17P119 (Pages:2) Name: .....

Reg.No.....

FIRST SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2017

(Regular/Supplementary/Improvement)

(CUCSS-PG)

CC17P ZO1 C02 - BIOINSTRUMENTATION AND BIOSTATISTICS

(Zoology)

(2017 Admission regular)

Time: Three Hours Maximum: 36 Weightage

I. Answer ***all*** questions. Each question carries 1 weightage.

1. What is a buffer?
2. Calculate the p^H of a solution having a hydrogen ion concentration of 0.005 mol/L.
3. Abbe equation.
4. Differentiate between Rad and Rem.
5. Explain the principle of autoradiography.
6. What are ultracentrifuges?
7. Discuss the principle of isoelectric focussing
8. Mention the applications of affinity chromatography
9. Importance of GLC
10. What is standard error?
11. Comment on skewness and kurtosis.
12. What do you mean by critical region?
13. What is Shannon diversity index?
14. Give a brief account of the types of regression analysis.

(14 x 1 = 14 Weightage)

II. Answer any ***seven*** questions. Each question carries 2 weightage.

15. Write an account on liquid scintillation counter.
16. Explain the principle and procedure of density gradient centrifugation.
17. Give an account of the applications of Laser in biology.
18. What is HPLC? Explain its principle and operation.
19. Explain Beer-Lambert's law and add a note on its application in spectrometry.
20. Discuss the principle and applications of circular dichroism.
21. Write an account on the role of nanotechnology in environmental management.
22. Explain binomial and normal probability distribution.
23. Differentiate between parametric and nonparametric statistics.

24. An IQ test was conducted on 5 persons before and after they were trained. The results are given below

Candidate	1	2	3	4	5
IQ before training	110	120	123	132	125
IQ after training	120	118	125	136	121

Test whether there is any change in IQ before and after training.

(7 x 2 = 14 Weightage)

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

25. Explain the principle, procedure and applications of PAGE.
26. Write a comparative account on the principle, construction and working of TEM and SEM.
27. What is correlation? Explain the different types of correlation. Calculate the Karlpearson's correlation coefficient for the following data.

X	65	66	67	67	68	69	71	73
Y	67	68	64	68	72	70	69	70

28. Write brief accounts on the principle and applications of the following biomedical techniques

a) ECG b) MRI c) PET d) EEG

(2 x 4 = 8 Weightage)

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