

SEAT No. _____

No. of Printed Pages : 2

[11/A-16]

SARDAR PATEL UNIVERSITY
B. Sc. FOURTH SEMESTER EXAMINATION

2018

THURSDAY 12th APRIL

10:00 am to 12:00 am

US04 EBIO 01 BIOLOGY

CELL AND MOLECULAR BIOLOGY

TOTAL MARKS 70

Note: 1. Answers of all the questions (including multiple choice questions) should be written in the provided answer sheet

2. Draw neat and labeled diagram wherever necessary

Q1 Answer the following multiple choice questions

(10)

1. _____ is known as resting phase

- (a) G1 (b) S (c) G2 (d) M

2. Crossing over takes place in which stage of meiosis?

- (a) Leptotene (b) Pachytene (c) Zygotene (d) Diplotene

3. Nucleolus and nuclear membrane reappears during _____ phase

- (a) Prophase (b) Metaphase (c) Anaphase (d) Telophase

4. _____ is giant chromosome

- (a) Polytene chromosome (b) Lampbrush chromosome
(c) Both a and b (d) None of these

5. Barr body is an example of _____

- (a) Facultative Heterochromatin (b) Constitutive Heterochromatin
(c) Euchromatin (d) Neurochromatin

6. Most commonly used gases for gas chromatography are _____

- (a) Nitrogen and Argon (b) Hydrogen and Helium
(c) Carbon and oxygen (d) Hydrogen and Nitrogen

7. Components which could not be separated by using a single solvent can be easily separated by _____ chromatography

- (a) Two dimensional (b) Ascending (c) Descending (d) Radial

8. Which microscope gives the highest magnification?

- (a) Compound (b) Fluorescent (c) Electron (d) All of these

9. _____ microscopic technique helps in detection of disease causing agents

- (a) Immuno fluorescence (b) Fluorescence
(c) Electron (d) Light

10. _____ gives three dimensional image

- (a) Scanning Electron microscope (b) Transmission Electron Microscope
(c) Phase contrast microscope (d) Fluorescent Microscope

①

[P.T.O.]

Q.2. Answer the following questions. (Any ten) (20)

1. Define cell cycle and enlist its events
 2. What is amitosis?
 3. State the significance of meiosis
 4. Write the difference between autosome and sex chromosome
 5. Write note on: Euchromatin
 6. What do you understand by haploid and diploid cell?
 7. Write about Gas Liquid Chromatography
 8. Explain in brief isopycnic centrifugation
 9. Enlist the different types of rotors
 10. What is autofluorescence?
 11. Define the term resolution
 12. Explain how magnification can be calculated
- Q.3. Explain the different stages of mitosis and state the significance of mitosis (10)**

OR

Q.3. Discuss the different stages of meiosis (10)

Q.4. Write note on:

- (a) Polytene Chromosome (06)
- (b) Heterochromatin (04)

OR

Q.4. Write note on:

- (a) Lampbrush Chromosome (06)
- (b) Different types of chromosome based on position of centromere (04)

Q.5. State the principle of chromatography and explain the different techniques of paper chromatography (10)

OR

Q.5. Write note on:

- (a) HPLC (06)
- (b) Write note on Differential centrifugation (04)

Q.6. (a) Explain the construction and working of compound microscope (07)
(b) Describe the specimen preparation for SEM (03)

OR

Q.6. (a) Discuss the principle, working and applications of Fluorescence Microscopy (06)

(b) Explain the principle and working of TEM (04)