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SARDAR PATEL UNIVERSITY
VALLABH VIDYANAGAR
B. Sc. FOURTH SEMESTER EXAMINATION
2016
TUESDAY 12th APRIL
10:30 am to 12:30 pm
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. Old decaying and dead cells of body are replaced by help of _____
(a) Mitosis (b) Amitosis (c) Meiosis (d) All of these
2. Pairing of homologous chromosomes takes place during this sub stage of meiosis
(a) Proleptotene (b) Leptotene (c) Zygotene (d) Diplotene
3. During which phase synthesis of DNA and histone proteins occur
(a) G1 (b) G2 (c) S (d) M
4. The chromosomal end is known as _____
(a) Centomere (b) Chromomere (c) Kinetochore (d) Telomere
5. Size of chromosome is normally measured at _____ phase of mitosis
(a) Prophase (b) Metaphase (c) Anaphase (d) Telophase
6. _____ is the stationary phase in Gas Liquid Chromatography
(a) Gas (b) Liquid (c) Solid (d) All of these
7. Separation of Mitochondria can be done by _____ centrifugation
(a) Differential (b) Affinity (c) Isopycnic (d) Rate zonal
8. _____ gives three dimensional image
(a) Scanning Electron microscope (b) Transmission Electron Microscope
(c) Phase contrast microscope (d) Fluorescent Microscope
9. What will be the total magnification of specimen by using an objective of 45x and eyepiece of 10x?
(a) 450 (b) 45 (c) 10 (d) 55
10. Source of electrons in Transmission Electron Microscopy is _____ shaped tungsten filament
(a) l (b) v (c) u (d) i

Q2. Answer the following questions. (Any ten)

(20)

1. Define cell cycle and enlist its phases
2. State the difference between mitosis and meiosis
3. Write about amitosis
4. What are autosomes?
5. Write about Heterochromatin
6. Write note on chromosome number
7. Enlist the applications of Gas Liquid Chromatography
8. What is two dimensional chromatography?
9. State the principle of Centrifugation
10. Explain the procedure to calculate magnification
11. Define the term resolution
12. State the applications of SEM

Q3. Give a detailed account of mitosis and state its significance

(10)

OR

Q3. Explain the process of meiosis

(10)

Q4. Write note on:

(a) Polytene Chromosome

(06)

(b) Euchromatin

(04)

OR

Q4. Write note on:

(a) Lampbrush Chromosome

(06)

(b) Different types of chromosome based on position of centromere

(04)

Q5. (a) Explain the different techniques of paper chromatography

(06)

(b) Write note on Density gradient centrifugation

(04)

OR

Q5. Write note on:

(a) HPLC

(06)

(b) Differential Centrifugation

(04)

Q6. (a) Discuss the construction and working of compound microscope

(07)

(b) Explain the specimen preparation for SEM

(03)

OR

Q6. (a) Discuss the principle, working and applications of Fluorescent Microscopy

(06)

(b) Explain the principle and working of TEM

(04)

ALL THE BEST