

**FIRST SEMESTER B.Sc. DEGREE (SUPPLEMENTARY/IMPROVEMENT)  
EXAMINATION, NOVEMBER 2014**

(UG-CCSS)

**Core Course—Botany**

**BO 1B 01—METHODOLOGY AND PERSPECTIVES OF SCIENCE**

**Time : Three Hours**

**Maximum : 30 Weightage**

**I. Objective Type Questions (Answer *all* questions)**

**Choose the correct answer**

**1 A scientific theory should be**

- (a) rational. (b) testable.  
(c) falsifiable. (d) all of these.

**2 Anything which serves to either support or oppose a scientific hypothesis or theory is referred to as a scientific :**

- (a) data. (b) evidence.  
(c) principle. (d) law.

**3 Which of the following discovery is a typical example of Serendipity ?**

- (a) microscope. (b) pH meter.  
(c) antibiotic. (d) evolution.

**4 \_\_\_\_\_ is the unit of recorded radioactive decay used in autoradiography.**

- (a) m. (b) urn.  
(c) cpm. (d) rpm.

**Fill in the blanks :**

**5 Heliocentric theory was proposed by \_\_\_\_\_**

**6 pH meter is an electronic instrument used to estimate the amount of \_\_\_\_\_ ion in a solution.**

**7 Variance is the square of \_\_\_\_\_**

**8 Astronomy is a science whereas astrology is considered as a \_\_\_\_\_**

**9 - - - - - was a project under the leadership of James Watson, conducted during 1988-2003.**

Answer in one or two sentences :

10 ANOVA.

11 What is a buffer ?

12 Empiricism.

(12 x  $\frac{1}{4}$  = 3 weightage)

II. Short answer type questions. (Answerer *all* questions) :

13 Define correlation and regression.

14 What is meant by Units ? Illustrate the importance with an example.

15 Differentiate Molarity and Normality.

16 Evaluate the importance of record keeping in science.

17 With a suitable example, explain Control of an experiment.

18 What is Null hypothesis ?

19 Describe Pie diagram.

20 Why instruments are termed as sensory extensions.

21 Define falsification.

(9 x 1 = 9 weightage)

III. Short essay or paragraph questions. (Answer any *five* questions) :

22 Compare and contrast the terms information and knowledge.

23 Illustrate the meaning of scientific revolution on the basis of Darwin's theory of evolution.

24 Differentiate the term technology from science.

25 Differentiate the units used in centrifugation—'rpm', 'g' and 'S'.

26 What is the need of tabulation in statistics ? Explain briefly different types.

27 Differentiate the inductive method from deductive method using suitable examples.

28 What is photometry ? Explain the principle and applications of the technique.

(5 x 2 = 10 weightage)

IV. Essay questions. (Answer any *two* questions) :

29 Give a detailed account on the role of statistics in biological research.

30 Explain different types of scientific experiments.

31 Describe different chemical principles that you have studied ; very essential for biological research.

(2 x 4 = 8 weightage)