

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019
(First Semester)

Branch -**BIOTECHNOLOGY**

CELLDYNAMICS

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks (10 x 1 = 10)

The biggest cytoskeleton structure is _____ .

- | | |
|----------------------|-----------------------------|
| (i) microtubules | (ii) intermediate filaments |
| (iii) microfilaments | (iv) macrotubules |

Which is a technique used to detect and measure the physico-chemical characteristics of a population of cells?

- | | |
|----------------------|------------------------|
| (i) Autoradiography | (ii) Smear preparation |
| (iii) Flow cytometry | (iv) AFM |

The function(s) of microvilli is

- | | |
|-------------------------|-------------------|
| (i) absorption | (ii) secretion |
| (iii) cellular adhesion | (iv) all of these |

_____ is an excellent therapeutic target for the treatment of cardiovascular disease.

- | | |
|--------------------|-----------------|
| (i) Vasculogenesis | (ii) Apoptosis |
| (iii) Angiogenesis | (iv) Metastasis |

_____ is an example for passive transport.

- | | |
|-------------------|--------------------|
| (i) Diffusion | (ii) Phagocytosis |
| (iii) Pinocytosis | (iv) None of these |

The sodium chloride symporter accounts for the absorption of 5% of the salt filtered at _____ .

- | | |
|------------------|------------------|
| (i) nephron | (ii) ureter |
| (iii) glomerulus | (iv) renal veins |

Who first observed endoplasmic reticulum under microscope?

- | | |
|-----------------|-------------|
| (i) Purkinje | (ii) Porter |
| (iii) Robertson | (iv) Gamier |

_____ contribute to the biosynthesis of membrane lipids.

- | | |
|------------------|------------------|
| (i) Glyoxysomes | (ii) Lysosomes |
| (iii) Desmosomes | (iv) Peroxisomes |

DNA synthesis begins at _____ of cell cycle,

- | | |
|----------------------------|--------------|
| (i) G ₁ phase | (ii) S phase |
| (iii) G ₂ phase | (iv) M phase |

10 Who noticed the appearance of a notch in the wings of fruit flies?

- | | |
|----------------------|------------------|
| (i) Giulio Bizzozero | (ii) K. R Porter |
| (iii) James Watson | (iv) J.S Dexter |

Cont...

SECTION - B (25 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 x 5 = 25)

11 a Comment on cell fixation.

OR

b Describe cellular imaging.

12 a Distinguish between cancer cells and metastasis.

OR

b Discuss cell junctions.

13 a Illustrate Singer and Nicolson model of plasma membrane.

OR

b Elucidate chloride ion pump and its importance.

14 a Highlight the functions of peroxisomes.

OR

b Bring out the types of endoplasmic reticulum.

15 a Analyze the phases of cell cycle.

OR

b Write an account on quorum sensing.

SECTION -C (40 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 x 8 = 40)

16 a Describe the components of cytoskeleton.

OR

b Bring out cell sorting methods.

17 a Write a detailed account on angiogenesis.

OR

b Comment on desmosomes and its functions.

18 a How does solute transport occur across membrane?

OR

b Mention the importance of calcium and potassium pumps.

19 a Illustrate the structure and functions of chloroplast.

OR

b Elucidate the internal organization of nucleus.

20 a Elaborate G protein coupled receptors.

OR

b Analyze the mechanism involved in cell aging and death.