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Name..... 49

Reg. No.....

**FIRST SEMESTER B.Sc. DEGREE EXAMINATION  
JANUARY 2014**

(UG-CCSS)

Core Course – Zoology

ZO 1B 01 – GENERAL METHODOLOGY AND PERSPECTIVES IN SCIENCE

(2012 and earlier Admissions)

Time : Three Hours

Maximum : 30 Weightage

*Give illustrations wherever necessary.*

Answer all *twelve* questions. Each question carries  $\frac{1}{4}$  weightage :

A. Objective Type Questions :

1. A statement whose truth can be tested is known as :

- (a) Truth statement.                      (b) Estimate.  
(c) Hypothesis.                              (d) Open question.

2. The philosopher who defined knowledge as 'justified true belief' is :

- (a) Aristotle.                                (b) Pythagoras.  
(c) Plato.                                      (d) Galileo.

3. In statistics, a unit is defined as :

- (a) The largest group in the population.  
(b) The smallest object or individual in the population.  
(c) A measure of central tendency.  
(d) A measure of dispersion.

4. Chi-square test is used to :

- (a) Test whether a sample is a true representative of the population.  
(b) To compare experimentally obtained results with theoretical values.  
(c) Analyse variations between test and controls.  
(d) Test the null hypothesis.

Turn over



B. Name the following :

5. The scientist known as the father of Indian green revolution.
6. Experiments carried out using a computer.
7. Name the digital network maintained for the dissemination of knowledge by the UGC, India.
8. The right granted by a government to an inventor giving him exclusive rights to the ownership and use of his invention.

C. Fill up the blanks :

9. A testable, provisional assumption based on previous knowledge is known as \_\_\_\_\_.
10. The difference between the highest and lowest value in a distribution of numbers is called \_\_\_\_\_.
11. The statistical test to assess whether an observed proportion agrees with expectations is \_\_\_\_\_.
12. Gaussian distribution of data is also known as \_\_\_\_\_ distribution.

(12 × ¼ = 3 weightage)

II. Short answer questions. Answer all *nine* questions :

13. What is a measurement error?
14. What does standard deviation imply?
15. What is plagiarism?
16. How does peer review help in the advancement of science?
17. In statistics, what is a sample?
18. When will you use a histogram?
19. Define Accuracy.
20. What is the purpose of publishing scientific discoveries?
21. What are the advantages of random sampling?

(9 × 1 = 9 weightage)

III. Short essay questions. Answer any *five* questions :

22. What is virtual testing? What are its advantages?
23. What role do controls play in the conduct of an experiment?
24. What do you understand by the term 'measures of central tendency'? Give *two* examples.
25. What are the possible errors by which null hypothesis testing goes wrong?



26. Define 'degrees of freedom'.  
27. What is the logic behind testing a hypothesis?  
28. Using the following data, prepare a table and calculate the arithmetic mean :

Class interval	:	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	:	6	10	20	30	10	24

(5 × 2 = 10 weightage)

Essay questions. Answer any *two* questions :

29. What are the principles involved in experimentation? Discuss.  
30. The following is the distribution of fruits in a basket. Write down the steps involved and construct a pie chart and a histogram using the data :  
Data series : Oranges – 50 ; Grapes – 15 ; Bananas – 25 ; Apples – 10.  
31. Distinguish between mean, median and mode. How are they related?

(2 × 4 = 8 weightage)