DA-003-001612 Seat No. _____

B. Sc. (Sem. VI) (CBCS) Examination

April / May – 2015

Botany : Paper - B - 602

(Plant Phy., Biochem., Biosta., Microb & Biodiversity)

Faculty Code : 003
Subject Code : 001612

Time : $2\frac{1}{2}$ Hours [Total Marks : **70**

Instructions : (1) Write answers all questions in main answer book.

(2) Draw neat and labelled diagrams wherever necessary.

(3) Figures to the right side indicate full marks for the questions.

1 Choose the correct answer : **20**

(1) Phytochrome is found in :

(A) Algae

(B) Fungi

(C) Gymnosperms

(D) Angiosperms

(2) Germination of the seed is promoted by :

(A) Green light

(B) Red light

(C) Blue light

(D) Infra red light

(3) Cold resistance in seeds is increased by :

(A) Photosynthesis (B) Respiration

(C) Photoperiodism (D) Vernalization

(4) Related with photoperiodism :

(A) Anthocyanin (B) Phytochrome

(C) Carotenoid (D) Xanthophyll

(5) Cellulose is a :

(A) Polypeptide (B) Polysaccharide

(C) Polynucleotide (D) Disaccharide

(6) Which is type of secondary protein structure ?

(A) α-helix (B) β-pleated

(C) Collagen helix (D) All of these

(7) A fatty acid is unsaturated if it contains :

(A) Disulphide bond (B) Olifenic bond

(C) Glycosidic bond (D) None of these

(8) The enzymes, oxidases, reductases, catalases and dehydrogenases are placed in :

(A) Oxido-reductases (B) Hydrolases

(C) Isomerases (D) Transferases

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

(A) Mean (B) Median

(C) Mode (D) Range

(10) For calculation of standard deviation, which measures of central tendency is generally used :

(A) Mean (B) Median

(C) Mode (D) All of the above

(11) Which of the following is not true about chi-squre test ?

(A) Chi-squre test is non-parametric

(B) If the calculated value of chi-squre is greater than the table value, the fitness is considered to be poor

(C) The chi-squre test is usually a two tail test

(D) All are true

(12) Student's 't' test was discovered by :

(A) Karl Pearson (B) Laplace

(C) Fisher (D) Gosset

(13) The chief components of a bacterial cell wall are :

(A) Amino acids and poly saccharides

(B) Cellulose and chitin

(C) Cellulose and pectin

(D) Cellulose and carbohydrates

(14) All of the following are major elements in microbiological media except :

(A) Phosphorus (B) Potassium

(C) Manganese (D) Magnesium

(15) Fermentation of sugar to yield alcohol is carried out by :

(A) Microorganisms

(B) Zymase

(C) Raised temperature

(D) Decomposition of sugar

(16) The bread is soft and porous when the yeast cells are mixed in the lump of wheat flour because :

(A) Yeast produces benzoic acid

(B) Evolution of CO_2 makes the bread spongy

(C) Yeast is soft and flour also becomes soft

(D) Yeast produces acetic acid and alcohol which give softness to the bread

(17) Biodiversity is determined by :

(A) Number of individuals in an area

(B) Species richness

(C) Evenness

(D) Both (A) and (B)

(18) Most biodiversity rich zone in India is :

(A) Gangetic plains

(B) Trans - Himalayas

(C) Western Ghats

(D) Central India

(19) Diversity of habitats over the total geographical area is :

(A) Alpha diversity

(B) Beta diversity

(C) Gamma diversity

(D) Delta diversity

(20) Conservation of organisms in natural habitat is called :

(A) Ex situ conservation

(B) In situ conservation

(C) Both (A) and (B)

(D) None of the above

2 (a) Answer in short : (any **three**) **6**

(1) Explain : Factors affecting on growth of plants.

(2) Discuss tertiary structure of proteins.

(3) Give the formula of chi-square test.

(4) What is pure culture ?

(5) Define : Biodiversity.

(6) Who coined the word bacteriophage and what does it mean ?

(b) Answer in brief : (any **three**) **9**

(1) Discuss : Phytocrome.

(2) Give the classification chart of carbohydrates.

(3) Find out the mean and mode of the following numbers :

6, 1, 3, 2, 5, 3, 7, 5, 2, 6, 1, 7, 7.

(4) Describe the structure of the heads of T_4 phages.

(5) Discuss : Role of biodiversity in human welfare.

(6) Write down the merits of student's 't' test.

(c) Describe in detail : (any **two**) **10**

(1) Explain : The physiological process of flowering.

(2) Give the properties of carbohydrates.

(3) Four of the self fertilised F_1 plants that Mendel observed for segregating of yellow and green seeds colour showed the following results among their seeds :

Plants	1	2	3	4
Yellow seeds	25	32	14	70
Green seeds	11	7	5	27

Test the homogeneity of the four plants for the 3 : 1 ratio and determine whether the data can be summed to calculate chi-square.

(4) Give the detail of ultrastructure of E.Coli.

(5) Discuss the conservation strategies of Biodiversity.

3 (a) Answer in short : (any **three**) **6**

(1) Give the names of plant hormones responsible for seed dormancy.

(2) State any two alkaloids secreting plant.

(3) Define : Mean.

(4) Give the names of any two bacteria species responsible for alcohol production.

(5) What is the unique feature of Indian biodiversity ?

(6) Define : Chi-square test.

(b) Answer in brief : (any **three**) **9**

(1) Explain : Seed germination.

(2) Discuss : The structure of lipids.

(3) Find out the standard deviation of

41, 47, 48, 50, 51, 53, 60.

(4) Give the methods of gram staining.

(5) Why the biodiversity is rich in tropics ?

(6) Process of removing seed dormancy.

(c) Describe in detail : (any **two**) **10**

(1) Explain types of seed dormancy.

(2) Discuss the process of enzyme inhibition.

(3) Ten students were given intensive coaching in statistics. The scores obtained in 1^{st} and 5^{th} test are given below :

Sl. No.	1	2	3	4	5	6	7	8	9	10
Marks in 1^{st} :	50	52	53	60	65	67	48	69	72	80
Marks in 5^{th} :	65	55	65	65	60	67	49	82	74	86

Does the score from test 1^{st} to test 5^{th} show an improvement ? Test at 5% level of significance.

(4) Discuss methods of sterilization in microbiology.

(5) Discuss the three levels in biodiversity.