



NBC-003-001426 Seat No. _____

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

March / April - 2017

BC - 401 : Cell Biology & Plant Biochemistry

Faculty Code : 003

Subject Code : 001426

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) Section-I covers compulsory one mark questions of 20 marks.
(2) Figures on the right indicate marks of the question.

SECTION - I

- 1** One mark objective questions : **20**
- (1) Light reactions take place on the membranes of _____
 - (2) Each granum contain around how many thylakoids?
 - (3) Robert Brown (1831) discovered nucleus in cells of an orchid. TRUE/FALSE
 - (4) In which phase of the cell cycle DNA is replicated?
 - (5) RUBISCO enzyme is called as _____
 - (6) _____ is the process of conversion from soil NO_3 to NO_2 .
 - (7) Cry gene or Bt genes are obtained from which organism?
 - (8) Peptidoglycan is components of bacterial plasma membrane. TRUE/FALSE
 - (9) Maintenance of cell shape is the main function of _____
 - (10) What is the full form of: SER.
 - (11) The size of eukaryotic cell is range from _____ μm .

- (12) Rearrange the following stages of Calvin cycle.
- (1) Reduction
 - (2) Carboxylation
 - (3) Regeneration
- (13) The thickness of lipid bilayer plasma membrane is about _____ nm.
- (14) Which cell structure has a site of ATP synthesis?
- (15) The conversion of amino acid to ammonium by soil decomposer is called _____
- (16) If the solute concentration of solution A is greater than solution B, then solution A is said to be _____ to solution B.
- (17) Which type of connective tissue fiber has high tensile strength?
- (18) Chromosome can be counted best at the stage of _____
- (19) During light phase of photosynthesis _____ is oxidized _____ is reduced.
- (20) The ability of the components cells of callus to form a whole plant is known as _____.

SECTION – II

- 2 (a) Write any three out of six : 6
- (1) Define photorespiration with example.
 - (2) What is plant tissue culture?
 - (3) What is blastocytes? Give its importance.
 - (4) What are the functions of chloroplast in plasma membrane?
 - (5) Give difference between peroxisome & glyoxysome.
 - (6) State "why we all have maternal mitochondria".
- (b) Write any three out of six : 9
- (1) Give difference between C₃ and C₄ cycle.
 - (2) Explain role of symbiotic bacteria in N₂ fixation.
 - (3) Write the significance of meiosis.
 - (4) Explain chloroplast with well labelled diagram.
 - (5) Give the advantages of plant tissue culture.
 - (6) Explain structure and action of the Na⁺/K⁺ ATPase.

- (c) Write any two out of five : 10
- (1) Explain Calvin Cycle.
 - (2) Explain briefly biological N_2 fixation.
 - (3) Describe process of mitosis.
 - (4) Give experimental evidence of fluid mosaic model.
 - (5) Explain callus culture with diagram.

SECTION – III

- 3 (a) Write any three out of six : 6
- (1) Why mitochondria known as an autonomous organelles?
 - (2) What is inter phase?
 - (3) What is the role of carbohydrates on cell membrane?
 - (4) Define: Transamination with reaction.
 - (5) What are diazotrophs? Mention their types along with example.
 - (6) Justify " photorespiration is wasteful process"
- (b) Write any three out of six : 9
- (1) Write the functions of endoplasmic reticulum.
 - (2) What is crossing over? When does it occur?
 - (3) Explain active transport.
 - (4) Explain methods to generate transgenic plant.
 - (5) Describe about Gibberellins.
 - (6) Explain why the number of chromosome is reduced to half during process of meiosis.
- (c) Write any two out of five : 10
- (1) Explain plant cell wall with its composition.
 - (2) Give difference between mitosis & meiosis.
 - (3) Explain ammonium assimilation.
 - (4) Explain photosystem I and II with Z-scheme.
 - (5) What are synthetic seeds? Explain how are they produced? What are their advantages?