [Option ID = 3941]
2. Nucleus [Option ID = 3942]
3. Peroxisome [Option ID = 3943]
4. Golgi Apparatus [Option ID = 3944]

27) Identify the correct statements relating to blood glucose .

A. The principle fuel for the brain is glucose .

B. Untreated diabetes mellitus may lead to acidosis.

C. The average glucose concentration of an individual can be assessed by estimating its effect on hemoglobin .

D. Untreated diabetes mellitus may lead to ketosis.

Choose the *correct* answer from the options given below:

[Question ID = 987][Question Description = 127_26_ANB_AUG22_Q27]

1. A, B, C and D [Option ID = 3945]

2. A, B and C only [Option ID = 3946]
3. A , C and D only [Option ID = 3947]
4. A and C only [Option ID = 3948]

28) In Ping pong reaction of enzymes , the first substrate is bound to the enzyme and its product is released before there is binding of the second substrate. Ping pong reactions are also known as :[Question ID = 988][Question Description = 128_26_ANB_AUG22_Q28]

1. Random single displacement reactions [Option ID = 3949]
2. Ordered single displacement reactions [Option ID = 3950]
3. Double displacement reactions [Option ID = 3951]
4. Sequential reaction [Option ID = 3952]

29) Identify the non protein α-amino acids from the list.

A. Ornithine

B. Citrulline

C. Homoserine

D. Taurine

Choose the *correct* answer from the options given below:

[Question ID = 989][Question Description = 129_26_ANB_AUG22_Q29]

1. A, B and C only [Option ID = 3953]
2. A, B and D only [Option ID = 3954]
3. A and B only [Option ID = 3955]
4. C and D only [Option ID = 3956]

30) The irreversible inhibitor Iodoacetate binds with which group at the active site of the enzyme papain to make them inactive.[Question ID = 990][Question Description = 130_26_ANB_AUG22_Q30]

1. Sulfhydryl group [Option ID = 3957]
2. Hydroxyl group [Option ID = 3958]
3. Methyl group [Option ID = 3959]
4. Amino group [Option ID = 3960]

31) Name the technique used for separation of proteins according to size?

[Question ID = 991][Question Description = 131_26_ANB_AUG22_Q31]

1. Affinity chromatography [Option ID = 3961]
2. Reverse phase chromatography [Option ID = 3962]
3. Ion exchange chromatography [Option ID = 3963]
4. Gel filtration [Option ID = 3964]

32) Name the structure that confers the arrangement of the protein that contains two or more polypeptides in a three dimensional complex.

[Question ID = 992][Question Description = 132_26_ANB_AUG22_Q32]

1. Primary structure [Option ID = 3965]
2. Secondary Structure [Option ID = 3966]
3. Tertiary Structure [Option ID = 3967]
4. Quarternary structure [Option ID = 3968]

33) Name the enzyme which is the oldest known marker used for myocardial infarction

[Question ID = 993][Question Description = 133_26_ANB_AUG22_Q33]

1. Lactate dehydrogenase [Option ID = 3969]
2. Creatine kinase [Option ID = 3970]
3. Alanine aminotransferase [Option ID = 3971]
4. Alkaline phosphatase [Option ID = 3972]

34) Why the food product gelatine, derived from collagen has little nutritional value as a protein?[Question ID = 994] [Question Description = 134_26_ANB_AUG22_Q34]

1. Collagen is extremely low in many essential amino acids. [Option ID = 3973]
2. Collagen is extremely low in many non essential amino acids. [Option ID = 3974]
3. Collagen is rich in rare amino acids [Option ID = 3975]
4. Collagen cannot be digested [Option ID = 3976]

35) Name the bacterial and yeast polysaccharide that is found in dental plaque on the surface of teeth.[Question ID = 995] [Question Description = 135_26_ANB_AUG22_Q35]

1. Glycogen [Option ID = 3977]
2. Peptidoglycan [Option ID = 3978]
3. Agar [Option ID = 3979]
4. Dextran [Option ID = 3980]

36) Which disease is caused due to absence of the enzyme hexosaminidase A and results in accumulation of ganglioside G_{M2} in the brain.

[Question ID = 996][Question Description = 136_26_ANB_AUG22_Q36]

1. Niemann – Pick disease [Option ID = 3981]
2. Tay – Sachs disease [Option ID = 3982]
3. Von Gierke disease [Option ID = 3983]
4. Cori's disease [Option ID = 3984]

37) Which is the second most abundant biomolecule found in biosphere?[Question ID = 997][Question Description = 137_26_ANB_AUG22_Q37]

1. Cellulose [Option ID = 3985]
2. Chitin [Option ID = 3986]
3. Glycogen [Option ID = 3987]
4. Starch [Option ID = 3988]

38) Name the component that is mostly responsible for the specificity of the enzyme.

[Question ID = 998][Question Description = 138_26_ANB_AUG22_Q38]

1. Coenzyme [Option ID = 3989]
2. Cofactor [Option ID = 3990]
3. Apoenzyme [Option ID = 3991]
4. Holoenzyme [Option ID = 3992]

39) What are the two intracellular messengers that are obtained by hydrolysis of phosphatidylinositol bisphosphate?

A. Monoacylglycerol

B Diacylglycerol

C. Triacylglycerol

D. Inositol 1,4,5 trisphosphate

Choose the *correct* answer from the options given below:

[Question ID = 999][Question Description = 139_26_ANB_AUG22_Q39]

1. A and D only [Option ID = 3993]
2. B and D only [Option ID = 3994]
3. C and D only [Option ID = 3995]
4. A and B only [Option ID = 3996]

40) Due to use of penicillin and its derivatives which enzyme is expressed by strains of pathogenic bacteria and is responsible for bacterial resistance to antibiotics ?[Question ID = 1000][Question Description = 140_26_ANB_AUG22_Q40]

1. Transpeptidase [Option ID = 3997]
2. ß-lactamase [Option ID = 3998]
3. Penicillinase [Option ID = 3999]
4. Muramidases [Option ID = 4000]

41) Name an allosteric inhibitor that inhibits Aspartate transcarbamoylase activity and is also an example of feedback inhibition .[Question ID = 1001][Question Description = 141_26_ANB_AUG22_Q41]

1. UTP [Option ID = 4001]
2. CTP [Option ID = 4002]
3. ATP [Option ID = 4003]
4. TTP [Option ID = 4004]

42) What is the most active form of Vitamin E ?[Question ID = 1002][Question Description = 142_26_ANB_AUG22_Q42]

1. Tocotrienols [Option ID = 4005]
2. D-α-tocoferol [Option ID = 4006]
3. L-α-tocoferol [Option ID = 4007]
4. Tocopheroxyl [Option ID = 4008]

43) How many disulfide bonds are formed in proinsulin after removal of the signal sequence of preproinsulin?[Question ID = 1003][Question Description = 143_26_ANB_AUG22_Q43]

1. Four [Option ID = 4009]
2. Three [Option ID = 4010]
3. Two [Option ID = 4011]
4. One [Option ID = 4012]

44) What is the function of the adipokine Leptin ?

[Question ID = 1004][Question Description = 144_26_ANB_AUG22_Q44]

1. To increase the appetite of an individual [Option ID = 4013]
2. To decrease the appetite of an individual [Option ID = 4014]
3. To releases neuropeptide Y [Option ID = 4015]
4. To act on orexigenic neurons [Option ID = 4016]

45) Calmodulin a calcium dependent regulatory protein and of 17-kDa is homologus to which muscle protein?[Question ID = 1005][Question Description = 145_26_ANB_AUG22_Q45]

1. Tropomyosin [Option ID = 4017]
2. Actin [Option ID = 4018]
3. Myosin [Option ID = 4019]
4. Troponin C [Option ID = 4020]

46) Which vitamin is widely used as a food additive?[Question ID = 1006][Question Description = 146_26_ANB_AUG22_Q46]

1. Vitamin B_1 [Option ID = 4021]
2. Vitamin B_2 [Option ID = 4022]
3. Vitamin B_6 [Option ID = 4023]
4. Vitamin B_{12} [Option ID = 4024]

47) Identify the three vitamin B_{12}-dependent enzymes.

A. Dihydrofolate reductase

B. Methylmalonyl CoA mutase

C. Leucine aminomutase

D. Methionine synthase

Choose the *correct* answer from the options given below:

[Question ID = 1007][Question Description = 147_26_ANB_AUG22_Q47]

1. A, B and C only [Option ID = 4025]
2. A, B and D only [Option ID = 4026]
3. A , C and D only [Option ID = 4027]
4. B, C and D only [Option ID = 4028]

48) Respiratory distress syndrome is caused due to the absence of which lung surfactant of premature infants ?[Question ID = 1008][Question Description = 148_26_ANB_AUG22_Q48]

1. Phosphatidic acid [Option ID = 4029]
2. Dipalmitoyl phosphatidylcholine [Option ID = 4030]
3. Dipalmitoyl serine [Option ID = 4031]
4. Phosphatidylethanolamine [Option ID = 4032]

49) Consider the following statements about the Shine-Dalgarno sequence

A. It is named after the Australian scientists John Shine and Lynn Dalgarno.

B. It is a ribosomal binding site in bacterial and archeal mRNA.

C. It is located 8 bases upstream of the start codon AUG

D. It helps in replication.

From the choices given below, select the correct one

[Question ID = 1009][Question Description = 149_26_ANB_AUG22_Q49]

1. A, B, C and D [Option ID = 4033]
2. A, B and C only [Option ID = 4034]
3. B, C and D only [Option ID = 4035]
4. A, C and D only [Option ID = 4036]

50) Below is the list of some of the amino acids

A. Alanine

B. Lysine

C. Leucine

D. Tyrosine

Choose the amino acids which are glycogenic as well as ketogenic from the options given below:

[Question ID = 1010][Question Description = 150_26_ANB_AUG22_Q50]

1. A and B only [Option ID = 4037]
2. B and D only [Option ID = 4038]
3. A and C only [Option ID = 4039]
4. C and D only [Option ID = 4040]

51) Consider the following statements about Pentose Phosphate pathway.

A. Generates NADH

B. Generates NADPH

C. Generates ATP

D. Occurs in the mitochondria

Choose the correct statement from the options given below:

[Question ID = 1011][Question Description = 151_26_ANB_AUG22_Q51]

1. A only [Option ID = 4041]
2. B only [Option ID = 4042]
3. A, B and C only [Option ID = 4043]
4. A and D only [Option ID = 4044]

52) The process of conversion of glycogen to glucose-6-phosphate is known as[Question ID = 1012][Question Description = 152_26_ANB_AUG22_Q52]

1. Glycolysis [Option ID = 4045]
2. Glyconeogenesis [Option ID = 4046]
3. Glycogenesis [Option ID = 4047]
4. Glycogenolysis [Option ID = 4048]

53) End product of beta-oxidation of a 16 carbon fatty acid will be[Question ID = 1013][Question Description = 153_26_ANB_AUG22_Q53]

1. Acyl CoA [Option ID = 4049]
2. Acetyl CoA [Option ID = 4050]
3. Malonyl CoA [Option ID = 4051]
4. Palmitate [Option ID = 4052]

54) Which of the following lipoproteins is responsible for reverse cholesterol transport?

[Question ID = 1014][Question Description = 154_26_ANB_AUG22_Q54]

1. Chylomicrons [Option ID = 4053]
2. Very Low Density Lipoproteins [Option ID = 4054]
3. Low Density Lipoproteins [Option ID = 4055]
4. High Density Lipoproteins [Option ID = 4056]

55) The fatty acid synthase multienzyme complex contains how many identical polypeptide monomers?[Question ID = 1015] [Question Description = 155_26_ANB_AUG22_Q55]

1. 2 [Option ID = 4057]
2. 3 [Option ID = 4058]
3. 4 [Option ID = 4059]
4. 5 [Option ID = 4060]

56) Name the enzyme which interconverts acetoacetate and 3-hydroxybutyrate.

[Question ID = 1016][Question Description = 156_26_ANB_AUG22_Q56]

1. Acetoacetate dehydrogenase [Option ID = 4061]
2. D(-) 3-Hydroxybutyrate dehydrogenase [Option ID = 4062]
3. Thiolase [Option ID = 4063]

4. HMG CoA synthase [Option ID = 4064]

57) How many ATPs will be produced by oxidation of a fatty acid with 18 carbons, if we consider that one NADH produces 3 ATPs and one $FADH_2$ yields 2 ATPs in respiratory chain?

[Question ID = 1017][Question Description = 157_26_ANB_AUG22_Q57]

1. 146 [Option ID = 4065]
2. 112 [Option ID = 4066]
3. 100 [Option ID = 4067]
4. 172 [Option ID = 4068]

58) Why linoleic acid or linolenic acid are essential fatty acids in mammals?

[Question ID = 1018][Question Description = 158_26_ANB_AUG22_Q58]

1. Because of absence of elongase enzyme [Option ID = 4069]
2. Because of absence of cyclooxygenase enzyme [Option ID = 4070]
3. Because of the absence of required desaturases [Option ID = 4071]
4. Linoleic acid or linolenic acid are not essential fatty acids in mammals [Option ID = 4072]

59) Lipoxygenase pathway leads to formation of

[Question ID = 1019][Question Description = 159_26_ANB_AUG22_Q59]

1. Prostaglandins [Option ID = 4073]
2. Prostanoids [Option ID = 4074]
3. Leukotrienes [Option ID = 4075]
4. Unsaturated fatty acids [Option ID = 4076]

60) The lipoprotein responsible for VLDL secretion from liver is[Question ID = 1020][Question Description = 160_26_ANB_AUG22_Q60]

1. Apo B-40 [Option ID = 4077]
2. Apo B-100 [Option ID = 4078]
3. Apo A-I [Option ID = 4079]
4. Apo A-II [Option ID = 4080]

61) Cholesterol synthesis is controlled by regulation of[Question ID = 1021][Question Description = 161_26_ANB_AUG22_Q61]

1. HMG CoA synthase [Option ID = 4081]
2. HMG CoA reductase [Option ID = 4082]
3. Thiolase [Option ID = 4083]
4. Mevalonate kinase [Option ID = 4084]

62) Ascorbic acid cannot be synthesized in humans and other primates as well as guinea pigs. Could you tell why?

[Question ID = 1022][Question Description = 162_26_ANB_AUG22_Q62]

1. It happens because of absence of enzyme ascorbate synthetase [Option ID = 4085]
2. It happens because of absence of enzyme UDPGlc pyrophosphorylase [Option ID = 4086]
3. It happens because of absence of enzyme UDPGlc dehydrogenase [Option ID = 4087]
4. It happens because of absence of enzyme L-guluconolactone oxidase [Option ID = 4088]

63) Why sodium flouride is added as a preservative while collecting blood samples for estimation of glucose levels?

[Question ID = 1023][Question Description = 163_26_ANB_AUG22_Q63]

1. Fluoride ions block citric acid cycle. [Option ID = 4089]
2. Fluoride ions inhibit enolase, which is an enzyme of glycolysis and thus stops metabolism of glucose in blood cells. [Option ID = 4090]
3. Flouride ions act as good anticoagulants [Option ID = 4091]
4. Fluoride ions do not allow bacterial growth to occur in blood collected for glucose estimation. [Option ID = 4092]

64) Which of the following is correct sequence of steps involved in conversion of lactate to phosphoenolpyruvate

[Question ID = 1024][Question Description = 164_26_ANB_AUG22_Q64]

1. Entry of lactate to mitochondria, conversion of lactate to pyruvate, conversion of pyruvate to oxaloacetate and entry into citric acid cycle, malate produced in citric acid cycle goes out of mitochondria, conversion of malate to oxaloacetate, conversion of oxaloacetate to phosphoenolpyruvate [Option ID = 4093]
2. Conversion of lactate to pyruvate, conversion of pyruvate to oxaloacetate, entry of oxaloacetate into mitochondria and entry into citric acid cycle, malate produced in citric acid cycle goes out of mitochondria, conversion of malate to oxaloacetate, conversion of oxaloacetate to phosphoenolpyruvate [Option ID = 4094]
3. Conversion of lactate to pyruvate, entry of pyruvate into mitochondria, conversion of pyruvate to oxaloacetate and entry into citric acid cycle, malate produced in citric acid cycle goes out of mitochondria, conversion of malate to oxaloacetate, conversion of oxaloacetate to

phosphoenolpyruvate [Option ID = 4095]
4. Conversion of lactate to pyruvate, conversion of pyruvate to oxaloacetate, conversion of oxaloacetate to malate, entry of malate into mitochondria and entry into citric acid cycle, conversion of malate to oxaloacetate, conversion of oxaloacetate to phosphoenolpyruvate [Option ID = 4096]

65) The enzyme Propionyl CoA carboxylase which helps conversion of Propionate to Succinyl CoA needs the following as a coenzyme

[Question ID = 1025][Question Description = 165_26_ANB_AUG22_Q65]

1. Vitamin B_{12} [Option ID = 4097]
2. Biotin [Option ID = 4098]
3. Thiamine [Option ID = 4099]
4. Riboflavin [Option ID = 4100]

66) The following enzyme of urea cycle is a crucial marker for hepatic disease[Question ID = 1026][Question Description = 166_26_ANB_AUG22_Q66]

1. Carbamoyl phosphate synthase [Option ID = 4101]
2. Arginase [Option ID = 4102]
3. Aspartate Transaminase [Option ID = 4103]
4. Alanine Transaminase [Option ID = 4104]

67) Maple syrup urine disease is a disease of[Question ID = 1027][Question Description = 167_26_ANB_AUG22_Q67]

1. Metabolism of carbohydrates [Option ID = 4105]
2. Metabolism of amino acids [Option ID = 4106]
3. Metabolism of nucleotides [Option ID = 4107]
4. Metabolism of lipids [Option ID = 4108]

68) The following is a list of various inhibitors of respiratory chain (Column I) and their possible mode of action (Column II).

Column I (Inhibitor)	Column II (Mode of action)
A. Rotenone	I. Completely blocks oxidation and phosphorylation in intact mitochondria
B. Dimercaprol	II. Inhibits cytochrome oxidase
C. Carbon monoxide	III. Prevents the oxidation of of substrates that communicate directly with the respiratory chain via NAD-linked dehydrogenases
D. Oligomycin	IV. Inhibits the respiratory chain between cytochrome b and cytochrome c

Match the correct choices from Column I with the choices given against Column II from the above table and select the correct answer from the matches given below:

[Question ID = 1028][Question Description = 168_26_ANB_AUG22_Q68]

1. A-I, B-II, C-III, D-IV [Option ID = 4109]
2. A-II, B-III, C-IV, D-I [Option ID = 4110]
3. A-III, B-IV, C-II, D-I [Option ID = 4111]
4. A-I, B-III, C-II, D-IV [Option ID = 4112]

69) What is the function of Phospholipase C?

[Question ID = 1029][Question Description = 169_26_ANB_AUG22_Q69]

1. It attacks the ester bond in position 1 of phospholipids [Option ID = 4113]
2. It attacks the ester bond in position 2 of phospholipids [Option ID = 4114]
3. It attacks the ester bond in position 3 of phospholipids [Option ID = 4115]
4. It hydrolyzes the nitrogenous base from phospholipids [Option ID = 4116]

70) Adenosine Monophosphate and Guanosine Monophosphate are formed from

[Question ID = 1030][Question Description = 170_26_ANB_AUG22_Q70]

1. Inosine Monophosphate [Option ID = 4117]
2. Xanthine Monophosphate [Option ID = 4118]
3. Glutamine [Option ID = 4119]
4. Carbamoyl phosphate [Option ID = 4120]

71) Why the amphibians, birds and reptiles have uric acid and guanine as end products of purine metabolism?

[Question ID = 1031][Question Description = 171_26_ANB_AUG22_Q71]

1. Because they lack Aldehyde dehydrogenase [Option ID = 4121]

2. Because they lack Xanthine oxidase [Option ID = 4122]
3. Because they lack Xanthine dehydrogenase [Option ID = 4123]
4. Because they lack uricase [Option ID = 4124]

72) The following table depicts Characteristics of various arms of tRNA (Column I) and the name of the arms of tRNA(Column II)

Characteristics of arm (Column I)	Name of the arm of tRNA(Column II)
A. It consists of base paired stem that terminates in the sequence CCA (5' to 3')	I. Anticodon arm
B. It recognizes the codon	II. Acceptor arm
C. Contains the base dihydrouridψine	III. T Ψ C arm
D. Contains the sequence pseudouridine	IV. D arm

From the choices given in Column I and choices in Column II select the correct answer from the matches given below

[Question ID = 1032][Question Description = 172_26_ANB_AUG22_Q72]
1. A-I, B-II, C-III, D-IV [Option ID = 4125]
2. A-II, B-I, C-IV, D-III [Option ID = 4126]
3. A-II, B-III, C-I, D-IV [Option ID = 4127]
4. A-I, B-III, C-II, D-IV [Option ID = 4128]

73) Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: Major Histocompatibility Complex are of two types which are recognised by the T-Cells

Reason R: Major Histocompatibility Complex differ in their proteins that they display in binding T-cells

In the light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 1033][Question Description = 173_26_ANB_AUG22_Q73]
1. Both **A** and **R** are correct and **R** is the correct explanation of **A** [Option ID = 4129]
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A** [Option ID = 4130]
3. **A** is correct but **R** is incorrect [Option ID = 4131]
4. **A** is incorrect but **R** is correct [Option ID = 4132]

74) Match the number of amino acids with the respective polypeptide chains of antibodies.

Polypeptide Chain	Number of Amino Acids
A. α-Chain	I. approximately 211
B. μ-Chain	II. approximately 450
C. λ-Chain	III. approximately 550

Which of the following is a correct match?

[Question ID = 1034][Question Description = 174_26_ANB_AUG22_Q74]
1. A-II, B-I, C-III

   [Option ID = 4133]
2. A-III, B-II C-I

   [Option ID = 4134]
3. A-II, B-III, C-I

   [Option ID = 4135]
4. A-III, B-I, C-II

   [Option ID = 4136]

75) Which of the following domain of antibodies act as antigen binding site?[Question ID = 1035][Question Description = 175_26_ANB_AUG22_Q75]
1. N-terminal domain of H-Chain alone [Option ID = 4137]
2. C-terminal domain of L-Chain alone [Option ID = 4138]
3. N-terminal domain of H and L-Chains combined [Option ID = 4139]
4. C-terminal domain of H and L-Chains combined [Option ID = 4140]

76) Given below are two statements, one is labelled as Assertion A and the other is labelled as Reason R.

Assertion A: The pH scale is arithmetic.

Reason R: Two solutions differing in one pH unit means that one solution is having ten times the hydrogen (H^+)

ion concentration of the other.

In the light of the above statements, choose the *most appropriate* answer from the options given below

[Question ID = 1036][Question Description = 176_26_ANB_AUG22_Q76]

1. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A** [Option ID = 4141]
2. **A** is correct but **R** is incorrect [Option ID = 4142]
3. **A** is incorrect but **R** is correct [Option ID = 4143]
4. Both **A** and **R** are correct and **R** is the correct explanation of **A** [Option ID = 4144]

77) Parathyroid hormone enhances Ca absorption by

A. Increasing the pH of the gut to alkaline side

B. Liberating lysine and arginine amino acids from dietary proteins

C. Decreasing the synthesis of phosphorus

D. Stimulating the synthesis of calcitriol

Choose the *correct* answer from the options given below:

[Question ID = 1037][Question Description = 177_26_ANB_AUG22_Q77]

1. A and C only [Option ID = 4145]
2. A and D only [Option ID = 4146]
3. C and D only [Option ID = 4147]
4. B and D only [Option ID = 4148]

78) Which of the following pair of minerals play an important role in maintaining acid-base balance?[Question ID = 1038][Question Description = 178_26_ANB_AUG22_Q78]

1. Sodium and Potassium [Option ID = 4149]
2. Calcium and Phosphorous [Option ID = 4150]
3. Magnesium and Calcium [Option ID = 4151]
4. Iron and Copper [Option ID = 4152]

79) Which of the following enzyme activity is associated with the Ceruloplasmin?[Question ID = 1039][Question Description = 179_26_ANB_AUG22_Q79]

1. Reductase [Option ID = 4153]
2. Hydrolase [Option ID = 4154]
3. Oxidase [Option ID = 4155]
4. Transferase [Option ID = 4156]

80) Compare the role of following minerals with the given enzyme activities and identify the exact match.

Name of the Enzyme	Enzyme Activity
A. Zinc	I. Glutathione Peroxidase
B. Selenium	II. Enolase
C. Fluoride	III. Cytochrome Oxidase
D. Copper	IV. Carbonic Anhydrase

Choose the correct answer from the options given below:

[Question ID = 1040][Question Description = 180_26_ANB_AUG22_Q80]

1. A-IV, B-I, C-II, D-III [Option ID = 4157]
2. A-III, B-IV, C-I, D-II [Option ID = 4158]
3. A-IV, B-III, C-II, D-I [Option ID = 4159]
4. A-II, B-III, C-I, D-IV [Option ID = 4160]

81) Blood (100 ml) containing 10 gm of haemoglobin can transport _____ml of oxygen.[Question ID = 1041][Question Description = 181_26_ANB_AUG22_Q81]

1. Approximately 13 ml [Option ID = 4161]
2. Approximately 23 ml [Option ID = 4162]
3. Approximately 33 ml [Option ID = 4163]
4. Approximately 03 ml [Option ID = 4164]

82) Which of the following intermediary product of glycolysis plays an important role in high altitude adaptation?[Question ID = 1042][Question Description = 182_26_ANB_AUG22_Q82]

1. 1,3 – Bisphosphoglycerate [Option ID = 4165]
2. 2,3 – Bisphosphoglycerate [Option ID = 4166]
3. Fructose 1,6 – Bisphosphate [Option ID = 4167]

4. Phosphoenol pyruvate [Option ID = 4168]

83) Which of the following lead to the condition of metabolic acidosis?

A. Hyperkalemia

B. Lactic acidosis

C. Ketosis

D. Hypochloremia

Choose the *correct* answer from the options given below:

[Question ID = 1043][Question Description = 183_26_ANB_AUG22_Q83]

1. A, B and C only [Option ID = 4169]
2. B, C and D only [Option ID = 4170]
3. A, C and D only [Option ID = 4171]
4. A, B and D only [Option ID = 4172]

84) Identify the pair of enzymes which plays an important role in the urinary buffer system in maintenance of acid-base balance.

A. Glutaminase and Adenyl Cyclase

B. Glutaminase and Transaminase

C. Carbonic Anhydrase and Transaminase

D. Carbonic Anhydrase and Glutaminase

Choose the *correct* answer from the options given below:

[Question ID = 1044][Question Description = 184_26_ANB_AUG22_Q84]

1. B and C only [Option ID = 4173]
2. A only [Option ID = 4174]
3. D only [Option ID = 4175]
4. A, B and D only [Option ID = 4176]

85) Which of the following is increased in clinically normal cat during glucagon stimulation test?

A. Glycogenolysis

B. Gluconeogenesis

C. Glycolysis

D. Glycogenesis

Choose the *correct* answer from the options given below:

[Question ID = 1045][Question Description = 185_26_ANB_AUG22_Q85]

1. B and C only [Option ID = 4177]
2. A and B only [Option ID = 4178]
3. C and D only [Option ID = 4179]
4. B and D only [Option ID = 4180]

86) Which of the following is responsible for increase in anion gap during diabetic ketosis?

[Question ID = 1046][Question Description = 186_26_ANB_AUG22_Q86]

1. Increase in lipolysis leading to increase in ketone bodies

   [Option ID = 4181]
2. Loss of water and electrolytes

   [Option ID = 4182]
3. Decrease in concentration of bicarbonate ions

   [Option ID = 4183]
4. Accumulation of hydrogen ions with decrease in pH.

   [Option ID = 4184]

87) Among the following, identify the non-protein nitrogen compounds of clinical importance in kidney diseases.

[Question ID = 1047][Question Description = 187_26_ANB_AUG22_Q87]

1. Uric acid and Urea [Option ID = 4185]
2. Urea and Creatinine [Option ID = 4186]
3. Creatinine and Ammonia [Option ID = 4187]
4. Uric acid and Ammonia [Option ID = 4188]

88) The largest known protein is

[Question ID = 1048][Question Description = 188_26_ANB_AUG22_Q88]

1. Collagen [Option ID = 4189]
2. Keratin [Option ID = 4190]
3. Titin [Option ID = 4191]
4. Myosin [Option ID = 4192]

89) Which of the following enzyme is considered to be liver specific in the case of dogs and cats, but not clinically significant in horses and ruminants?[Question ID = 1049][Question Description = 189_26_ANB_AUG22_Q89]

1. Aspartate transaminase [Option ID = 4193]
2. Alanine transaminase [Option ID = 4194]
3. Alkaline phosphatase [Option ID = 4195]
4. Sorbitol dehydrogenase [Option ID = 4196]

90) Which of the following causes decrease in albumin/globulin (A/G) ratio?

A. Glomerular Nephritis

B. Gastro-intestinal parasitism

C. Exocrine Pancreatic Insufficiency

D. Acute Inflammation

E. Pregnancy toxemia

F. Congestive heart failure

Choose the *correct* answer from the options given below:

[Question ID = 1050][Question Description = 190_26_ANB_AUG22_Q90]

1. A, B, C and D only [Option ID = 4197]
2. B, C, D and E only [Option ID = 4198]
3. A, C, D and E only [Option ID = 4199]
4. C, D, E and F only [Option ID = 4200]

91) In dairy cows, during low milk fat syndrome, which of the following changes in metabolic process are noted?

A. Prevention of metabolism of triacyl glycerol from VLDL

B. Inhibition of release of free fatty acids from the adipose tissue by the action of hormone sensitive lipase activity.

C. Decrease in level of Methyl Malonyl CoA

D. Increase in gluconeogenesis

Choose the *correct* answer from the options given below:

[Question ID = 1051][Question Description = 191_26_ANB_AUG22_Q91]

1. A and B only [Option ID = 4201]
2. B and C only [Option ID = 4202]
3. B and D only [Option ID = 4203]
4. C and D only [Option ID = 4204]

92) In Protein Kinase A, the letter 'A' refers to[Question ID = 1052][Question Description = 192_26_ANB_AUG22_Q92]

1. cGMP [Option ID = 4205]
2. cAMP [Option ID = 4206]
3. ATP [Option ID = 4207]
4. GTP [Option ID = 4208]

93) Among the following, identify the hormones produced by the anterior pituitary which is glycoprotein in nature

A. Somatotropin

B. Adrenocorticotropic Hormone

C. Thyroid Stimulating Hormone

D. Luteinizing Hormone

Choose the *correct* answer from the options given below:

[Question ID = 1053][Question Description = 193_26_ANB_AUG22_Q93]

1. A and C only [Option ID = 4209]
2. B and D only [Option ID = 4210]
3. B and C only [Option ID = 4211]
4. C and D only [Option ID = 4212]

94) Identify the correct order of events when epinephrine binds to ß-receptor of the biological membrane.

A. Binding of GTP and release of GDP from α-subunit of G-Protein.

B. Interaction of hormone bound ß-receptor with βγ - subunit of G-Protein.

C. Binding of GTP bound α-subunit of G-protein with Adenyl cyclase

D. Activation of dephosphorylation

E. Activation of phosphorylation

F. Activation of formation of cAMP

Choose the *correct* answer from the options given below

[Question ID = 1054][Question Description = 194_26_ANB_AUG22_Q94]

1. B, A, C, D, E, F [Option ID = 4213]
2. B, A, C, F, E, D [Option ID = 4214]
3. C, B, F, E, A, D [Option ID = 4215]
4. B, C, A, D, F, E [Option ID = 4216]

95) Which of the following hormones are amino acid derivatives?

A. Epinephrine

B. Serotonin

C. GABA

D. Thyroxine

E. Vasopressin

Choose the *correct* answer from the options given below

[Question ID = 1055][Question Description = 195_26_ANB_AUG22_Q95]

1. A and C only [Option ID = 4217]
2. A, B and D only [Option ID = 4218]
3. B and D only [Option ID = 4219]
4. C and E only [Option ID = 4220]

96) Match the following toxic chemicals with the suitable conjugants for the process of detoxification.

List I	List II
Chemicals	Conjugants
A. Morphine	I. Thiosulphates
B. Lead	II. Acetic Acid
C. Sulphanilamide	III. Glycine
D. Benzoic Acid	IV. Glucuronic Acid
E. Cyanide	V. BAL

Choose the correct answer from the options given below:

[Question ID = 1056][Question Description = 196_26_ANB_AUG22_Q96]

1. A - II, B - V, C - IV, D - I, E - III [Option ID = 4221]
2. A - IV, B - V, C - II, D - III, E - I [Option ID = 4222]
3. A - III, B - IV, C - I, D - V, E - II [Option ID = 4223]
4. A - II, B - IV, C - V, D - I, E - III [Option ID = 4224]

97) Human Genome Project was officially initiated in which year and completed in which year?

[Question ID = 1057][Question Description = 197_26_ANB_AUG22_Q97]

1. 1990 and 2001 [Option ID = 4225]

2. 2001 and 2009 [Option ID = 4226]
3. 1990 and 2022 [Option ID = 4227]
4. 1991 and 2019 [Option ID = 4228]

98) Hershey and Chase designed an experiment using radioactive isotopes of sulphur and phosphorus to keep separate track of the viral proteins and nucleic acids during the infection process. Which bacteriophage and bacterium were used for this experiment?[Question ID = 1058][Question Description = 198_26_ANB_AUG22_Q98]

1. T2 bacteriophage and *E. coli* [Option ID = 4229]
2. T4 bacteriophage and *Bacillus* [Option ID = 4230]
3. T2 bacteriophage and *Salmonella* [Option ID = 4231]
4. T4 bacteriophage and *E. coli* [Option ID = 4232]

99) Caesium chloride density gradient centrifugation is commonly used for the separation of DNA molecules. The buoyant density, ρ, of a double stranded Cs^+DNA is given by the equation $\rho = 1.66 + 0.098X_{G+C}$, where X_{G+C} denotes[Question ID = 1059][Question Description = 199_26_ANB_AUG22_Q99]

1. total number of G and C [Option ID = 4233]
2. mole fraction of G+C [Option ID = 4234]
3. number of GC repeats [Option ID = 4235]
4. ratio of G+C to A+T content [Option ID = 4236]

100) *Caenorhabditis elegans* has a genome size of 103Mb, how many number of genes (approx.) are there in its genome?

[Question ID = 1060][Question Description = 200_26_ANB_AUG22_Q100]

1. 27,000 [Option ID = 4237]
2. 20,000 [Option ID = 4238]
3. 5800 [Option ID = 4239]
4. 4400 [Option ID = 4240]

101) Under certain circumstances, an elongating RNA polymerase can become arrested and cease transcribing. To deal with this situation, the cell has machinery that removes the arrested polymerase and at the same time recruits repair enzymes. Name the enzyme(s) which is part of the machinery.

[Question ID = 1061][Question Description = 201_26_ANB_AUG22_Q101]

1. Endonuclease Uvr(A)(B)(C)

   [Option ID = 4241]
2. Exonuclease

   [Option ID = 4242]
3. DNA polymerase

   [Option ID = 4243]
4. Reverse transcriptase

   [Option ID = 4244]

102) The serum in mammalian cell culture medium stimulates cell growth and attachment. However, it must be filter sterilized prior to use to[Question ID = 1062][Question Description = 202_26_ANB_AUG22_Q102]

1. Removal of mycoplasma [Option ID = 4245]
2. Removal of proteins [Option ID = 4246]
3. Removal of collagen [Option ID = 4247]
4. Removal of foaming agents [Option ID = 4248]

103) PCR of G-C rich regions (GC content >60%) pose some of the greatest challenges to PCR. However, this problem can be overcome by using which of the following?[Question ID = 1063][Question Description = 203_26_ANB_AUG22_Q103]

1. Optimizing the concentration of Magnesium chloride [Option ID = 4249]
2. Increasing the concentration of Taq polymerase [Option ID = 4250]
3. Using betaine or 7-deaza-2′-deoxyguanosine [Option ID = 4251]
4. Increasing the initial denaturation time [Option ID = 4252]

104) Which of the following statement is correct about DNA vaccines?

[Question ID = 1064][Question Description = 204_26_ANB_AUG22_Q104]

1. They have distinct advantage when preparing subunit vaccines against viruses which frequently alter their antigens [Option ID = 4253]
2. They are relatively poor at stimulating cytotoxic T lymphocytes response in mice [Option ID = 4254]
3. They must be administered on gold particles if they are to be effective [Option ID = 4255]
4. They are only effective if followed by a protein boost [Option ID = 4256]

105) Recently, it was reported that adult, differentiated cells can be made to behave as pluripotent stem cells by the introduction of a few genes, one of which was Oct4. What was the rationale for this experiment?[Question ID = 1065] [Question Description = 205_26_ANB_AUG22_Q105]

1. Oct4 expression is one of the requisites for the maintenance of pluripotent embryonic stem cells in culture [Option ID = 4257]
2. The Oct4 gene produces a cell-cell signaling protein that is used by stem cells to stimulate cell division [Option ID = 4258]
3. Oct4 is only expressed in embryonic stem cells, and so its expression automatically reverses any differentiation that may have gone on in a cel [Option ID = 4259]
4. Oct4 is a master switch gene that turns on the stem cell program [Option ID = 4260]

106) Which of the following describes the mode of action of Tetracycline as an antibiotic?

[Question ID = 1066][Question Description = 206_26_ANB_AUG22_Q106]

1. Catalyzes the ADP-ribosylation of eEF-2 in mammalian cells [Option ID = 4261]
2. Binds to 23S rRNA [Option ID = 4262]
3. Prevents the binding of aminoacyl-tRNAs to the A site [Option ID = 4263]
4. Inhibits the peptidyltransferase in the 60S ribosomal subunit [Option ID = 4264]

107) A 1.2 kb DNA fragment was cloned into BamHI and EcoRI sites located on a 2.8 kb cloning vector. The BamHI and EcoRI sites are adjacent to each other on the vector backbone. The vector contains an XhoI site located 300 bp upstream of the BamHI site. An internal XhoI site is present in the gene sequence. The resultant recombinant plasmid is digested with EcoRI and XhoI and analyzed through 1% agarose gel electrophoresis. Assuming complete digestion with EcoRI and XhoI, the DNA fragments (in base pairs) visible on the agarose gel will correspond to:[Question ID = 1067][Question Description = 207_26_ANB_AUG22_Q107]

1. 2800, 700 and 500 [Option ID = 4265]
2. 2800, 700 and 800 [Option ID = 4266]
3. 2500, 700 and 800 [Option ID = 4267]
4. 2500, 1200 and 300 [Option ID = 4268]

108) The polymerization of the gel used in polyacrylamide gel electrophoresis occurs between acrylamide and

[Question ID = 1068][Question Description = 208_26_ANB_AUG22_Q108]

1. Tetra bis acrylamide [Option ID = 4269]
2. N, N'-acrylamide [Option ID = 4270]
3. N, N'-Methylene bis-acrylamide [Option ID = 4271]
4. Methylene acrylamide [Option ID = 4272]

109) The most plausible explanation for a sudden increase of the respiratory quotient (RQ) of a microbial culture is that[Question ID = 1069][Question Description = 209_26_ANB_AUG22_Q109]

1. cells are dying [Option ID = 4273]
2. the maintenance rate is decreasing [Option ID = 4274]
3. the fermentation rate is increasing relative to respiration rate [Option ID = 4275]
4. yield of biomass is increasing [Option ID = 4276]

110) Reactions between antibodies and antigens that are detected by precipitate formation in an agar gel are referred as[Question ID = 1070][Question Description = 210_26_ANB_AUG22_Q110]

1. Immunoprecipitation assay [Option ID = 4277]
2. Immuno-diffusion assay [Option ID = 4278]
3. Immuno-fluorescence [Option ID = 4279]
4. Immuno-aggregation assay [Option ID = 4280]

111) Antibody response to a protein vaccine can only be obtained

[Question ID = 1071][Question Description = 211_26_ANB_AUG22_Q111]

1. If the peptide bonds are maintained [Option ID = 4281]
2. If the peptide bonds are not maintained [Option ID = 4282]
3. If the molecule is glycosylated [Option ID = 4283]
4. If the molecule is first linked to a carrier [Option ID = 4284]

112) In a batch culture of Penicillium chrysogenum, the maximum penicillin synthesis occurs during the

[Question ID = 1072][Question Description = 212_26_ANB_AUG22_Q112]

1. Lag phase [Option ID = 4285]
2. Stationary phase [Option ID = 4286]
3. Exponential phase [Option ID = 4287]
4. Death phase [Option ID = 4288]

113) Some prokaryotes have multiple chromosomes while other have single. Which of the following is/are true?[Question ID

= 1073][Question Description = 213_26_ANB_AUG22_Q113]

1. *Agrobacterium tumefaciens* has 3 circular and 1 linear chromosome. [Option ID = 4289]
2. *Mycoplasma genitalium* has one linear chromosome [Option ID = 4290]
3. *Sinorhizobium melilot* has 3 linear chromosomes. [Option ID = 4291]
4. *Escherichia coli K-12* has 2 circular chromosomes. [Option ID = 4292]

114) If a splice site were mutated so that splicing did not take place, what would be the effect on the mRNA?[Question ID = 1074][Question Description = 214_26_ANB_AUG22_Q114]

1. It would be shorter than normal. [Option ID = 4293]
2. It would be longer than normal. [Option ID = 4294]
3. It would be the same length but would encode a different protein. [Option ID = 4295]
4. The mRNA will be degraded. [Option ID = 4296]

115) First NIH guidelines for the conduct of recombinant DNA research were issued in which year?

[Question ID = 1075][Question Description = 215_26_ANB_AUG22_Q115]

1. 1976 [Option ID = 4297]
2. 1981 [Option ID = 4298]
3. 1993 [Option ID = 4299]
4. 2005 [Option ID = 4300]

116) The 4-amino or 4-keto group of pyrimidine bases is located in the[Question ID = 1076][Question Description = 216_26_ANB_AUG22_Q116]

1. major groove of the double stranded DNA [Option ID = 4301]
2. major groove of the B form DNA but not the A form DNA [Option ID = 4302]
3. minor groove of the B form DNA but not the A form DNA [Option ID = 4303]
4. minor groove of the double stranded DNA [Option ID = 4304]

117) A DNA strand with sequence 5' CGATTC 3' would be complementary to the sequence

[Question ID = 1077][Question Description = 217_26_ANB_AUG22_Q117]

1. 5' GCUAAC 3' [Option ID = 4305]
2. 5' GCTAAC 3' [Option ID = 4306]
3. 5' GTTAGC 3' [Option ID = 4307]
4. 5' GAATCG 3' [Option ID = 4308]

118) Heat-stable liquids: water, salt solutions, autoclavable media and moderately heat-stable plastics used in animal cell culture can be sterilised by which of the following method?[Question ID = 1078][Question Description = 218_26_ANB_AUG22_Q118]

1. Moist heat [Option ID = 4309]
2. Dry heat [Option ID = 4310]
3. Gamma irradiation [Option ID = 4311]
4. Short UV exposure [Option ID = 4312]

119) Which of the following properties best describe holding medium?[Question ID = 1079][Question Description = 219_26_ANB_AUG22_Q119]

1. Holding media are usually regular media with the serum concentration reduced to 0.5% or 2% or eliminated completely [Option ID = 4313]
2. Holding media are used to maintain primary cell lines without using up the limited number of cell generations available to them [Option ID = 4314]
3. Holding media are depleted with hormones [Option ID = 4315]
4. Holding media are suitable for bacterial cultures. [Option ID = 4316]

120) To which one of the following groups would it be acceptable to give a live attenuated viral vaccine?[Question ID = 1080][Question Description = 220_26_ANB_AUG22_Q120]

1. Patients treated with radiotherapy [Option ID = 4317]
2. Pregnant mothers [Option ID = 4318]
3. Patients with leukemia [Option ID = 4319]
4. Children under 8 years of age [Option ID = 4320]