M1N18112   (Pages : 2)   Reg. No:..........................

Name: ....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
First Semester M.Sc Degree Examination, November 2018
MZO1B01 – Biochemistry
(2017 Admission onwards)

Max. Time: 3 hours   Max. Weightage : 36

I.   **Answer *all* the questions. Each question carries one weightage**

     1. What is an epimer? Give an example

     2. What are heteropolysaccharides? Give an example

     3. Define pK value of an amino acid

     4. Draw the structure of a pyrimidine molecule

     5. What are isoenzymes? Give an example

     6. What is iodine number?

     7. How monosaccharide reacts with alanine?

     8. Draw the cyclic structure of beta –Glucose

     9. Define Gibbs free energy

    10. What are prostaglandins?

    11. Name all the nitrogenous bases of nucleic acids

    12. What is the composition of Benedict's reagent?

    13. Name the vitamins used for the production of ATP, NAD, FAD and Coenzyme A

    14. What is isoelectric pH ?

                                         (1 x 14 = 14 weightage)

II.   **Short Essay. Answer *any Seven* questions. Each question carries 2 weightage.**

    15. PFK acts as a pacemaker in glycolysis. Substantiate the statement

    16. Define Michaelis-Menton equation

    17. Write a note on tRNA and its structure

    18. Describe the biological role of proteins

    19. Describe the composition and function of pyruvate dehydrogenase complex

    20. Draw the structure of a cholesterol molecule

    21. What is gouty arthritis?

22. Describe the role of water soluble vitamins in metabolism

23. What is the role of Succinate dehydrogenasein ETC

24. Describe the different classes of enzymes with one example each

(2 x7 =14 weightage)

III.   **Essay. Answer *any two* questions. Each question carries 4 weightage**

25. Explain the electron transport system and its role in oxidative phosphorylation

26. Describe the classification of enzymes with suitable examples

27. Explain the role of ATP as a free energy carrier in the biological system

28. What is hexose monophosphate shunt?

(4 x 2 = 8 weightage)

M1N18113   (Pages : 2)   Reg. No:...............................

Name: ....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE
First Semester M.Sc Degree Examination, November 2018
MZO1B02 – Biophysics & Biostatistics
(2017 Admission onwards)

Max. Time: 3 hours   Max. Weightage : 36

Section A
Answer *all* questions.
Each question carries 1 weightage.

1. Buffer
2. Colloids
3. What is Single neuron recording?
4. What is X-ray diffraction?
5. Explain Circular dichorism
6. Briefly explain " Freeze fracture technique"
7. Henderson Hasselbalch Equation
8. What is meant by "osmotic gradient"
9. Explain exclusive and inclusive class intervals
10. Box-Whisker plots
11. What is a "Scatter diagram"?
12. Explain species evenness and its application.
13. Define Confidence interval
14. Briefly explain 't-test'

                                                      (14 x 1 = 14 weightage)

Section B
Answer any *seven* questions.
Each question carries 2 Weightage.

15. Comment on the application of Nanotechnology in Biology
16. Comment on Gel-Filtration and Affinity chromatography
17. What is LASER? Comment on its application in biology
18. Describe principle of Echolocation
19. Write down the optical and electrical properties of colloids
20. Comment on nuclear medicine
21. What are the major limitations of biostatistics?
22. Describe different probability distributions
23. Difference between correlation and regression analysis
24. Explain level of significance and critical region

                                                      (7 x 2 = 14 weightage)

Section C
Answer any *two* questions.
Each question carries 4 Weightage.

25. Write essay on the principles and application of Fluorescent ,Interference , Scanning and Transmission electron microscope

26. Give an account on the characteristic of sound and the physical aspects of sound transmission in the ear

27. Describe the principle and working mechanism of GM counter and Scintillation counter

28. Define statistical concept of "central tendency". Calculate mean, median, standard deviation and standard error for the following data:

A=10,12,15,16,15,14,20,28,28,26,23,22,15,12,14

(2 x 4 = 8 weightage)

M1N18114 (Pages : 2) Reg. No:...........................

Name: ....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester M.Sc Degree Examination, November 2018

MZOL1B03 – Systematics & Evolution

(2017 Admission onwards)

Max. Time: 3 hours

Max. Weightage : 36

Section A
Answer *all* questions.
Each question carries 1 weightage.

1.   What are the advantages of DNA barcoding over other methods of taxonomy?

2.   Define homonomy with an example.

3.   What is Anagenesis? Give an example.

4.   How do you trace the Y chrosome Adam?

5.   What is parallel evolution?

6.   What is a taxonomic character?

7.   What are the characteristics of a good dichotomous key?

8.   Distinguish peripatric from parapatric speciation.

9.   How does Hardy Weinberg law explain speciation?

10.   Distinguish alpha taxonomy from beta taxonomy.

11.   What is a paratype?

12.   What is chemotaxonomy?

13.   What is molecular drive?

14.   What do you mean by credit in taxonomy?

(14x1=14 Weightage)

Section B
Answer any *seven* questions.
Each question carries 2 Weightage.

15. What is a molecular clock? What is its significance in the study of evolution?

16. What do you mean by Mitochondrial eve? Explain the procedure involved in the study of mitochondrial eve.

17. Distinguish microevolution from macroevolution.

18. What are the different types of taxonomic collections? Explain their importance.

19. Discuss various mechanisms of natural selection.

20. Explain binomial nomenclature with the help of an example.

21. What is parsimony analysis? What is its evolutionary significance?

22. What is curation? What is its importance in taxonomy?

23. Discuss different kinds of taxonomic publications with examples.

24. What do you mean by collapse of orthogenesis?

(7x2 = 14 Weightage)

Section C
Answer any *two* questions.
Each question carries 4 Weightage.

25. Discuss ethics in taxonomy with examples.

26. Discuss the modern trends in taxonomy with suitable examples.

27. In recent times, molecular biology has been assisting to solve evolutionary questions. Discuss.

28. Critically examine the impediments faced by taxonomic studies.

(2x4=8 Weightage)