

33 Animal Bio Technology ICAR SEPT 2022

Topic:- GEN KNOW COMMON PHD

1) Colour of the tag used on certified seed bags is[Question ID = 16958][Question Description = 101_221_GKD_SEP22_Q01]

1. Blue [Option ID = 37829]
2. Purple [Option ID = 37830]
3. White [Option ID = 37831]
4. Golden Yellow [Option ID = 37832]

2) Following are the statements regarding the Usar soil -

- A. It is reclaimed by adding lime.
- B. This soil has pH more than seven.
- C. Paddy crop can be grown in this soil.

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

[Question ID = 16959][Question Description = 102_221_GKD_SEP22_Q02]

1. A and B only [Option ID = 37833]
2. B and C only [Option ID = 37834]
3. C only [Option ID = 37835]
4. A only [Option ID = 37836]

3) When total utility of a commodity increases, marginal utility will be

[Question ID = 16960][Question Description = 103_221_GKD_SEP22_Q03]

1. Negative but increasing
[Option ID = 37837]
2. Positive but decreasing
[Option ID = 37838]
3. Constant
[Option ID = 37839]
4. Either positive or negative
[Option ID = 37840]

4) Where is the headquarter of International Fund for Agriculture Development located?

[Question ID = 16961][Question Description = 104_221_GKD_SEP22_Q04]

1. Vienna, Austria
[Option ID = 37841]
2. Rome, Italy
[Option ID = 37842]
3. New York, USA
[Option ID = 37843]
4. Berlin, Germany
[Option ID = 37844]

5) Mid-Oceanic Ridges are one of the important divisions of the ocean floor. In this respect, point out the incorrect statement regarding the 'Mid-Oceanic Ridges'. [Question ID = 16962][Question Description = 105_221_GKD_SEP22_Q05]

1. It is the largest mountain chain on the surface of the earth [Option ID = 37845]
2. It is a series of interconnected chain within the ocean. [Option ID = 37846]
3. It is characterised by a central rift system [Option ID = 37847]
4. The rift system at the crest is the zone of very low volcanic activity. [Option ID = 37848]

6) Consider the following facts about the union territory of India and point out the one which is incorrect in relation to union territory.[Question ID = 16963][Question Description = 106_221_GKD_SEP22_Q06]

1. These are the areas under the direct control of central government. [Option ID = 37849]
2. Also known as the 'centrally administered territories. [Option ID = 37850]

3. These territories constitute a conspicuous departure from the unitary feature of India. [Option ID = 37851]
4. There is no uniformity in their administrative systems. [Option ID = 37852]

7) Variety of flora and fauna are found in the different types of forest in India. In this regard, species of trees like teak, *sal shisham*, *sandalwood*, etc. are found in which of the following type of forests in India?[Question ID = 16964][Question Description = 107_221_GKD_SEP22_Q07]

1. Tropical evergreen forests [Option ID = 37853]
2. Tropical thorn forests [Option ID = 37854]
3. Tropical deciduous forests [Option ID = 37855]
4. Montane forests [Option ID = 37856]

8) The Marginal Preference Theory of consumption behaviour was proposed by

[Question ID = 16965][Question Description = 108_221_GKD_SEP22_Q08]

1. Armstrong
[Option ID = 37857]
2. J.K.Hicks
[Option ID = 37858]
3. Neumann
[Option ID = 37859]
4. Edmund Cannon
[Option ID = 37860]

9) Point out the incorrect statements regarding the service sector in India.[Question ID = 16966][Question Description = 109_221_GKD_SEP22_Q09]

1. It is the highest contributor to GDP [Option ID = 37861]
2. It requires skilled labour [Option ID = 37862]
3. It is the fastest growing sector [Option ID = 37863]
4. It is restricted to very few sectors. [Option ID = 37864]

10) Consider the statements regarding the agriculture sector in India and point out the incorrect statement.[Question ID = 16967][Question Description = 110_221_GKD_SEP22_Q10]

1. Agriculture sector is the largest employer of workforce [Option ID = 37865]
2. It has contributed to the Gross Value Added (GVA) [Option ID = 37866]
3. Growth in allied sectors is the major drivers of overall growth in the sector. [Option ID = 37867]
4. Minimum Support Price (MSP) policy is used as to promote crop uniformity. [Option ID = 37868]

11) In case of related goods, the cross elasticity of demand is[Question ID = 16968][Question Description = 111_221_GKD_SEP22_Q11]

1. Low [Option ID = 37869]
2. High [Option ID = 37870]
3. Zero [Option ID = 37871]
4. Unity [Option ID = 37872]

12) With reference to organic farming in India, consider the following statements :

- A. The National Programme for Organic Production' (NPOP) is operated under the guidelines and directions of the Union Ministry of Rural Development.
- B. The Agricultural and Processed Food Products Export Development Authority' (APEDA) functions as the Secretariat for the implementation of NPOP.
- C. Sikkim has become India's first fully organic state.

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

[Question ID = 16969][Question Description = 112_221_GKD_SEP22_Q12]

1. A and B only
[Option ID = 37873]
2. B and C only
[Option ID = 37874]
3. C only
[Option ID = 37875]
4. A, B and C

[Option ID = 37876]

13) With reference to the circumstances in Indian agriculture, the concept of "Conservation Agriculture" assumes significance. Which of the following falls under the Conservation Agriculture ?

- A. Avoiding the monoculture practices.
- B. Adopting minimum tillage.
- C. Avoiding the cultivation of plantation crops.
- D. Using crop residues to cover soil surface.
- E. Adopting spatial and temporal crop sequencing/ crop rotations.

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

[Question ID = 16970][Question Description = 113_221_GKD_SEP22_Q13]

- 1. A, C and D only [Option ID = 37877]
- 2. B, C, D and E only [Option ID = 37878]
- 3. B, D and E only [Option ID = 37879]
- 4. A, B, C and E only [Option ID = 37880]

14) Consumers are likely to get a variety of goods in which kind of market competition[Question ID = 16971][Question Description = 114_221_GKD_SEP22_Q14]

- 1. Monopoly [Option ID = 37881]
- 2. Duopoly [Option ID = 37882]
- 3. Oligopoly [Option ID = 37883]
- 4. Monopolistic [Option ID = 37884]

15) What is the correct chronological order of the following laws enacted for the conservation and protection of environment ?

- A. Environment (Protection) Act.
- B. Water (Prevention & Control of Pollution) Act.
- C. Air (Prevention & Control of pollution) Act.
- D. National Green Tribunal Act.

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

[Question ID = 16972][Question Description = 115_221_GKD_SEP22_Q15]

- 1. B, C, A, D [Option ID = 37885]
- 2. A, B, C, D [Option ID = 37886]
- 3. C, B, A, D [Option ID = 37887]
- 4. D, C, B, A [Option ID = 37888]

16) The scientific study of soil is[Question ID = 16973][Question Description = 116_221_GKD_SEP22_Q16]

- 1. Earth Study [Option ID = 37889]
- 2. Soil Science [Option ID = 37890]
- 3. Pedology [Option ID = 37891]
- 4. Soil Chemistry [Option ID = 37892]

17) *Triticum aestivum*, the common bread wheat is -

[Question ID = 16974][Question Description = 117_221_GKD_SEP22_Q17]

- 1. Tetraploid
[Option ID = 37893]
- 2. Hexaploid
[Option ID = 37894]
- 3. Haploid
[Option ID = 37895]
- 4. Diploid
[Option ID = 37896]

18) Sectoral inflation refers to[Question ID = 16975][Question Description = 118_221_GKD_SEP22_Q18]

- 1. Running inflation [Option ID = 37897]

2. Comprehensive inflation [Option ID = 37898]
3. Sporadic inflation [Option ID = 37899]
4. Creeping inflation [Option ID = 37900]

19) Keynes Liquidity trap refers to[Question ID = 16976][Question Description = 119_221_GKD_SEP22_Q19]

1. Speculative demand for money [Option ID = 37901]
2. Transactions motive of money is inelastic [Option ID = 37902]
3. Precautionary motive of money is inelastic [Option ID = 37903]
4. Transactions motive of money is constant [Option ID = 37904]

20) A business is solvent if[Question ID = 16977][Question Description = 120_221_GKD_SEP22_Q20]

1. Total receipts exceed total expenditures [Option ID = 37905]
2. Total debt exceeds total equity [Option ID = 37906]
3. Total sales exceed total cash expense [Option ID = 37907]
4. Total assets exceed total liabilities [Option ID = 37908]

Topic:- Veterinary and Animal Sciences 4_PHD

1) The immediate source of water loss from the body is

[Question ID = 4251][Question Description = 101_123_BVS_SEP22_Q01]

1. Intracellular fluid
[Option ID = 17001]
2. Interstitial fluid
[Option ID = 17002]
3. Extracellular fluid
[Option ID = 17003]
4. Cerebro-spinal fluid
[Option ID = 17004]

2) Which cardiac valves close with the first heart sound?

[Question ID = 4252][Question Description = 102_123_BVS_SEP22_Q02]

1. Atrioventricular valves
[Option ID = 17005]
2. Semilunar valves
[Option ID = 17006]
3. Both atrioventricular and Semilunar valves
[Option ID = 17007]
4. Neither, both valves open with the first heart sound
[Option ID = 17008]

3) The life span of WBC is approximately[Question ID = 4253][Question Description = 103_123_BVS_SEP22_Q03]

1. less than 10 days [Option ID = 17009]
2. between 20-30 days [Option ID = 17010]
3. between 2-3 months [Option ID = 17011]
4. more than three months [Option ID = 17012]

4) The darker purple color of venous blood is due to:[Question ID = 4254][Question Description = 104_123_BVS_SEP22_Q04]

1. Decreased concentration of Carbon dioxide [Option ID = 17013]
2. Increased concentration of Carbon dioxide [Option ID = 17014]
3. Decreased concentration of Oxygen [Option ID = 17015]
4. Increased concentration of Oxygen [Option ID = 17016]

5) Which of the following is not a true statement about pulmonary surfactant;

[Question ID = 4255][Question Description = 105_123_BVS_SEP22_Q05]

1. It can be deficient in premature newborns
[Option ID = 17017]
2. It is produced in type II alveolar cells
[Option ID = 17018]

3. It is in part composed of dipalmitoyl phosphatidylcholine

[Option ID = 17019]

4. It is produced by pulmonary endothelial cells

[Option ID = 17020]

6) Uric acid precipitates in the renal tubules in order to:[Question ID = 4256][Question Description = 106_123_BVS_SEP22_Q06]

1. Avoid ammonia toxicity [Option ID = 17021]

2. Avoid obligation of water excretion [Option ID = 17022]

3. Lubricate the renal tubules [Option ID = 17023]

4. Have a better mix with feces [Option ID = 17024]

7) Vomiting center is present in[Question ID = 4257][Question Description = 107_123_BVS_SEP22_Q07]

1. Hypothalamus [Option ID = 17025]

2. Medulla [Option ID = 17026]

3. Pons [Option ID = 17027]

4. Hippocampus [Option ID = 17028]

8) Which one of the avian digestive tract structures secretes HCl and pepsinogen?[Question ID = 4258][Question Description = 108_123_BVS_SEP22_Q08]

1. Crop [Option ID = 17029]

2. Proventriculus [Option ID = 17030]

3. Gizzard [Option ID = 17031]

4. Ceca [Option ID = 17032]

9) Rigor mortis is due to

[Question ID = 4259][Question Description = 109_123_BVS_SEP22_Q09]

1. Damage to actin and myosin

[Option ID = 17033]

2. Rapid sequestration of Calcium in endoplasmic reticulum

[Option ID = 17034]

3. Increased myosin ATPase

[Option ID = 17035]

4. ATP depletion

[Option ID = 17036]

10) The neurotransmitter at the sympathetic postganglionic-to-target organ synapse is[Question ID = 4260][Question Description = 110_123_BVS_SEP22_Q10]

1. Nor epinephrine [Option ID = 17037]

2. Epinephrine [Option ID = 17038]

3. Acetylcholine [Option ID = 17039]

4. Dopamine [Option ID = 17040]

11) Neuroglia that is part of the choroid plexus comprises:[Question ID = 4261][Question Description = 111_123_BVS_SEP22_Q11]

1. Astrocytes [Option ID = 17041]

2. Ependymal cells [Option ID = 17042]

3. Microglia [Option ID = 17043]

4. Oligodendrocytes [Option ID = 17044]

12) Which one of the following hormones promotes the tubular reabsorption of Na⁺ and the tubular secretion of K⁺? [Question ID = 4262][Question Description = 112_123_BVS_SEP22_Q12]

1. Antidiuretic hormone [Option ID = 17045]

2. Secretin [Option ID = 17046]

3. Aldosterone [Option ID = 17047]

4. Vasopressin [Option ID = 17048]

13) Which species is considered suitable for the production of human organ for transplantation?

[Question ID = 4263][Question Description = 113_123_BVS_SEP22_Q13]

1. Cattle [Option ID = 17049]

2. Buffalo [Option ID = 17050]

3. Pig [Option ID = 17051]
4. Mare [Option ID = 17052]

14) Noori is the clone of[Question ID = 4264][Question Description = 114_123_BVS_SEP22_Q14]

1. Sheep [Option ID = 17053]
2. Goat [Option ID = 17054]
3. Pig [Option ID = 17055]
4. Buffalo [Option ID = 17056]

15) Short term day-to-day fluctuation of the meteorological variables, is known as:

[Question ID = 4265][Question Description = 115_123_BVS_SEP22_Q15]

1. Climate [Option ID = 17057]
2. Weather [Option ID = 17058]
3. Microclimate [Option ID = 17059]
4. Macro Climate [Option ID = 17060]

16) The Henderson-Hasselbalch equation for determining the pH of a buffer is given as[Question ID = 4266][Question Description = 116_123_BVS_SEP22_Q16]

1. $\text{pH} = \text{pKa} + \log[\text{salt}]/[\text{acid}]$ [Option ID = 17061]
2. $\text{pH} = \text{pKa} + \log[\text{acid}]/[\text{salt}]$ [Option ID = 17062]
3. $\text{pH} = \text{pKa} - \log[\text{salt}]/[\text{acid}]$ [Option ID = 17063]
4. $\text{pH} = \text{pKa} - \log[\text{acid}]/[\text{salt}]$ [Option ID = 17064]

17) The skin fibroblasts contain[Question ID = 4267][Question Description = 117_123_BVS_SEP22_Q17]

1. Hyaluronic acid [Option ID = 17065]
2. Chondroitin sulfate [Option ID = 17066]
3. Dermatan sulfate [Option ID = 17067]
4. Heparan sulfate [Option ID = 17068]

18) The following is an inhibitor of cytochrome oxidase in electron transport chain

[Question ID = 4268][Question Description = 118_123_BVS_SEP22_Q18]

1. BAL [Option ID = 17069]
2. Rotenone [Option ID = 17070]
3. Sodium azide [Option ID = 17071]
4. CO_2 [Option ID = 17072]

19) Thyroxine is a[Question ID = 4269][Question Description = 119_123_BVS_SEP22_Q19]

1. Steroid hormone [Option ID = 17073]
2. Peptide hormone [Option ID = 17074]
3. Vitamin [Option ID = 17075]
4. Neurotransmitter [Option ID = 17076]

20) Prokaryotic mRNA is[Question ID = 4270][Question Description = 120_123_BVS_SEP22_Q20]

1. Monocistronic [Option ID = 17077]
2. Polycistronic [Option ID = 17078]
3. Contain a Poly A tail [Option ID = 17079]
4. Contain introns [Option ID = 17080]

21) Chemiosmotic hypothesis is associated with[Question ID = 4271][Question Description = 121_123_BVS_SEP22_Q21]

1. ATP synthesis [Option ID = 17081]
2. Protein synthesis [Option ID = 17082]
3. Protein transport [Option ID = 17083]
4. Signal transduction [Option ID = 17084]

22) Enzymes having slightly different molecular structures but performing identical activity are

[Question ID = 4272][Question Description = 122_123_BVS_SEP22_Q22]

1. Holoenzymes [Option ID = 17085]
2. Apoenzymes [Option ID = 17086]
3. Isoenzymes [Option ID = 17087]
4. Coenzymes [Option ID = 17088]

23) The following statement(s) about Ribulose is true.

[Question ID = 4273][Question Description = 123_123_BVS_SEP22_Q23]

1. It is a tetrose sugar [Option ID = 17089]
2. It has an aldehyde group [Option ID = 17090]
3. It is a hexose sugar [Option ID = 17091]
4. It is a keto pentose [Option ID = 17092]

24) Negative regulator of pyruvate kinase is[Question ID = 4274][Question Description = 124_123_BVS_SEP22_Q24]

1. Acetyl coA [Option ID = 17093]
2. Alanine [Option ID = 17094]
3. Citrate [Option ID = 17095]
4. Fructose 1,6 Biphosphate [Option ID = 17096]

25) For all the common amino acid except glycine the carbon atom is bonded to different groups.

- A. An amino group
- B. An R-group
- C. A carboxyl group
- D. Hydrogen atom

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

[Question ID = 4275][Question Description = 125_123_BVS_SEP22_Q25]

1. A and B only
[Option ID = 17097]
2. B and C only
[Option ID = 17098]
3. A, B and D only
[Option ID = 17099]
4. A, B, C and D
[Option ID = 17100]

26) Which of the amino acid is simplest in structure

[Question ID = 4276][Question Description = 126_123_BVS_SEP22_Q26]

1. Methionine [Option ID = 17101]
2. Glycine [Option ID = 17102]
3. Alanine [Option ID = 17103]
4. Valine [Option ID = 17104]

27) System of specifying configuration around a chiral center of amino acid is

[Question ID = 4277][Question Description = 127_123_BVS_SEP22_Q27]

1. D, L system only [Option ID = 17105]
2. RS system only [Option ID = 17106]
3. D, L & RS system both [Option ID = 17107]
4. Chimeric system [Option ID = 17108]

28) Given below are two statements

Statement I: Pure water is slightly ionized

Statement II: Water has slight tendency to reversible ionization yielding a hydrogen ion and hydroxylion

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

[Question ID = 4278][Question Description = 128_123_BVS_SEP22_Q28]

1. Statement I and Statement II are correct and Statement II is the correct justification of Statement I [Option ID = 17109]
2. Statement I and Statement II both are correct but Statement II is NOT the correct justification of Statement I [Option ID = 17110]
3. Statement I is correct but Statement II is false [Option ID = 17111]
4. Statement I and Statement II both are incorrect [Option ID = 17112]

29) Two catabolic processes of glycogen are

[Question ID = 4279][Question Description = 129_123_BVS_SEP22_Q29]

1. Glycogenolysis and Glycogenesis
[Option ID = 17113]
2. Glycogenolysis and Gluconeogenesis

[Option ID = 17114]

3. Glycolysis and Glycogenolysis

[Option ID = 17115]

4. Glycolysis and Glycogenesis

[Option ID = 17116]

30) _____ is the immediate donor of glucose residue in the reaction catalyzed by glycogen synthase.

[Question ID = 4280][Question Description = 130_123_BVS_SEP22_Q30]

1. UMP-glucose

[Option ID = 17117]

2. UDP-glucose

[Option ID = 17118]

3. UTP-glucose

[Option ID = 17119]

4. Glucose-1-Phosphate

[Option ID = 17120]

31) Two sugars which differ only in the configuration around one carbon atom are called _____

[Question ID = 4281][Question Description = 131_123_BVS_SEP22_Q31]

1. Chimers [Option ID = 17121]

2. Chirals [Option ID = 17122]

3. Epimers [Option ID = 17123]

4. Isomers [Option ID = 17124]

32) two stereoisomers of glyceraldehyde can be represented by

A. Ball and stick models

B. Fisher projection formulas

C. Perspective formulas

Which of the following is *correct*

[Question ID = 4282][Question Description = 132_123_BVS_SEP22_Q32]

1. A only [Option ID = 17125]

2. B only [Option ID = 17126]

3. A and B only [Option ID = 17127]

4. A, B and C [Option ID = 17128]

33) Dextran are

[Question ID = 4283][Question Description = 133_123_BVS_SEP22_Q33]

1. Bacterial glucosen [Option ID = 17129]

2. Bacterial and yeast polysaccharides [Option ID = 17130]

3. Yeast starch [Option ID = 17131]

4. Bacterial and yeast branched chain amino acids [Option ID = 17132]

34) Inhibitors that bind covalently with or destroy a functional group on an enzyme that is essential for enzymatic activity is called

[Question ID = 4284][Question Description = 134_123_BVS_SEP22_Q34]

1. Suicidal inactivators [Option ID = 17133]

2. Mixed inhibitor [Option ID = 17134]

3. Uncompetitive inhibitor [Option ID = 17135]

4. Irreversible inhibitor [Option ID = 17136]

35) Pyruvate kinase is allosterically inhibited by _____

[Question ID = 4285][Question Description = 135_123_BVS_SEP22_Q35]

1. AMP [Option ID = 17137]

2. ATP [Option ID = 17138]

3. UTP [Option ID = 17139]

4. UDP [Option ID = 17140]

36) Handmade cloning is a method of?[Question ID = 4286][Question Description = 136_123_BVS_SEP22_Q36]

1. DNA cloning by manual methods [Option ID = 17141]
2. Somatic cell nuclear transfer [Option ID = 17142]
3. Replica plating of bacteria using a handmade wooden block [Option ID = 17143]
4. Blastomeric cloning [Option ID = 17144]

37) Sebelipase alfa, an FDA-approved protein for the treatment of lysosomal acid lipase deficiency, has been produced in transgenic[Question ID = 4287][Question Description = 137_123_BVS_SEP22_Q37]

1. Salmon [Option ID = 17145]
2. Rabbit [Option ID = 17146]
3. Chicken egg [Option ID = 17147]
4. Goat milk [Option ID = 17148]

38) Recombination of different types of cells to form more defined tissue or organ is known as ...[Question ID = 4288][Question Description = 138_123_BVS_SEP22_Q38]

1. Organotypic culture [Option ID = 17149]
2. Primary culture [Option ID = 17150]
3. Secondary culture [Option ID = 17151]
4. Cell line [Option ID = 17152]

39) Mung bean S1 nuclease could be used for...[Question ID = 4289][Question Description = 139_123_BVS_SEP22_Q39]

1. DNA synthesis [Option ID = 17153]
2. Nucleotide hydrolysis [Option ID = 17154]
3. Trimming single stranded regions in DNA [Option ID = 17155]
4. Removal of phosphate group from the ends of the DNA [Option ID = 17156]

40) Ligation reaction is generally performed at a temperature of[Question ID = 4290][Question Description = 140_123_BVS_SEP22_Q40]

1. 37°C [Option ID = 17157]
2. 40°C [Option ID = 17158]
3. 16°C [Option ID = 17159]
4. 25°C [Option ID = 17160]

41) Consider the following statements:

I. T4 DNA ligase can catalyze blunt end ligation more efficiently than E. coli DNA ligase

II. The ligation efficiency of T4 DNA ligase can be increased with PEG and Ficoll.

III. T4 ligase requires ATP while E.coli DNA ligase requires NAD⁺

[Question ID = 4291][Question Description = 141_123_BVS_SEP22_Q41]

1. Only I is true [Option ID = 17161]
2. Only II is true [Option ID = 17162]
3. Both I and III are true [Option ID = 17163]
4. All are true [Option ID = 17164]

42) Which second messenger signals the release of Ca⁺⁺ from the endoplasmic reticulum?[Question ID = 4292][Question Description = 142_123_BVS_SEP22_Q42]

1. Cyclic AMP [Option ID = 17165]
2. Cyclic GMP [Option ID = 17166]
3. 1,2 diacyl glycerol [Option ID = 17167]
4. Inositol triphosphate [Option ID = 17168]

43) The molecular mass of a protein is 22 kDa. The size of cDNA (excluding the UTR) that codes for this protein is kb.[Question ID = 4293][Question Description = 143_123_BVS_SEP22_Q43]

1. 1.5 [Option ID = 17169]
2. 0.8 [Option ID = 17170]
3. 4.4 [Option ID = 17171]
4. 0.6 [Option ID = 17172]

44) The structure of an average eukaryotic gene includes...

[Question ID = 4294][Question Description = 144_123_BVS_SEP22_Q44]

1. UTR, CDS, Poly(A) [Option ID = 17173]
2. RBS, Exon, Intron [Option ID = 17174]
3. UAS, DAS, CDS [Option ID = 17175]
4. CDS, UAS, Poly(A) [Option ID = 17176]

45) Only percentage of total RNA is mRNA.[Question ID = 4295][Question Description = 145_123_BVS_SEP22_Q45]

1. 1-2% [Option ID = 17177]
2. 4-5% [Option ID = 17178]
3. 5-10% [Option ID = 17179]
4. 80-90% [Option ID = 17180]

46) How many chromosomes will be found per cell in trisomic cattle (*Bos taurus*)?[Question ID = 4296][Question Description = 146_123_BVS_SEP22_Q46]

1. 60 [Option ID = 17181]
2. 90 [Option ID = 17182]
3. 180 [Option ID = 17183]
4. 61 [Option ID = 17184]

47) The number of atoms held into a geometric plane by a peptide bond is:[Question ID = 4297][Question Description = 147_123_BVS_SEP22_Q47]

1. 2 [Option ID = 17185]
2. 3 [Option ID = 17186]
3. 4 [Option ID = 17187]
4. 6 [Option ID = 17188]

48) To isolate a gene coding for Insulin, the mRNA has to be isolated from...[Question ID = 4298][Question Description = 148_123_BVS_SEP22_Q48]

1. Intestine [Option ID = 17189]
2. Pancreas [Option ID = 17190]
3. Pituitary [Option ID = 17191]
4. Any tissue can be used [Option ID = 17192]

49) The C-value of laboratory mice is approximately[Question ID = 4299][Question Description = 149_123_BVS_SEP22_Q49]

1. 1.3 billion [Option ID = 17193]
2. 2.1 billion [Option ID = 17194]
3. 3.2 billion [Option ID = 17195]
4. 4.3 billion [Option ID = 17196]

50) The air-lift bioreactor is best suited for...[Question ID = 4300][Question Description = 150_123_BVS_SEP22_Q50]

1. Monolayers culture [Option ID = 17197]
2. Suspension culture [Option ID = 17198]
3. Culturing blood [Option ID = 17199]
4. Embryo culture [Option ID = 17200]

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1) Which of the following relations will be found in the percentages of bases of a double-stranded DNA molecule?

[Question ID = 4401][Question Description = 101_1767_ANBI_SEP22_Q01]

1. $(A+T) / (C+G) = 1.0$ [Option ID = 17601]
2. $(A+G) / (C+T) = 1.0$ [Option ID = 17602]
3. $(A/C) = (G/T)$ [Option ID = 17603]
4. $(A/T) = (G/C)$ [Option ID = 17604]

2) The diameter of a human DNA strand is

[Question ID = 4402][Question Description = 102_1767_ANBI_SEP22_Q02]

1. 1.4 nm [Option ID = 17605]
2. 2.0 nm [Option ID = 17606]
3. 3.4 nm [Option ID = 17607]
4. 8.0 nm [Option ID = 17608]

3) How many bonded atoms are required to constitute a dihedral angle?[Question ID = 4403][Question Description = 103_1767_ANBI_SEP22_Q03]

1. 1 [Option ID = 17609]
2. 2 [Option ID = 17610]
3. 4 [Option ID = 17611]
4. 6 [Option ID = 17612]

4) In cattle, dosage compensation is carried out by:[Question ID = 4404][Question Description =

104_1767_ANBI_SEP22_Q04]

1. Decreasing the transcription of the X-chromosome genes in males [Option ID = 17613]
2. Increasing the transcription of the Y-chromosome genes in males [Option ID = 17614]
3. Inactivating one X chromosome in females by condensation as heterochromatin [Option ID = 17615]
4. Degrading one X chromosome in female during early embryonic development [Option ID = 17616]

5) LacUV5 promoter is:[Question ID = 4405][Question Description = 105_1767_ANBI_SEP22_Q05]

1. Inducible by UV light [Option ID = 17617]
2. Not dependent on CAP for its regulation [Option ID = 17618]
3. Negatively regulated by LacR [Option ID = 17619]
4. Devoid of -35 consensus sequence [Option ID = 17620]

6) Regulatory regions of genes can be studied by:[Question ID = 4406][Question Description = 106_1767_ANBI_SEP22_Q06]

1. Hybrid-arrest translation [Option ID = 17621]
2. Primer extension assay [Option ID = 17622]
3. DNA footprinting [Option ID = 17623]
4. S1 nuclease protection assay [Option ID = 17624]

7) Which of the following is true for promoters?

[Question ID = 4407][Question Description = 107_1767_ANBI_SEP22_Q07]

1. The ribosome binds to promoters to initiate translation [Option ID = 17625]
2. Promoters are transcribed from DNA sequences upstream of ATG [Option ID = 17626]
3. Promoters bind to DNA polymerase to initiate transcription [Option ID = 17627]
4. Promoters are DNA sequences [Option ID = 17628]

8) The capsid of the lambda virus is can pack DNA up to

[Question ID = 4408][Question Description = 108_1767_ANBI_SEP22_Q08]

1. 5-10 Kbp [Option ID = 17629]
2. 25-30 Kbp [Option ID = 17630]
3. 38-52 Kbp [Option ID = 17631]
4. 300-1000 Kbp [Option ID = 17632]

9) What type of protein is Ras?[Question ID = 4409][Question Description = 109_1767_ANBI_SEP22_Q09]

1. Tyrosine kinase [Option ID = 17633]
2. Serine-threonine kinase [Option ID = 17634]
3. Small monomeric GTPase switch protein [Option ID = 17635]
4. G protein switch [Option ID = 17636]

10) A nucleotide sequence of a non-template strand of a gene is 5' ...ATGCGTGTACGTCAA... 3'. What will be the mRNA sequence encoded by the gene?[Question ID = 4410][Question Description = 110_1767_ANBI_SEP22_Q10]

1. 5' ...AUGCGUGUACGUCAA... 3' [Option ID = 17637]
2. 5' ...AACUGCAUGUGCGUA... 3' [Option ID = 17638]
3. 5' ...UUGACGUACACGCAT... 3' [Option ID = 17639]
4. 5' ...UACGCACAUGCAGTT... 3' [Option ID = 17640]

11) Which one of the following is an example of a dominant selectable marker?[Question ID = 4411][Question Description = 111_1767_ANBI_SEP22_Q11]

1. Hprt (Hypoxanthine-guanine phosphoribosyltransferase) [Option ID = 17641]
2. Hpt (Hygromycin phosphotransferase) [Option ID = 17642]
3. Tk (Thymidine kinase) [Option ID = 17643]
4. Ada (Adenosine deaminase) [Option ID = 17644]

12) Which one of the following is an example of a constitutive ubiquitous promoter for the expression of transgene?

[Question ID = 4412][Question Description = 112_1767_ANBI_SEP22_Q12]

1. MMTV-LTR Promoter [Option ID = 17645]
2. CMV Promoter [Option ID = 17646]
3. Beta-Globin Promoter [Option ID = 17647]
4. Beta-Interferon Promoter [Option ID = 17648]

13) Which one of the following is commonly used as a heterologous intron in mammalian expression vectors?

[Question ID = 4413][Question Description = 113_1767_ANBI_SEP22_Q13]

1. WPRE sequence [Option ID = 17649]
2. SV40 small T-antigen intron [Option ID = 17650]

3. Chicken parathormone intron [Option ID = 17651]
4. 6-HisTag [Option ID = 17652]

14) Which of the following ORI produces the highest number of plasmid copies?[Question ID = 4414][Question Description = 114_1767_ANBI_SEP22_Q14]

1. pMB1 [Option ID = 17653]
2. ColE1 [Option ID = 17654]
3. pUC [Option ID = 17655]
4. pSC101 [Option ID = 17656]

15) Which of the following is an example of bacterial strain for recombinant protein expression?[Question ID = 4415][Question Description = 115_1767_ANBI_SEP22_Q15]

1. BK21 [Option ID = 17657]
2. BL21 [Option ID = 17658]
3. XL1 [Option ID = 17659]
4. GI9 [Option ID = 17660]

16) The genomic integration site of a transgene in the transfected cell can be identified by:[Question ID = 4416][Question Description = 116_1767_ANBI_SEP22_Q16]

1. Real-time PCR [Option ID = 17661]
2. Inverse PCR [Option ID = 17662]
3. Micro-array analysis [Option ID = 17663]
4. cDNA library construction [Option ID = 17664]

17) Which of the following is an example of Single-Molecule Real-Time Sequencing?[Question ID = 4417][Question Description = 117_1767_ANBI_SEP22_Q17]

1. Pyrosequencing [Option ID = 17665]
2. Illumina Sequencing [Option ID = 17666]
3. Polony Array Sequencing [Option ID = 17667]
4. PacBio Sequencing [Option ID = 17668]

18) Which of the following genotype helps improve the electroporation efficiency of E.coli competent cells?

[Question ID = 4418][Question Description = 118_1767_ANBI_SEP22_Q18]

1. endA [Option ID = 17669]
2. hsdR [Option ID = 17670]
3. hee [Option ID = 17671]
4. recA [Option ID = 17672]

19) The temperature used in the CaCl₂-based transformation method is:[Question ID = 4419][Question Description = 119_1767_ANBI_SEP22_Q19]

1. 31 °C [Option ID = 17673]
2. 38 °C [Option ID = 17674]
3. 42 °C [Option ID = 17675]
4. 52 °C [Option ID = 17676]

20) The enzyme that can be used in the 5' end-labeling of DNA is:[Question ID = 4420][Question Description = 120_1767_ANBI_SEP22_Q20]

1. Deoxynucleotidyl transferase [Option ID = 17677]
2. T4 ligase [Option ID = 17678]
3. Terminal transferase [Option ID = 17679]
4. Polynucleotide kinase [Option ID = 17680]

21) Spectrometric absorbance at 230 nm generally refers to

- A. Guanidium salts
- B. Phenol
- C. DNA/RNA
- D. Turbidity

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

[Question ID = 4421][Question Description = 121_1767_ANBI_SEP22_Q21]

1. A and B only [Option ID = 17681]
2. A and D only [Option ID = 17682]

3. B and D only [Option ID = 17683]
4. A, B, C and D [Option ID = 17684]

22) Star activity of the Restriction Enzyme is generally NOT due to

[Question ID = 4422][Question Description = 122_1767_ANBI_SEP22_Q22]

1. low ionic strength [Option ID = 17685]
2. high pH [Option ID = 17686]
3. high (> 5% v/v) glycerol concentrations [Option ID = 17687]
4. ATPase [Option ID = 17688]

23) What is the most commonly used cryoprotective agent for somatic cell freezing?[Question ID = 4423][Question Description = 123_1767_ANBI_SEP22_Q23]

1. Glycerol [Option ID = 17689]
2. Dimethyl sulfoxide [Option ID = 17690]
3. Isopropyl alcohol [Option ID = 17691]
4. Ethylene Glycol [Option ID = 17692]

24) The specific gravity of microbeads in microcarrier system for cell culture range between

[Question ID = 4424][Question Description = 124_1767_ANBI_SEP22_Q24]

1. 1.03 - 1.05 g/mL [Option ID = 17693]
2. 1.28 - 1.54 g/mL [Option ID = 17694]
3. 1.40 - 1.60 g/mL [Option ID = 17695]
4. 1.92 - 2.11 g/mL [Option ID = 17696]

25) G-banding karyotype involves:

[Question ID = 4425][Question Description = 125_1767_ANBI_SEP22_Q25]

1. Treatment with trypsin [Option ID = 17697]
2. Heat treatment [Option ID = 17698]
3. Treatment with Quinacrine [Option ID = 17699]
4. Treatment with acid [Option ID = 17700]

26) Metallothionein II promoter is an example of

[Question ID = 4426][Question Description = 126_1767_ANBI_SEP22_Q26]

1. Inducible promoter [Option ID = 17701]
2. Temperature-sensitive promoter [Option ID = 17702]
3. Mammary gland-specific promoter [Option ID = 17703]
4. Weak constitutive promoter [Option ID = 17704]

27) Matrigel can be used for coating plastic plates and is:

[Question ID = 4427][Question Description = 127_1767_ANBI_SEP22_Q27]

1. synthetic combination of growth factors and alginate gelatin
[Option ID = 17705]
2. derived from the extracellular matrix of mouse sarcoma
[Option ID = 17706]
3. secretome of mesenchymal stem cells grown on perfusion bioreactors
[Option ID = 17707]
4. matrix of gelatin containing insoluble extracellular vesicles
[Option ID = 17708]

28) Cell encapsulation in sodium alginate can be achieved by:[Question ID = 4428][Question Description = 128_1767_ANBI_SEP22_Q28]

1. Ionotropic gelation [Option ID = 17709]
2. Internal gelation [Option ID = 17710]
3. Gas foaming [Option ID = 17711]
4. Leaching method [Option ID = 17712]

29) Roller culture system has been used for:

[Question ID = 4429][Question Description = 129_1767_ANBI_SEP22_Q29]

1. Organ culture
[Option ID = 17713]

2. Ball-milled hydroxyapatite production for tissue Engineering

[Option ID = 17714]

3. Production of vaccine

[Option ID = 17715]

4. Paneer production

[Option ID = 17716]

30) Animal cells can be propagated in stirred tank reactor after:[Question ID = 4430][Question Description = 130_1767_ANBI_SEP22_Q30]

1. Treating the cells with Cytochalasin B [Option ID = 17717]

2. Treating the cells with Mitomycin C [Option ID = 17718]

3. Encapsulating in gelatin microbeads [Option ID = 17719]

4. Arresting their cell cycle to G₁ phase [Option ID = 17720]

31) Porous macrocarriers for animal cell culture can be prepared from:[Question ID = 4431][Question Description = 131_1767_ANBI_SEP22_Q31]

1. Polylactic acid [Option ID = 17721]

2. Polycaprolactone acid [Option ID = 17722]

3. Polyvinyl alcohol [Option ID = 17723]

4. Poly L-Lysin [Option ID = 17724]

32) Mitochondria can be isolated from animal cells by:[Question ID = 4432][Question Description = 132_1767_ANBI_SEP22_Q32]

1. treatment with 3-hydroxy-4-pentenoate [Option ID = 17725]

2. using lipophilic cationic compounds [Option ID = 17726]

3. differential centrifugation in sucrose [Option ID = 17727]

4. metrizamide gradient [Option ID = 17728]

33) Class II biosafety cabinets for animal cell culture should have a minimum inflow velocity of:[Question ID = 4433][Question Description = 133_1767_ANBI_SEP22_Q33]

1. 25 ft/min [Option ID = 17729]

2. 50 ft/min [Option ID = 17730]

3. 75 ft/min [Option ID = 17731]

4. 150 ft/min [Option ID = 17732]

34) Attachment of animal cells to a hydrophobic solid substrate can be enhanced by coating with:[Question ID = 4434][Question Description = 134_1767_ANBI_SEP22_Q34]

1. Poly-L-Lysin [Option ID = 17733]

2. Glutaraldehyde [Option ID = 17734]

3. Silanes [Option ID = 17735]

4. Polyethylene glycol [Option ID = 17736]

35) Bovine serum can be inactivated for use in cell culture by:[Question ID = 4435][Question Description = 135_1767_ANBI_SEP22_Q35]

1. Heating at 56°C for 30 min [Option ID = 17737]

2. Treatment with beta-propiolactone for 10 min [Option ID = 17738]

3. UV exposure for 20-30 min [Option ID = 17739]

4. Ethylene Oxide gasification for 18h [Option ID = 17740]

36) Which of the following cryoprotective agent is commonly used during the warming and rehydration of vitrified oocytes?

[Question ID = 4436][Question Description = 136_1767_ANBI_SEP22_Q36]

1. Raffinose [Option ID = 17741]

2. DMSO [Option ID = 17742]

3. Sucrose [Option ID = 17743]

4. Ethylene glycol [Option ID = 17744]

37) Animal cell lines for experiments can be procured from:[Question ID = 4437][Question Description = 137_1767_ANBI_SEP22_Q37]

1. National Institute of Health, USA [Option ID = 17745]

2. American Type Culture Collection, USA [Option ID = 17746]

3. Advanced Tissue Culture Colloquium, USA [Option ID = 17747]

4. National Institute of Animal Biotechnology, India [Option ID = 17748]

38) Over-expression of p21 in animal cell lines:

[Question ID = 4438][Question Description = 138_1767_ANBI_SEP22_Q38]

1. Suppress apoptotic cell death
[Option ID = 17749]
2. Inhibit cell proliferation
[Option ID = 17750]
3. Slows senescence
[Option ID = 17751]
4. Increases cell attachment tendency
[Option ID = 17752]

39) Which of the following gene can be used for the generation of cell lines?[Question ID = 4439][Question Description = 139_1767_ANBI_SEP22_Q39]

1. TERT over-expression [Option ID = 17753]
2. Knock-out of Cdk1 p21 [Option ID = 17754]
3. Knock-in of Cdk1 p27 [Option ID = 17755]
4. Over-expression of Bcl2 [Option ID = 17756]

40) The chromosome number of Indian zebu cattle (*Bos indicus*) and American bison (*Bison bison*) is 60. The hybrid cross (Cattalo) is:[Question ID = 4440][Question Description = 140_1767_ANBI_SEP22_Q40]

1. Both male and female are fertile [Option ID = 17757]
2. Both male and female are infertile [Option ID = 17758]
3. Only females are fertile [Option ID = 17759]
4. Only males are fertile [Option ID = 17760]

41) Sperm chromatin structure assay (SCSA) is based on the principle of:[Question ID = 4441][Question Description = 141_1767_ANBI_SEP22_Q41]

1. Nick-end labeling of fragmented nucleus [Option ID = 17761]
2. Protamine-specific staining of sperm [Option ID = 17762]
3. The relative amount of dsDNA and ssDNA in sperm population [Option ID = 17763]
4. Migration of sperm nucleus under an electric field [Option ID = 17764]

42) The sequence of events during oocyte maturation is:[Question ID = 4442][Question Description = 142_1767_ANBI_SEP22_Q42]

1. GV - GVBD - MI - MII [Option ID = 17765]
2. GVBD - GV - MI - MII [Option ID = 17766]
3. MI - GVBD - GV - MII [Option ID = 17767]
4. MI - MII - GVBD - GV [Option ID = 17768]

43) In vitro capacitation of spermatozoa can be achieved by:[Question ID = 4443][Question Description = 143_1767_ANBI_SEP22_Q43]

1. L-Proline [Option ID = 17769]
2. L-Taurine [Option ID = 17770]
3. L-Arginine [Option ID = 17771]
4. Tryptophan [Option ID = 17772]

44) The time required for capacitation of pig spermatozoa is approximately:[Question ID = 4444][Question Description = 144_1767_ANBI_SEP22_Q44]

1. Less than 1h [Option ID = 17773]
2. 1-2h [Option ID = 17774]
3. 3-6h [Option ID = 17775]
4. 7-12h [Option ID = 17776]

45) Parthenogenetic activation of mammalian oocytes can be induced by:[Question ID = 4445][Question Description = 145_1767_ANBI_SEP22_Q45]

1. Ethyl Ester [Option ID = 17777]
2. Cycloheximide [Option ID = 17778]
3. Ethanol [Option ID = 17779]
4. Sp-TALP [Option ID = 17780]

46) Sperm motility can be enhanced *in vitro* by using:

[Question ID = 4446][Question Description = 146_1767_ANBI_SEP22_Q46]

1. Lazaroids [Option ID = 17781]
2. LH [Option ID = 17782]
3. Pentoxifylline [Option ID = 17783]
4. 5-Hydroxyflavonoid [Option ID = 17784]

47) Transgenic chicken can be produced by:[Question ID = 4447][Question Description = 147_1767_ANBI_SEP22_Q47]

1. Pronuclear microinjection [Option ID = 17785]
2. Somatic cell nuclear transfer [Option ID = 17786]
3. Retroviral vector system [Option ID = 17787]
4. Tetraploid complementation [Option ID = 17788]

48) Which of the following is an example of an IVF medium?[Question ID = 4448][Question Description = 148_1767_ANBI_SEP22_Q48]

1. N-Series media [Option ID = 17789]
2. G-Series media [Option ID = 17790]
3. F-Series media [Option ID = 17791]
4. L-Series media [Option ID = 17792]

49) The size (Length x Diameter) of French mini straw is:[Question ID = 4449][Question Description = 149_1767_ANBI_SEP22_Q49]

1. 135 mm x 2.8 mm [Option ID = 17793]
2. 135 mm x 2.0 mm [Option ID = 17794]
3. 65 mm x 2.8 mm [Option ID = 17795]
4. 65 mm x 2.0 mm [Option ID = 17796]

50) Which cell line has been commonly used for stable expression and production of recombinant proteins?[Question ID = 4450][Question Description = 150_1767_ANBI_SEP22_Q50]

1. BHK cell line [Option ID = 17797]
2. Vero cell line [Option ID = 17798]
3. Hela cell line [Option ID = 17799]
4. CHO cell line [Option ID = 17800]