

DU MPhil PhD in Bio Physics

Topic:- BIOPHY MPHIL S2

1) A freely available web search engine to access full text of scholarly literature in variety of disciplines is:

[Question ID = 875]

1. Wikipedia [Option ID = 3494]
2. Google scholar [Option ID = 3495]
3. Shodhganga [Option ID = 3496]
4. ResearchGate [Option ID = 3497]

Correct Answer :-

- Google scholar [Option ID = 3495]

2) ICMR, a body involved in the management of biomedical research is:

[Question ID = 876]

1. Indian Council of Medical Research [Option ID = 3498]
2. International Council of Medical Research [Option ID = 3499]
3. Indian Committee for Medical Research [Option ID = 3500]
4. International Collaborative for Medical Research [Option ID = 3501]

Correct Answer :-

- Indian Council of Medical Research [Option ID = 3498]

3) Plagiarism refers to:

[Question ID = 877]

1. presenting someone else's ideas, thoughts, work as your own [Option ID = 3502]
2. illegally using the patented information for economic gains [Option ID = 3503]
3. not following ethical guidelines during research involving human subjects [Option ID = 3504]
4. not following ethical guidelines during research involving animals [Option ID = 3505]

Correct Answer :-

- presenting someone else's ideas, thoughts, work as your own [Option ID = 3502]

4) The set of precautions required to be followed in laboratory facilities when working with different biological agents are called Biosafety levels. Currently how many levels are defined:

[Question ID = 878]

1. 10 [Option ID = 3506]
2. 4 [Option ID = 3507]
3. 5 [Option ID = 3508]
4. 11 [Option ID = 3509]

Correct Answer :-

- 4 [Option ID = 3507]

5) Identify the correct order of a research project:

HYPOTHESIS (A), INFERENCES (B), EXPERIMENTATION (C), QUESTION (D), DATA ANALYSIS (E)

[Question ID = 879]

1. ADCBE [Option ID = 3510]
2. DACEB [Option ID = 3511]
3. ADCEB [Option ID = 3512]
4. DACBE [Option ID = 3513]

Correct Answer :-

- ADCEB [Option ID = 3512]

6) Type I error in statistical hypothesis testing is?

[Question ID = 880]

1. Acceptance of a test that produces false negative results [Option ID = 3514]
2. Acceptance of a test that produces false positive results [Option ID = 3515]
3. Acceptance of a test that has poor reproducibility [Option ID = 3516]
4. Acceptance of a test that has poor precision [Option ID = 3517]

Correct Answer :-

- Acceptance of a test that produces false positive results [Option ID = 3515]

7) If a series of 21 values are ordered in ascending order, the median would be

[Question ID = 881]

1. The 11th value in the ordered series [Option ID = 3518]

2. The mean between the 10th and 11th values [Option ID = 3519]
3. The mean between the 11th and 12th values [Option ID = 3520]
4. The 10th value in the ordered series [Option ID = 3521]

Correct Answer :-

- The 11th value in the ordered series [Option ID = 3518]

8) Which of the following is not a measure of central tendency?

[Question ID = 882]

1. Percentile [Option ID = 3522]
2. Quartile [Option ID = 3523]
3. Standard deviation [Option ID = 3524]
4. Mode [Option ID = 3525]

Correct Answer :-

- Standard deviation [Option ID = 3524]

9) Which one of these statistics is unaffected by outliers?

[Question ID = 883]

1. Mean [Option ID = 3526]
2. Interquartile range [Option ID = 3527]
3. Standard deviation [Option ID = 3528]
4. Range [Option ID = 3529]

Correct Answer :-

- Interquartile range [Option ID = 3527]

10) If 101 values are arranged in descending order, middle value will be

[Question ID = 884]

1. Arithmetic Mean [Option ID = 3530]
2. Median [Option ID = 3531]
3. 50th percentile [Option ID = 3532]
4. 51st percentile [Option ID = 3533]

Correct Answer :-

- Median [Option ID = 3531]

11) Standard deviation is the measure of

[Question ID = 885]

1. Chance [Option ID = 3534]
2. Central tendency [Option ID = 3535]
3. Deviation from mean value [Option ID = 3536]
4. None [Option ID = 3537]

Correct Answer :-

- Deviation from mean value [Option ID = 3536]

12) Strong correlation is signified by a correlation coefficient of:

[Question ID = 886]

1. 0
[Option ID = 3538]
2. 1
[Option ID = 3539]
3. > 1
[Option ID = 3540]
4. < 1
[Option ID = 3541]

Correct Answer :-

- 1
[Option ID = 3539]

13) Mean, Medium and Mode are

[Question ID = 887]

1. Measure of dispersion [Option ID = 3542]
2. Measure association between two variables [Option ID = 3543]
3. Test of significance [Option ID = 3544]
4. Measure of central tendency [Option ID = 3545]

Correct Answer :-

- Measure of central tendency [Option ID = 3545]

14) Sample size depends on

[Question ID = 888]

1. Type of problem investigated

[Option ID = 3546]

2. Resources available

[Option ID = 3547]

3. Required precision

[Option ID = 3548]

4. All of these

[Option ID = 3549]

Correct Answer :-

- All of these

[Option ID = 3549]

15) When data is classified according to the magnitude it is called

[Question ID = 889]

1. Chronological data [Option ID = 3550]

2. Qualitative data [Option ID = 3551]

3. Quantitative data [Option ID = 3552]

4. Continuous data. [Option ID = 3553]

Correct Answer :-

- Quantitative data [Option ID = 3552]

16) Continuous variables are represented by

[Question ID = 890]

1. Histogram [Option ID = 3554]

2. Line diagram [Option ID = 3555]

3. Bar diagram [Option ID = 3556]

4. Pie Chart. [Option ID = 3557]

Correct Answer :-

- Histogram [Option ID = 3554]

17) Which statement is WRONG about BLAST

[Question ID = 891]

1. It is a sequence database search tool [Option ID = 3558]

2. It can be also used as an sequence alignment tool [Option ID = 3559]

3. Recently it is mostly used as a genome assembly tool [Option ID = 3560]

4. Homologous sequences can also be searched using it [Option ID = 3561]

Correct Answer :-

- Recently it is mostly used as a genome assembly tool [Option ID = 3560]

18) Ramachandran map is

[Question ID = 892]

1. A plot between Dihedral angles of side chains [Option ID = 3562]

2. A plot between psi and phi angles made between carbon backbone and side chains of an amino acid [Option ID = 3563]

3. A plot between two Dihedral angles named as psi and phi [Option ID = 3564]

4. A plot between phosphor diester bonds of C alpha chain [Option ID = 3565]

Correct Answer :-

- A plot between two Dihedral angles named as psi and phi [Option ID = 3564]

19) Which is NOT true for size exclusion chromatography?

[Question ID = 893]

1. The salt will first elute from the column while the protein will be retained [Option ID = 3566]

2. Separation of different compounds occurs according to their size/ hydrodynamic volume [Option ID = 3567]

3. It is based on the principle how efficiently the proteins penetrate the pores of the stationary phase [Option ID = 3568]

4. When size exclusion chromatography is performed using aqueous solvents, it is called gel filtration [Option ID = 3569]

Correct Answer :-

- When size exclusion chromatography is performed using aqueous solvents, it is called gel filtration [Option ID = 3569]

20) The branch of study dealing with Interaction of matter with Electromagnetic waves is called:

[Question ID = 894]

1. Spectroscopy [Option ID = 3570]

2. Electromagnetism [Option ID = 3571]

3. Radioactivity [Option ID = 3572]

4. Thermodynamics [Option ID = 3573]

Correct Answer :-

- Spectroscopy [Option ID = 3570]

21) COVID-19 is an infectious disease caused by a virus belonging to the family of:

[Question ID = 895]

1. Influenza virus [Option ID = 3574]
2. Ebola virus [Option ID = 3575]
3. Corona virus [Option ID = 3576]
4. Herpes Virus [Option ID = 3577]

Correct Answer :-

- Corona virus [Option ID = 3576]

22) CD4 Surface marker is found in

[Question ID = 896]

1. helper T cells [Option ID = 3578]
2. cytotoxic T cells [Option ID = 3579]
3. neuronal cells [Option ID = 3580]
4. muscle cells [Option ID = 3581]

Correct Answer :-

- helper T cells [Option ID = 3578]

23) pI is routinely used to resolve proteins in which technique of electrophoresis:

[Question ID = 897]

1. SDS gel [Option ID = 3582]
2. Isoelectric focusing [Option ID = 3583]
3. Native gel [Option ID = 3584]
4. Acrylamide gel [Option ID = 3585]

Correct Answer :-

- Isoelectric focusing [Option ID = 3583]

24) Which is WRONG about the function of cyclins

[Question ID = 898]

1. They induce mitosis [Option ID = 3586]
2. with their periodic accumulation they control entry into M phase. [Option ID = 3587]
3. They function to induce meiosis [Option ID = 3588]
4. with their periodic destruction control exit from M phase. [Option ID = 3589]

Correct Answer :-

- They function to induce meiosis [Option ID = 3588]

25) ATP biosynthesis by utilization of the H⁺ gradient occurs in

[Question ID = 899]

1. Across the outer membrane of mitochondria and across the inner membrane of chloroplast [Option ID = 3590]
2. Across the inner membrane of mitochondria and across the thylakoid membrane of chloroplast [Option ID = 3591]
3. Within the matrix of mitochondria and across the inner membrane of chloroplast [Option ID = 3592]
4. Within the matrix of mitochondria and within the stroma of chloroplast [Option ID = 3593]

Correct Answer :-

- Across the inner membrane of mitochondria and across the thylakoid membrane of chloroplast [Option ID = 3591]

26) Which of the following is a second messenger?

[Question ID = 900]

1. Linear AMP [Option ID = 3594]
2. Diacylglycerol [Option ID = 3595]
3. Acetic Acid [Option ID = 3596]
4. Phosphatidyl inositol [Option ID = 3597]

Correct Answer :-

- Diacylglycerol [Option ID = 3595]

27) Sequence comparison of the following molecules is routinely used in phylogenetic identification and classification of organisms:

[Question ID = 901]

1. 28S rRNA [Option ID = 3598]
2. 60S rRNA [Option ID = 3599]
3. 32S rRNA [Option ID = 3600]
4. 16S rRNA [Option ID = 3601]

Correct Answer :-

- 16S rRNA [Option ID = 3601]

28) The human BRCA1 gene has been shown to be linked to the following cancers:

[Question ID = 902]

1. Breast cancer [Option ID = 3602]
2. Lung cancer [Option ID = 3603]
3. Prostrate cancer [Option ID = 3604]
4. Blood cancer [Option ID = 3605]

Correct Answer :-

- Breast cancer [Option ID = 3602]

29) Liposomes are spherical vesicles commonly used for drug transport. They are made of

[Question ID = 903]

1. Lipid monolayer [Option ID = 3606]
2. Lipid bilayer [Option ID = 3607]
3. Lipid multilayer [Option ID = 3608]
4. Lipid monolayer with carbohydrate insertions [Option ID = 3609]

Correct Answer :-

- Lipid bilayer [Option ID = 3607]

30) Which of the following will have the longest wavelength?

[Question ID = 904]

1. X-rays [Option ID = 3610]
2. Ultra Violet light [Option ID = 3611]
3. Infra Red radiations [Option ID = 3612]
4. Microwaves [Option ID = 3613]

Correct Answer :-

- Microwaves [Option ID = 3613]

31) Transmembrane proteins have sequences containing

[Question ID = 905]

1. Mostly serine and threonine which are embedded in membrane [Option ID = 3614]
2. Polar residues which are required for embedding in the membrane [Option ID = 3615]
3. Hydrophilic residues which are embedded in membrane [Option ID = 3616]
4. Hydrophobic residues which are embedded in membrane [Option ID = 3617]

Correct Answer :-

- Hydrophobic residues which are embedded in membrane [Option ID = 3617]

32) A coding region of a gene consists of 738 base pairs counting from start to stop codon. Calculate the number of peptide bonds of the protein coded from this gene. Five disulfide bonds are also present in the protein.

[Question ID = 906]

1. 243 [Option ID = 3618]
2. 245 [Option ID = 3619]
3. 244 [Option ID = 3620]
4. 246 [Option ID = 3621]

Correct Answer :-

- 244 [Option ID = 3620]

33) Paralogs are genes

[Question ID = 907]

1. Which are originated due to gene duplication [Option ID = 3622]
2. Which are originated due to speciation [Option ID = 3623]
3. Which are originated due to replication fork slippage [Option ID = 3624]
4. Which doesn't show similarity with any other gene [Option ID = 3625]

Correct Answer :-

- Which are originated due to gene duplication [Option ID = 3622]

34) Which concentration of ethanol is utilized for disinfection?

[Question ID = 908]

1. 90% ethanol [Option ID = 3626]
2. 70% ethanol [Option ID = 3627]
3. 50% ethanol [Option ID = 3628]
4. 30% ethanol [Option ID = 3629]

Correct Answer :-

- 70% ethanol [Option ID = 3627]

35) All of the following is NOT a primary databases

[Question ID = 909]

1. PDB [Option ID = 3630]
2. GeneBank [Option ID = 3631]
3. ENA [Option ID = 3632]
4. SWISSPROT [Option ID = 3633]

Correct Answer :-

- SWISSPROT [Option ID = 3633]

36) The computational methodology that tries to find the site of interaction between two molecules is called
[Question ID = 910]

1. Molecular matching [Option ID = 3634]
2. Molecular docking [Option ID = 3635]
3. Molecular fitting [Option ID = 3636]
4. Molecular affinity checking [Option ID = 3637]

Correct Answer :-

- Molecular docking [Option ID = 3635]

37) White blood cells which are phagocytic in nature are

[Question ID = 911]

1. Neutrophils and lymphocytes
[Option ID = 3638]
2. Neutrophils and macrophages
[Option ID = 3639]
3. Lymphocytes and macrophages
[Option ID = 3640]
4. Eosinophils and lymphocytes
[Option ID = 3641]

Correct Answer :-

- Lymphocytes and macrophages
[Option ID = 3640]

38) Which of the following is best method for long term storage of microbial samples
[Question ID = 912]

1. lyophilization [Option ID = 3642]
2. storage in a refrigerator in an agar plate [Option ID = 3643]
3. storage on a petriplate at room temperature [Option ID = 3644]
4. Storage in a freezer at -10degC [Option ID = 3645]

Correct Answer :-

- lyophilization [Option ID = 3642]

39) Ubiquitin is a
[Question ID = 913]

1. Protease [Option ID = 3646]
2. Component of the electron transport system [Option ID = 3647]
3. Protein that tags another protein for proteolysis [Option ID = 3648]
4. Protein kinase [Option ID = 3649]

Correct Answer :-

- Protein that tags another protein for proteolysis [Option ID = 3648]

40) Final common pathway for oxidation of carbohydrates, lipids and proteins is
[Question ID = 914]

1. Krebs cycle [Option ID = 3650]
2. Glycolysis [Option ID = 3651]
3. Pentose phosphate pathway [Option ID = 3652]
4. Electron transport chain [Option ID = 3653]

Correct Answer :-

- Electron transport chain [Option ID = 3653]

41) Migration of cancerous cells from the site of origin to other parts of the body forming secondary tumor is called
[Question ID = 915]

1. metastasis [Option ID = 3654]
2. mitosis [Option ID = 3655]
3. diapedesis [Option ID = 3656]
4. proliferation [Option ID = 3657]

Correct Answer :-

- metastasis [Option ID = 3654]

42) The total number of triplet codons that code for an amino acid in human beings is

[Question ID = 916]

1. 62 [Option ID = 3658]
2. 64 [Option ID = 3659]
3. 61 [Option ID = 3660]
4. 66 [Option ID = 3661]

Correct Answer :-

- 61 [Option ID = 3660]

43) Which of the following is the best combination if one wishes to align more divergent sequences?

[Question ID = 917]

1. Higher PAM or Lower BLOSUM [Option ID = 3662]
2. Higher PAM or Higher BLOSUM [Option ID = 3663]
3. Lower PAM or Higher BLOSUM [Option ID = 3664]
4. Lower PAM or Lower BLOSUM [Option ID = 3665]

Correct Answer :-

- Higher PAM or Lower BLOSUM [Option ID = 3662]

44) Transmembrane proteins have sequences containing

[Question ID = 918]

1. Mostly serine and threonine which are embedded in membrane [Option ID = 3666]
2. Polar residues which are required for embedding in the membrane [Option ID = 3667]
3. Hydrophilic residues which are embedded in membrane [Option ID = 3668]
4. Hydrophobic residues which are embedded in membrane [Option ID = 3669]

Correct Answer :-

- Hydrophobic residues which are embedded in membrane [Option ID = 3669]

45) A competitive inhibitor

[Question ID = 919]

1. Is structural analogue of the substrate [Option ID = 3670]
2. Is structural analogue of the active site of the enzyme [Option ID = 3671]
3. Binds to a site other than active site of the enzyme [Option ID = 3672]
4. Is not at all related to the substrate [Option ID = 3673]

Correct Answer :-

- Is structural analogue of the substrate [Option ID = 3670]

46) Protein degradation inside cell is different from protein digestion because

[Question ID = 920]

1. Both require different cofactors [Option ID = 3674]
2. Both processes are meant for maintaining protein quality [Option ID = 3675]
3. Both processes require different signal sequences on all proteins [Option ID = 3676]
4. Degradation is for quality control and requires energy but digestion does not require energy [Option ID = 3677]

Correct Answer :-

- Degradation is for quality control and requires energy but digestion does not require energy [Option ID = 3677]

47) If half-life of a radioactive material is 20 minutes, how much of a 1gm sample would be left after 60 minutes?

[Question ID = 921]

1. 1.00 gm [Option ID = 3678]
2. 0.50 gm [Option ID = 3679]
3. 0.25 gm [Option ID = 3680]
4. 0.125 gm [Option ID = 3681]

Correct Answer :-

- 0.125 gm [Option ID = 3681]

48) The two helical strands of DNA are held together by

[Question ID = 922]

1. Covalent bonds [Option ID = 3682]
2. Hydrogen bond [Option ID = 3683]
3. Disulphide bond [Option ID = 3684]
4. Phospho-diester bonds [Option ID = 3685]

Correct Answer :-

- Hydrogen bond [Option ID = 3683]

49) The alternative forms of a gene are known as

[Question ID = 923]

1. isomers [Option ID = 3686]
2. crossovers [Option ID = 3687]
3. translocations. [Option ID = 3688]
4. alleles [Option ID = 3689]

Correct Answer :-

- alleles [Option ID = 3689]

50) The functional native form of a human antibody exhibits which level of structure
[Question ID = 924]

1. Secondary structure [Option ID = 3690]
2. Tertiary Structure [Option ID = 3691]
3. Quaternary Structure [Option ID = 3692]
4. Primary Structure [Option ID = 3693]

Correct Answer :-

- Quaternary Structure [Option ID = 3692]