DU MPhil Phd in Zoology

Topic:- DU_J18_MPHIL_ZOO

1) When the blastema forms after amputation of a newt limb, what processes must the cells undergo in order for regeneration to occur? [Question ID = 925]

1. The cells must only begin to divide for regeneration to occur [Option ID = 3697]
2. The cells must simply dedifferentiate in order for regeneration to occur [Option ID = 3698]
3. Some cells in the blastema will transdifferentiate after amputation, and this allows regeneration to proceed. [Option ID = 3699]
4. Differentiation, cell division, transdifferentiation, and formation of an AER-like function are all involved. [Option ID = 3700]

Correct Answer :-

- Differentiation, cell division, transdifferentiation, and formation of an AER-like function are all involved. [Option ID = 3700]

2) A substance that enhances the body's immune response is termed as

[Question ID = 1011]

1. Allergen [Option ID = 4041]
2. Adjuvant [Option ID = 4043]
3. Vaccine [Option ID = 4044]
4. Immunogen [Option ID = 4042]

Correct Answer :-

- Adjuvant [Option ID = 4043]

3) Damage to which organ would lead to all 3 problems: lack of homeostasis, increased urine production, and edema (swelling of body parts). [Question ID = 944]

1. heart [Option ID = 3775]
2. kidney [Option ID = 3773]
3. lungs [Option ID = 3776]
4. liver [Option ID = 3774]

Correct Answer :-

- liver [Option ID = 3774]

4) Bacterial cell wall is made up of

[Question ID = 965]

1. Both N-acetyl glucosamine + N-acetyl muramic acidb [Option ID = 3859]
2. N-acetyl muramic acid [Option ID = 3858]
3. N-acetyl glucosamine, N-acetyl muramic acid and amino acids [Option ID = 3860]
4. N-acetyl glucosamine [Option ID = 3857]

Correct Answer :-

- N-acetyl glucosamine, N-acetyl muramic acid and amino acids [Option ID = 3860]

5) Which component(s) of complement could be missing and still leave the remainder of the complement system capable of activation by the alternative pathway?

[Question ID = 976]

1. C1, C2, and C3 [Option ID = 3901]
2. C1, C2, and C4 [Option ID = 3904]
3. C3 only [Option ID = 3902]
4. C2, C3, and C4 [Option ID = 3903]

Correct Answer :-

- C1, C2, and C4 [Option ID = 3904]

6) Which of the following statement is TRUE regarding antigen

[Question ID = 1010]

1. Antibodies can be generated against a low molecular weight molecule if attached to a large carrier molecule [Option ID = 4040]
2. Homopolymer are more immunogenic than heteropolymer [Option ID = 4039]
3. An antigen generally has one epitope [Option ID = 4038]
4. Generally self-molecules and molecules with low molecular weight are immunogenic [Option ID = 4037]

Correct Answer :-

- Antibodies can be generated against a low molecular weight molecule if attached to a large carrier molecule [Option ID = 4040]

7) Angiotensinogen is a protein produced and secreted by [Question ID = 943]

1. liver cells [Option ID = 3772]
2. macula densa cells [Option ID = 3770]
3. endothelial cells lining the blood vessels [Option ID = 3771]
4. juxtaglomerular (JG) cells [Option ID = 3769]

Correct Answer :-

- liver cells [Option ID = 3772]

8) Eukaryotic RNA polymerase(s) that is/are most sensitive to α-amenetin

[Question ID = 1012]

1. Both RNA Pol I and III [Option ID = 4048]
2. RNA Pol II [Option ID = 4046]
3. RNA Pol I [Option ID = 4045]
4. RNA Pol III [Option ID = 4047]

Correct Answer :-

- RNA Pol II [Option ID = 4046]

9) A species of fish is found to require a certain temperature, a particular oxygen content of the water, a particular depth, and a rocky substrate at the bottom. These requirements are part of its

[Question ID = 919]

1. prime habitat [Option ID = 3674]
2. resource partition [Option ID = 3675]
3. home base [Option ID = 3676]
4. ecological niche [Option ID = 3673]

Correct Answer :-

- ecological niche [Option ID = 3673]

10) Which of the following DOES NOT represent a potential threat to biodiversity?

[Question ID = 917]

1. importing a European insect into the United States to control an undesirable weed [Option ID = 3665]
2. harvesting all of the oysters from an oyster bed off the Atlantic coast [Option ID = 3668]
3. letting previously used farmland go fallow and begin to fill with weeds and shrubs [Option ID = 3666]
4. building a new mall on a previously unoccupied piece of midwestern prairie. [Option ID = 3667]

Correct Answer :-

- letting previously used farmland go fallow and begin to fill with weeds and shrubs [Option ID = 3666]

11) Hutchinson-Gilford progeria syndrome is caused by mutation in which of the following gene?

[Question ID = 935]

1. BCL_2 [Option ID = 3739]
2. LMNA [Option ID = 3737]
3. TGF- β [Option ID = 3738]
4. CD4 [Option ID = 3740]

Correct Answer :-

- LMNA [Option ID = 3737]

12) Which of the following is the major function of the lymphoid system?

[Question ID = 970]

1. inflammation [Option ID = 3878]
2. phagocytosis [Option ID = 3879]
3. innate immunity [Option ID = 3877]
4. acquired immunity [Option ID = 3880]

Correct Answer :-

- acquired immunity [Option ID = 3880]

13) D region of the Immunoglobulin genes impart variability to

[Question ID = 1005]

1. CDR2 [Option ID = 4018]
2. CDR3 [Option ID = 4019]
3. CDR1 and CDR2 [Option ID = 4020]
4. CDR1 [Option ID = 4017]

Correct Answer :-

- CDR3 [Option ID = 4019]

14) Database of current sequence map of human genome is called

[Question ID = 966]

1. OMIM [Option ID = 3861]
2. Golden Path [Option ID = 3863]
3. HGMD [Option ID = 3862]
4. Gene Cards [Option ID = 3864]

Correct Answer :-

- Golden Path [Option ID = 3863]

15) Which of the following is correct about amphibians?

[Question ID = 995]

1. Egg: Telolecithal; Cleavage: Radial Holoblastic; Blastula: Coleoblastula [Option ID = 3980]
2. Egg: Macrolecithal; Cleavage: Discoidal Meroblastic; Blastula: Discoblastula [Option ID = 3978]
3. Egg: Mesolecithal; Cleavage: Radial Holoblastic; Blastula: Coleoblastula [Option ID = 3977]
4. Egg: Mesolecithal; Cleavage: Rotational Holoblastic; Blastula: Discoblastula [Option ID = 3979]

Correct Answer :-

- Egg: Mesolecithal; Cleavage: Radial Holoblastic; Blastula: Coleoblastula [Option ID = 3977]

16) Central fluid filled cavity of blastula is known as

[Question ID = 968]

1. Archenteron [Option ID = 3869]
2. Blastocoel [Option ID = 3870]
3. Blastocyst [Option ID = 3871]
4. Morula [Option ID = 3872]

Correct Answer :-

- Blastocoel [Option ID = 3870]

17) Patau's syndrome occur due to

[Question ID = 969]

1. Trisomy of 21th chromosome [Option ID = 3874]
2. Trisomy of 22th chromosome [Option ID = 3875]

3. Trisomy of 13th chromosome [Option ID = 3876]
4. Trisomy of 18th chromosome [Option ID = 3873]

Correct Answer :-

- Trisomy of 13th chromosome [Option ID = 3876]

18) Kupffer's vesicle is responsible for

[Question ID = 998]

1. left-right asymmetry [Option ID = 3992]
2. activating organizer genes [Option ID = 3991]
3. anterior-posterior axis formation [Option ID = 3990]
4. inhibiting BMP-signaling [Option ID = 3989]

Correct Answer :-

- left-right asymmetry [Option ID = 3992]

19) Communication in Bees by special behavioural (dance) moments was discovered by

[Question ID = 967]

1. I. Pavlov [Option ID = 3868]
2. Karl Von Frisch [Option ID = 3866]
3. T.H. Morgan [Option ID = 3865]
4. Robert Koch [Option ID = 3867]

Correct Answer :-

- Karl Von Frisch [Option ID = 3866]

20) Homopolymeric single stranded tail is added by use of

[Question ID = 1014]

1. Exonucleases [Option ID = 4056]
2. Terminal deoxynucleotidyltransferase [Option ID = 4053]
3. Endonucleases [Option ID = 4055]
4. Lyases [Option ID = 4054]

Correct Answer :-

- Terminal deoxynucleotidyltransferase [Option ID = 4053]

21) Stereocilia contain

[Question ID = 979]

1. Intermediate filaments [Option ID = 3914]
2. Microtubules [Option ID = 3913]
3. Microtubules and microfilaments [Option ID = 3915]
4. Microfilaments [Option ID = 3916]

Correct Answer :-

- Microfilaments [Option ID = 3916]

22) Which of the following is NOT an attribute of microsatellite?

[Question ID = 993]

1. Inherited in Mendelian manner [Option ID = 3972]
2. Found in regulatory regions of the genome [Option ID = 3971]
3. Range from 1-13 base pair [Option ID = 3970]
4. Tract of repetitive DNA [Option ID = 3969]

Correct Answer :-

- Found in regulatory regions of the genome [Option ID = 3971]

23) Which immunoglobulin is responsible for anaphylactic response

[Question ID = 1008]

1. IgA [Option ID = 4031]
2. IgM [Option ID = 4029]
3. IgE [Option ID = 4032]
4. IgG [Option ID = 4030]

Correct Answer :-

- IgE [Option ID = 4032]

24) Amino acids are transferred by tRNA for protein synthesis. Select the correct statement :

[Question ID = 960]

1. Two tRNA for each amino acid [Option ID = 3839]
2. Multiple tRNA for most of the amino acids [Option ID = 3838]
3. Same tRNA carries all amino acids [Option ID = 3840]
4. Only one tRNA for each amino acid [Option ID = 3837]

Correct Answer :-

- Multiple tRNA for most of the amino acids [Option ID = 3838]

25) The Fc regions of antibody

[Question ID = 963]

1. Confers biological activity [Option ID = 3851]
2. Is not a requirement of placental transmission [Option ID = 3852]
3. Contains both heavy and light chains [Option ID = 3849]
4. Is required for antigen binding [Option ID = 3850]

Correct Answer :-

- Confers biological activity [Option ID = 3851]

26) In mammalian system, Hox9-Hox10 expression pattern governs which vertebral pattern boundary?

[Question ID = 999]

1. Cervical-Thoracic boundary [Option ID = 3993]
2. Lumber-Sacral boundary [Option ID = 3995]
3. Thoracic-Lumber boundary [Option ID = 3994]
4. Sacral-Coudal boundary [Option ID = 3996]

Correct Answer :-

- Thoracic-Lumber boundary [Option ID = 3994]

27) Large triplet repeat expansions can be detected by: [Question ID = 933]

1. Polymerase chain reaction [Option ID = 3729]
2. Single strand conformational polymorphism analysis [Option ID = 3730]
3. Western blotting [Option ID = 3732]
4. Southern blotting [Option ID = 3731]

Correct Answer :-

- Southern blotting [Option ID = 3731]

28) Which of the following gene is a key player in insulin signaling pathway and regulates aging. [Question ID = 924]

1. Wnt [Option ID = 3695]
2. DAF-2 [Option ID = 3693]
3. Sonic hedgehog [Option ID = 3694]
4. Pax-6 [Option ID = 3696]

Correct Answer :-

- DAF-2 [Option ID = 3693]

29) A person receiving an injection of gamma globulin as protection against hepatitis is an example of [Question ID = 941]

1. naturally acquired passive immunity [Option ID = 3762]

2. naturally acquired active immunity [Option ID = 3761]
3. artificially acquired active immunity [Option ID = 3763]
4. artificially acquired passive immunity [Option ID = 3764]

Correct Answer :-

- artificially acquired passive immunity [Option ID = 3764]

30) The behavior in which one animal is aggressive or attacks another animal, the other responds by returning the aggression or submitting is called: [Question ID = 921]

1. Agnostic [Option ID = 3681]
2. Hierarchy [Option ID = 3683]
3. Territory [Option ID = 3682]
4. Altruism [Option ID = 3684]

Correct Answer :-

- Agnostic [Option ID = 3681]

31) If interaction between two species can be shown as + for beneficial, - for detrimental, and 0 for neither, which of the following represents commensalism? [Question ID = 951]

1. +, + [Option ID = 3801]
2. +, - [Option ID = 3802]
3. 0, - [Option ID = 3804]
4. +, 0 [Option ID = 3803]

Correct Answer :-

- +, 0 [Option ID = 3803]

32) BLAST stands for [Question ID = 982]

1. Basic Logical Alignment Search Tool [Option ID = 3927]
2. Basic Local Assessment Search Tool [Option ID = 3928]
3. Basic Local Alignment Search Tool [Option ID = 3926]
4. BioLogical Alignment Search Tool [Option ID = 3925]

Correct Answer :-

- Basic Local Alignment Search Tool [Option ID = 3926]

33) The phenomenon of bioluminescence involves the activity of the enzyme [Question ID = 948]

1. luciferase [Option ID = 3791]
2. rubisco [Option ID = 3792]
3. lyases [Option ID = 3790]
4. cytochrome P-450 [Option ID = 3789]

Correct Answer :-

- luciferase [Option ID = 3791]

34) The part of the human brain which is an important relay station for the sensory impulses and also is the origin of many of the involuntary acts of the eye such as the narrowing of the pupil in bright light is the: [Question ID = 945]

1. cerebellum [Option ID = 3780]
2. hypothalamus [Option ID = 3777]
3. midbrain [Option ID = 3778]
4. corpus callosum [Option ID = 3779]

Correct Answer :-

- midbrain [Option ID = 3778]

35) The proximate causes of behavior are interactions with the environment, but behavior is ultimately shaped by [Question ID = 920]

1. sexuality [Option ID = 3679]
2. the nervous system [Option ID = 3678]
3. pheromones [Option ID = 3680]
4. evolution [Option ID = 3677]

Correct Answer :-

- evolution [Option ID = 3677]

36) Two barnacles, Balanus and Chthamalus, can both survive on the lower rocks just above the low tide line on the Scottish coast, but only Balanus actually does so, with Chthamalus adopting a higher zone. Which of the following best accounts for this niche separation?

[Question ID = 918]

1. mutualism [Option ID = 3669]
2. predation of Chthamalus by Balanus [Option ID = 3670]
3. competitive exclusion [Option ID = 3671]
4. cooperative displacement [Option ID = 3672]

Correct Answer :-

- competitive exclusion [Option ID = 3671]

37) In size exclusion chromatography, the smallest molecule is eluted [Question ID = 962]

1. Smallest molecule comes along with largest molecule [Option ID = 3848]
2. Smallest molecule not eluted [Option ID = 3847]
3. In the last fractions of protein [Option ID = 3846]
4. In the initial fractions of protein [Option ID = 3845]

Correct Answer :-

- In the last fractions of protein [Option ID = 3846]

38) In a diagnostic laboratory a technician prepared plastic assay plates for ELISA by coating a solution of the antigen, gp120 (a glycoprotein derived from the human immunodeficiency virus, the etiologic agent of AIDS), to the plastic surface. Several samples of serum from suspected infected individuals were tested for the presence of antibodies to gp120. When the assay was performed, all the test samples were positive, including control samples that were known not to contain anti-gp120 antibodies. What explanation best fits the facts?

[Question ID = 975]

1. The technician put too much antigen on the plates. [Option ID = 3898]
2. The technician forgot to "block" the plates with a control protein. [Option ID = 3897]
3. The fluorescent labeling compound dissociated from the labeled antibody. [Option ID = 3900]
4. The developing labeled anti-immunoglobulin was not added. [Option ID = 3899]

Correct Answer :-

- The technician forgot to "block" the plates with a control protein. [Option ID = 3897]

39) CO2 dissociates from carbamino-haemoglobin when [Question ID = 950]

1. pCO_2 is high and pO_2 is low [Option ID = 3798]
2. pCO_2 and pO_2 are equal [Option ID = 3799]
3. pCO_2 and pO_2 are low [Option ID = 3800]
4. pCO_2 is low and pO_2 is high [Option ID = 3797]

Correct Answer :-

- pCO_2 is low and pO_2 is high [Option ID = 3797]

40) What is the major concern of using retroviral vectors to deliver or activate pluripotent genes? [Question ID = 928]

1. Vector and transgenes remain in the genome and can be reactivated in differentiated cells [Option ID = 3711]
2. Plasmid diluted as iPS cells divide [Option ID = 3710]
3. The vector integrates but is excised by the transposase [Option ID = 3712]
4. Not very efficient and needs repeated transfections [Option ID = 3709]

Correct Answer :-

- Vector and transgenes remain in the genome and can be reactivated in differentiated cells [Option ID = 3711]

41) A 150kDa IgG antibody was digested with papain and subjected to beta-marcaptoethanol treatment and examined on SDS-PAGE, the expected band sizes will be

[Question ID = 53388]

1. 22-25kDa [Option ID = 93540]
2. 100kDa [Option ID = 93538]
3.  [Option ID = 93539]

4. 50 & 25kDa [Option ID = 93541]

Correct Answer :-

- 22-25kDa [Option ID = 93540]

42) Knocking out Beta-catenin in frog embryo will result in

[Question ID = 996]

1. Dorsalization of embryo [Option ID = 3984]
2. Lack of dorsal structures [Option ID = 3983]
3. Lack of posterior structures [Option ID = 3982]
4. Lack of anterior structures [Option ID = 3981]

Correct Answer :-

- Lack of dorsal structures [Option ID = 3983]

43) A structure unique to mammalian development is the formation of placenta. Which of the following gives rise to placenta?

[Question ID = 1000]

1. Epiblast [Option ID = 3997]
2. Inner cell mass [Option ID = 4000]
3. Trophectoderm [Option ID = 3998]
4. Hypoblast [Option ID = 3999]

Correct Answer :-

- Trophectoderm [Option ID = 3998]

44) Secretory component is associated with

[Question ID = 1004]

1. IgA only [Option ID = 4015]
2. IgM & IgA [Option ID = 4014]
3. IgM & IgD [Option ID = 4016]
4. IgM only [Option ID = 4013]

Correct Answer :-

- IgA only [Option ID = 4015]

45) DNA can be synthesized from RNA using: [Question ID = 954]

1. DNA-dependent RNA polymerase [Option ID = 3814]
2. RNA-dependent RNA polymerase [Option ID = 3816]
3. RNA-dependent DNA polymerase [Option ID = 3815]
4. DNA-dependent DNA polymerase [Option ID = 3813]

Correct Answer :-

- RNA-dependent DNA polymerase [Option ID = 3815]

46) Removal of the bursa of Fabricius from a chicken results in

[Question ID = 971]

1. anemia. [Option ID = 3882]
2. delayed rejection of skin graft. [Option ID = 3883]
3. a markedly decreased number of circulating T lymphocytes. [Option ID = 3881]
4. low levels of antibodies in serum. [Option ID = 3884]

Correct Answer :-

- low levels of antibodies in serum. [Option ID = 3884]

47) In mammals, carbohydrates are stored in the form of [Question ID = 929]

1. glycogen in liver and muscles [Option ID = 3714]
2. lactic acid in spleen [Option ID = 3716]
3. glycogen in muscles only [Option ID = 3715]

4. glucose in liver [Option ID = 3713]

Correct Answer :-

- glycogen in liver and muscles [Option ID = 3714]

48) What happens if you introduce the gene myoD into fibroblast cells growing in culture? [Question ID = 932]

1. The fibroblasts will undergo apoptosis, due to the abnormal effects of myoD on their normal differentiation. [Option ID = 3727]
2. The fibroblasts will express muscle-specific proteins, fuse, and form functional muscle in culture. [Option ID = 3725]
3. Nothing will happen because fibroblasts are derived from a different cell population in the embryo than are the muscle precursors that respond to myoD [Option ID = 3726]
4. myoD will activate expression of myogenin, but the muscle-specific genes will not be able to activate. [Option ID = 3728]

Correct Answer :-

- The fibroblasts will express muscle-specific proteins, fuse, and form functional muscle in culture. [Option ID = 3725]

49) Which of the following conditions is caused by a trinucleotide (triplet) repeat expansion? [Question ID = 934]

1. Cystic fibrosis [Option ID = 3733]
2. Huntington disease [Option ID = 3735]
3. Osteogenesis imperfect [Option ID = 3736]
4. Duchenne muscular dystrophy [Option ID = 3734]

Correct Answer :-

- Huntington disease [Option ID = 3735]

50) Where are the stem cells that renew the epithelium of the gut found? [Question ID = 926]

1. in the bone marrow [Option ID = 3701]
2. in the villi, underlying the dead outer layer of keratinocyte [Option ID = 3703]
3. in the inner cell mass [Option ID = 3702]
4. near the bottom of the crypt [Option ID = 3704]

Correct Answer :-

- near the bottom of the crypt [Option ID = 3704]

51) An example of artificial system of classifications [Question ID = 964]

1. Linnaeus system [Option ID = 3854]
2. Engler and Prantil [Option ID = 3855]
3. Benthem and Hooker [Option ID = 3853]
4. Hutichson [Option ID = 3856]

Correct Answer :-

- Linnaeus system [Option ID = 3854]

52) Name the mosquito-borne disease caused by an invertebrate as pathogen [Question ID = 937]

1. Tick Borne Encephalitis [Option ID = 3745]
2. Typhus [Option ID = 3747]
3. Plague [Option ID = 3748]
4. Filariasis [Option ID = 3746]

Correct Answer :-

- Filariasis [Option ID = 3746]

53) A program that observes the base trace, makes base calls, and assigns quality values (qv) of bases in the sequence.

[Question ID = 983]

1. UNIX [Option ID = 3932]
2. Phrap [Option ID = 3931]
3. Consed [Option ID = 3930]
4. Phred [Option ID = 3929]

Correct Answer :-

- Phred [Option ID = 3929]

54) Ethanol enters the eukaryotic cell by

[Question ID = 980]

1. osmosis [Option ID = 3918]
2. diffusion [Option ID = 3917]
3. secondary active transport [Option ID = 3920]
4. primary active transport [Option ID = 3919]

Correct Answer :-

- diffusion [Option ID = 3917]

55) Identify among the following the one which is NOT the primary nucleotide sequence database [Question ID = 985]

1. DDBJ [Option ID = 3937]
2. GenBank [Option ID = 3938]
3. EMBL [Option ID = 3939]
4. PDB [Option ID = 3940]

Correct Answer :-

- PDB [Option ID = 3940]

56) A typical 300-1000 base sequence that is produced by a single lane or capillary on a sequencing machine and where no assembly is required.

[Question ID = 984]

1. fragment [Option ID = 3933]
2. raft [Option ID = 3935]
3. barge [Option ID = 3936]
4. read [Option ID = 3934]

Correct Answer :-

- read [Option ID = 3934]

57) Antigen bindings sites of an immunoglobin are NOT located in

[Question ID = 1009]

1. F(ab')2 [Option ID = 4034]
2. Fab [Option ID = 4033]
3. Fc [Option ID = 4036]
4. CDR [Option ID = 4035]

Correct Answer :-

- Fc [Option ID = 4036]

58) Which of the following would result in Angelman syndrome? [Question ID = 922]

1. A mutation in the SNRPN promoter [Option ID = 3688]
2. Paternal UPD 15 [Option ID = 3686]
3. Deletion in the paternally derived chromosome 15 [Option ID = 3687]
4. Maternal UPD 15 [Option ID = 3685]

Correct Answer :-

- Paternal UPD 15 [Option ID = 3686]

59) Which of the following is not an effect produced by parasympathetic stimulation in vertebrates? [Question ID = 942]

1. Dilation of pupils [Option ID = 3765]
2. Increased stomach activity [Option ID = 3767]
3. Increased saliva production [Option ID = 3766]
4. Constriction of bronchi [Option ID = 3768]

Correct Answer :-

- Dilation of pupils [Option ID = 3765]

60) Self-ligation of DNA molecules can be prevented by-

[Question ID = 1015]

1. Polymerases [Option ID = 4058]
2. Exonucleases [Option ID = 4060]
3. Alkaline phosphatases [Option ID = 4059]
4. Lyases [Option ID = 4057]

Correct Answer :-

- Alkaline phosphatases [Option ID = 4059]

61) Phosphorylation of amino acid in an enzyme can modulate their activity because: [Question ID = 956]

1. Phosphorylated amino acid becomes negatively charged [Option ID = 3821]
2. Phosphorylated amino acid has no role in modulating enzyme activity [Option ID = 3824]
3. Phosphorylated amino acid becomes positively charged [Option ID = 3823]
4. Phosphorylated amino acid neutralizes charge of other amino acids [Option ID = 3822]

Correct Answer :-

- Phosphorylated amino acid becomes negatively charged [Option ID = 3821]

62) Membrane fluidity increases by [Question ID = 955]

1. Presence of structural Proteins [Option ID = 3819]
2. Presence of long chain Fatty acid [Option ID = 3817]
3. Presence of neutral lipid [Option ID = 3820]
4. Presence of unsaturated fatty acids [Option ID = 3818]

Correct Answer :-

- Presence of unsaturated fatty acids [Option ID = 3818]

63) Arrange the following in the correct order with respect to early mammalian development:

i) enlargement of blastocoel due to action of sodium pump
ii) cavitation
iii) compaction
iv) hatching of the embryo

The correct order is [Question ID = 1001]

1. iii-ii-iv-i [Option ID = 4002]
2. iii-ii-i-iv [Option ID = 4004]
3. iii-iv-ii-i [Option ID = 4001]
4. i-ii-iii-iv [Option ID = 4003]

Correct Answer :-

- iii-ii-i-iv [Option ID = 4004]

64) The immunoglobulin genes are expressed in B-cells, and the b-globin gene is expressed in red blood cells. What manipulations are required to get the b-globin gene to be expressed in B-cells? [Question ID = 931]

1. The coding region of an immunoglobulin gene could be combined with the cis-regulatory region of the b-globin genes, and this artificial gene would then express b-globin in B-cells. [Option ID = 3721]
2. Changing the colony stimulating factors present in the medium in which B-cells are growing could be manipulated in a way that would cause the B-cells to reverse their differentiation, become erythrocytes, and express b-globin. [Option ID = 3724]
3. The cis-regulatory region of an immunoglobulin gene could be combined with the coding region of the b-globin genes, and this artificial gene would then express b-globin in B-cells. [Option ID = 3723]
4. The cis-regulatory region of the b-globin gene could be inserted into B-cells, which would then express their own version of the b-globin gene. [Option ID = 3722]

Correct Answer :-

- The cis-regulatory region of an immunoglobulin gene could be combined with the coding region of the b-globin genes, and this artificial gene would then express b-globin in B-cells. [Option ID = 3723]

65) At pH value greater than pKa of -COOH group the charge on amino acid will be:

[Question ID = 961]

1. Both positive and negative charge [Option ID = 3844]
2. Positive charge [Option ID = 3841]
3. Negative charge [Option ID = 3842]

4. No charge [Option ID = 3843]

Correct Answer :-

66) An antibody made against the antigen tetanus toxoid (TT) reacts with it even when the TT is denatured by disrupting all disulfide bonds. Another antibody against TT fails to react when the TT is similarly denatured. The most likely explanation can be stated as follows:

[Question ID = 973]

1. The second antibody is specific for disulfide bonds. [Option ID = 3891]
2. The first antibody is specific for several epitopes expressed by TT. [Option ID = 3889]
3. The first antibody is specific for the primary amino acid sequence of TT, whereas the second is specific for conformational determinants. [Option ID = 3890]
4. The first antibody has a higher affinity for TT. [Option ID = 3892]

Correct Answer :-

- The first antibody is specific for the primary amino acid sequence of TT, whereas the second is specific for conformational determinants. [Option ID = 3890]

67) Which of the following enzyme of endoplasmic reticulum detoxify drugs and harmful products ? [Question ID = 953]

1. Cytochrome b [Option ID = 3809]
2. Ubiquinone [Option ID = 3812]
3. Cytochrome P 450 [Option ID = 3810]
4. Cytochrome c oxidase [Option ID = 3811]

Correct Answer :-

- Cytochrome P 450 [Option ID = 3810]

68) Assertion: Insect proteins diverge at a higher rate than the vertebrate protein.

Reason: Insects are small in size and may experience different predators.

[Question ID = 994]

1. Both assertion and reason are false [Option ID = 3976]
2. Both assertion and reason are true [Option ID = 3975]
3. Assertion is true & reason is false [Option ID = 3973]
4. Assertion is false & reason is true [Option ID = 3974]

Correct Answer :-

- Both assertion and reason are true [Option ID = 3975]

69) Identify the mismatched pair from the following structure-function pairs: [Question ID = 938]

1. Bowman's Capsule – glomerular filtration [Option ID = 3749]
2. Distal Convoluted Tubule – reabsorption of glucose from urine [Option ID = 3751]
3. Henle's Loop – concentration of urine [Option ID = 3750]
4. Proximal Convoluted Tubule – reabsorption of Na+ and K+ from urine [Option ID = 3752]

Correct Answer :-

- Distal Convoluted Tubule – reabsorption of glucose from urine [Option ID = 3751]

70) Menstruation begins in response to [Question ID = 940]

1. secretion of FSH [Option ID = 3759]
2. decreasing progestrone levels [Option ID = 3758]
3. increasing oxytocin levels [Option ID = 3760]
4. increasing estrogen levels [Option ID = 3757]

Correct Answer :-

- decreasing progestrone levels [Option ID = 3758]

71) Ouabain is

[Question ID = 978]

1. a component of the Na+ K+ ATPase [Option ID = 3912]
2. an integral membrane protein [Option ID = 3909]

3. an inhibitor of Na+ K+ ATPase [Option ID = 3910]
4. an inhibitor of microtubule dynamics [Option ID = 3911]

Correct Answer :-

- an inhibitor of Na+ K+ ATPase [Option ID = 3910]

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72) Which one in the under mentioned chart is correct match of group in column X with their taxonomic ranks in column Y

Column X (Group)	Column Y Taxonomic rank
A. Crustacea	(i) Order
B. Hominidae	(ii) Domain
C. Dermaptera	(iii) Class
D. Ctenophora	(iv) Phylum
E. Archaea	(v) Family

[Question ID = 53383]

1. A-(iii), B-(v), C-(i), D-(iv), E-(ii) [Option ID = 93521]
2. A-(iii), B-(i), C-(v), D-(iv), E-(ii) [Option ID = 93518]
3. A-(i), B-(ii), C-(iii), D-(iv), E-(v) [Option ID = 93519]
4. A-(ii), B-(v), C-(i), D-(iv), E-(iii) [Option ID = 93520]

Correct Answer :-

- A-(iii), B-(v), C-(i), D-(iv), E-(ii) [Option ID = 93521]

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73) Match the following

I.	Chemical database	a) KEGG
II.	Disease database	b) MEDLINE
III.	Literature database	c) ChEBI
IV.	Pathway database	d) OMIM

Choose the correct option

[Question ID = 1018]

1. I-d, II-b, III-a, IV-C [Option ID = 4072]
2. I-c, II-b, III-b, IV-a [Option ID = 4070]
3. I-c, II-d, III-b, IV-a [Option ID = 4071]
4. I-a, II-b, III-c ,IV-d [Option ID = 4069]

Correct Answer :-

- I-c, II-d, III-b, IV-a [Option ID = 4071]

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74) Methanol is more toxic than ethanol because after metabolism [Question ID = 957]

1. Ethanol produces butyric acid [Option ID = 3826]
2. Methanol produces muramic acid [Option ID = 3825]
3. Methanol produces formaldehyde [Option ID = 3827]
4. Both do not produce any toxic metabolite [Option ID = 3828]

Correct Answer :-

- Methanol produces formaldehyde [Option ID = 3827]

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75) Non-homologues genes/proteins that have descended convergently from an unrelated ancestor and have similar functions

[Question ID = 986]

1. paralogs [Option ID = 3943]
2. analogs [Option ID = 3944]
3. homologs [Option ID = 3941]
4. orthologs [Option ID = 3942]

Correct Answer :-

- analogs [Option ID = 3944]

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76) Which of the following hormone controls the reabsorption of water in kidney? [Question ID = 946]

1. LH [Option ID = 3783]
2. ADH [Option ID = 3781]
3. STH [Option ID = 3784]
4. ACTH [Option ID = 3782]

Correct Answer :-

- ADH [Option ID = 3781]

77) Which of the following are gene prediction algorithms?

i. Neural network
ii. Needleman and Wunsch
iii. Hidden Markov model
iv. Smith Waterman
v. Rule-based system

The correct combination of gene prediction algorithm is [Question ID = 988]

1. All of these [Option ID = 3952]
2. i, iii, and iv [Option ID = 3949]
3. i, iii, and v [Option ID = 3950]
4. i, ii, iii, and iv [Option ID = 3951]

Correct Answer :-

- i, iii, and v [Option ID = 3950]

78) An artificial pacemaker may need to be installed for maintaining regular beat in a human heart when there is a defect or damage in the [Question ID = 939]

1. Mitral valve [Option ID = 3754]
2. Sinoventricular bundle [Option ID = 3755]
3. Sinoatrial node [Option ID = 3753]
4. Purkinje Fibre [Option ID = 3756]

Correct Answer :-

- Sinoatrial node [Option ID = 3753]

79) Disulfide bond can be broken by: [Question ID = 959]

1. Adding salt to the solution [Option ID = 3834]
2. Heating the protein at 50 degree C [Option ID = 3833]
3. By adding a reducing agent such as dithiothreitol [Option ID = 3835]
4. By an oxidizing agent such as hydrogen peroxide [Option ID = 3836]

Correct Answer :-

- By adding a reducing agent such as dithiothreitol [Option ID = 3835]

80) Epimorphosis is regeneration through: [Question ID = 923]

1. The reinitiation of division in existing cells, followed by patterning as in Hydra [Option ID = 3690]
2. The reinitiation of division in existing cells, followed by patterning, as occurs in amphibians such as newts [Option ID = 3691]
3. Repatterning of existing cells, as occurs in amphibians [Option ID = 3692]
4. Repatterning of existing cells, as occurs in Hydra [Option ID = 3689]

Correct Answer :-

- The reinitiation of division in existing cells, followed by patterning, as occurs in amphibians such as newts [Option ID = 3691]

81) Gene transfer from mitochondria to nucleus has stopped in animals and fungi [Question ID = 989]

1. To avoid transfer of pseudogenes that are non-functional [Option ID = 3955]
2. Since ribosomal proteins required for translation of mtRNA are encoded by genes of mtDNA [Option ID = 3956]
3. Due to changes in mitochondrial genetic code [Option ID = 3954]
4. Because mitochondrial genomes contain all the key genes required for mitochondria to function [Option ID = 3953]

Correct Answer :-

- Due to changes in mitochondrial genetic code [Option ID = 3954]

82) Which of the following cells would be considered differentiated? [Question ID = 930]

1. Muscle cell [Option ID = 3718]

2. Blastomere [Option ID = 3717]
3. Myotome of the somite [Option ID = 3719]
4. Spemann organizer [Option ID = 3720]

Correct Answer :-

- Muscle cell [Option ID = 3718]

83) Which of the following is common to both Darwin's and Lamarck's theories of evolution? [Question ID = 947]

1. Evolutionary adaptation results from the interactions between the organisms and environment. [Option ID = 3786]
2. Adaptation results from differential reproduction. [Option ID = 3788]
3. Adaptation results from the use and disuse of anatomical structures. [Option ID = 3785]
4. Evolution drives organisms to greater and greater levels of complexity. [Option ID = 3787]

Correct Answer :-

- Evolutionary adaptation results from the interactions between the organisms and environment. [Option ID = 3786]

84) Which one of the following statements is correct regarding 'Blood group antigens (agglutinogens)? [Question ID = 936]

1. Present in fetal blood also and may elicit immune responses if it enters the maternal circulation [Option ID = 3744]
2. Beta globulins in nature. [Option ID = 3742]
3. Carried on the haemoglobin molecule. [Option ID = 3741]
4. Equally immunogenic. [Option ID = 3743]

Correct Answer :-

- Present in fetal blood also and may elicit immune responses if it enters the maternal circulation [Option ID = 3744]

85) In what way are mrf4, myoD, and the other muscle-inducing genes similar to the homeotic genes of Drosophila? [Question ID = 927]

1. mrf4, myoD, and the others encode homeobox- containing proteins. [Option ID = 3705]
2. mrf4, myoD, and the others are expressed exclusively in muscle, as are the homeotic genes of Drosophila [Option ID = 3708]
3. mrf4, myoD, and the others encode "master-switch" transcription factors, which initiate a cascade of gene expression that leads to the differentiation of cells. [Option ID = 3706]
4. mrf4, myoD, and the others act as homeotic genes in Drosophila [Option ID = 3707]

Correct Answer :-

- mrf4, myoD, and the others encode "master-switch" transcription factors, which initiate a cascade of gene expression that leads to the differentiation of cells. [Option ID = 3706]

86) The chicken embryo proper develops from which of the following layer of cells

[Question ID = 997]

1. Deep cells [Option ID = 3986]
2. Yolk cells [Option ID = 3988]
3. Yolk syncytial layer [Option ID = 3985]
4. Envelope layer [Option ID = 3987]

Correct Answer :-

- Deep cells [Option ID = 3986]

87) The name of B-lymphocytes was derived from

[Question ID = 1006]

1. Bone Marrow [Option ID = 4021]
2. Brain [Option ID = 4024]
3. Bursa of Fabricius [Option ID = 4022]
4. Blood [Option ID = 4023]

Correct Answer :-

- Bursa of Fabricius [Option ID = 4022]

88) The termination of gastrulation is marked by

[Question ID = 1002]

1. Closure of neural tube [Option ID = 4005]

2. Appearance of archenteron [Option ID = 4006]
3. Obliteration of archenteron [Option ID = 4007]
4. Obliteration of blastocoel [Option ID = 4008]

Correct Answer :-

- Obliteration of blastocoel [Option ID = 4008]

89) The effect of keystone predator within a community may be to

[Question ID = 916]

1. maintain species diversity by preying on the prey species that is dominant competitor [Option ID = 3662]
2. encourage the coevolution of predator and prey adaptations [Option ID = 3664]
3. increase the relative abundance of the most competitive prey species [Option ID = 3663]
4. competitively exclude other predator from the community [Option ID = 3661]

Correct Answer :-

- maintain species diversity by preying on the prey species that is dominant competitor [Option ID = 3662]

90) The most common serologic test used for the detection of HLA antigens on lymphocytes is

[Question ID = 977]

1. double gel diffusion. [Option ID = 3906]
2. the complement fixation test. [Option ID = 3905]
3. radioimmunoassay. [Option ID = 3908]
4. complement-dependent cytotoxicity test. [Option ID = 3907]

Correct Answer :-

- complement-dependent cytotoxicity test. [Option ID = 3907]

91) The ability of a single B cell to express both IgM and IgD molecules on its surface at the same time is made possible by

[Question ID = 974]

1. isotype switching. [Option ID = 3893]
2. selective RNA splicing. [Option ID = 3895]
3. simultaneous recognition of two distinct antigens. [Option ID = 3894]
4. use of genes from both parental chromosomes. [Option ID = 3896]

Correct Answer :-

- selective RNA splicing. [Option ID = 3895]

92) The class-specific antigenic determinants (epitopes) of immunoglobulins are associated with

[Question ID = 972]

1. disulfide bonds. [Option ID = 3887]
2. H chains. [Option ID = 3888]
3. J chains. [Option ID = 3886]
4. L chains. [Option ID = 3885]

Correct Answer :-

- H chains. [Option ID = 3888]

93) The following is NOT a sequencing-based method to detect multiple changes in a transcriptome

[Question ID = 987]

1. SAGE [Option ID = 3945]
2. Solexa [Option ID = 3947]
3. MPSS [Option ID = 3946]
4. Microarray [Option ID = 3948]

Correct Answer :-

- Microarray [Option ID = 3948]

94) Hardy Weinberg's law gives concept of

[Question ID = 949]

1. natural selection [Option ID = 3795]
2. genetic drift [Option ID = 3794]
3. genetic equilibrium [Option ID = 3796]
4. mutation [Option ID = 3793]

Correct Answer :-

- genetic equilibrium [Option ID = 3796]

95) Local alignment is best for [Question ID = 990]

1. Divergent sequences of equal length. [Option ID = 3960]
2. Closely related sequences of equal length [Option ID = 3957]
3. Divergent sequences of unequal length [Option ID = 3958]
4. Closely related sequences of unequal length [Option ID = 3959]

Correct Answer :-

- Divergent sequences of unequal length [Option ID = 3958]

96) Set of dyes which are frequently used for conventional microarray experiments due to their ease of coupling and photo-stability

[Question ID = 1003]

1. FITC and PI [Option ID = 4012]
2. Alexa 488 and Alexa 594 [Option ID = 4010]
3. Cy3 and Cy5 [Option ID = 4011]
4. FITC and PE [Option ID = 4009]

Correct Answer :-

- Cy3 and Cy5 [Option ID = 4011]

97) CRP/cAMP-mediated regulation of lac operon is an example of

[Question ID = 1013]

1. Positive repressible [Option ID = 4052]
2. Positive Inducible [Option ID = 4050]
3. Negative inducible [Option ID = 4049]
4. Negative Suppressible [Option ID = 4051]

Correct Answer :-

- Positive Inducible [Option ID = 4050]

98) In biological system, some proteins get methylated and methyl group is donated by [Question ID = 958]

1. Methionine [Option ID = 3830]
2. S-Adenosyl Methionine [Option ID = 3829]
3. Methane [Option ID = 3831]
4. Methylated fatty acid [Option ID = 3832]

Correct Answer :-

- S-Adenosyl Methionine [Option ID = 3829]

99) Automated DNA sequencing is an improvement of Sanger's method where- [Question ID = 991]

1. ddNTPs are used for chain termination [Option ID = 3961]
2. fluorescently labeled ddNTPs are used for chain termination [Option ID = 3964]
3. fluorescently labeled dNTPs are used for chain termination [Option ID = 3963]
4. PCR is used for making sequencing templates [Option ID = 3962]

Correct Answer :-

- fluorescently labeled ddNTPs are used for chain termination [Option ID = 3964]

100) Protons are transferred in the mitochondria by the electron transport chain. Therefore, the pH within the mitochondrial matrix is [Question ID = 981]

1. pH 7.0 [Option ID = 3922]

2. pH 8.0 [Option ID = 3921]
3. pH 6.5 [Option ID = 3923]
4. pH 4.0 [Option ID = 3924]

Correct Answer :-

- pH 8.0 [Option ID = 3921]