**PSG COLLEGE OF ARTS & SCIENCE**
**(AUTONOMOUS)**

**BSc DEGREE EXAMINATION MAY 2019**
**(Second Semester)**

**Branch - MICROBIOLOG Y**

**CELL BIOLOGY & MICROBIAL GENETICS**

**Time: Three Hours** **Maximum: 75 Marks**

**SECTION-A (10 Marks)**
**Answer ALL questions**
**ALL questions carry EQUAL marks ( 1 0 x 1 = 10)**

**1** **Cell theory was proposed by**
**(i) Beadle and Tatum** **(ii) Robert Hooke**
**(iii) Schleiden and Schwann** **(iv) Leewenhock**

**2** **Semiautonomous organelle in the cell is**
**(i) Peroxisomes** **(ii) Chloroplast**
**(iii) Endoplasmic reticulum** **(iv) Golgi bodies**

**3** **Mitotic spindle is mainly composed of which protein?**
**(i) Actin** **(ii) Myosin**
**(iii) Myglobin** **(iv) Actomyosin**

**4** **In somatic cell cycle**
**(i) In G1 phase DNA content is double the amount of DNA present in the origin cell**
**(ii) G2 phase follows mitotic phase**
**(iii) A short interphase is followed b along mitotic phase**
**(iv) DNA replication takes place in S phase**

**5** **Genetic mutation occurs in**
**(i) Protein** **(ii) RNA**
**(iii) DNA** **(iv) Nucleus**

**6** **DNA is the genetic material in**
**(i) Viruses, prokaryotic and eukaryote**
**(ii) Prokaryote and eukaryote**
**(iii) Only in eukaryote**
**(iv) In some viruses, prokaryotes and eukaryotes**

**7** **Which of the following mechanisms will remove uracil and incorporate the correct base?**
**(i) Direct repair** **(ii) Base excision repair**
**(iii) Mismatch repair** **(iv) Nucleotide excision repair**

**8** **DNA glycosylase is an enzyme involved in base excision repair. The function is**
**(i) Addition of correct base (ii) Addition of correct nucleotide**
**(iii) Removal of incorrect base (iv) Removal of phosphodiester bond**

**9** **The uptake of DNA fragments from surroundings by a bacterium is termed as**
**(i) Transduction** **(ii) Conjugation**
**(iii) Recombination** **(iv) Transduction**

**10** **Specialized transduction is mediated by**
**(i) Lytic phages** **(ii) Lysogenic phages**
**(iii) Both lytic and lysogenic phages (iv) T4 phages**

**Cont...**

## SECTION - B (35 Marks)

**Answer ALL Questions**
**ALL Questions Carry EQUAL Marks ( 5 x 7 = 35)**

**11 a Write notes on cell theory.**

**OR**

**b Outline the structure of microtubules.**

**12 a Describe CAM.**

**OR**

**b Narrate $Ca^{2+}$ dependent and independent molecule.**

**13 a Outline the transposons.**

**OR**

**b Explain extra chromosomal inheritance.**

**14 a Classify the types of mutations.**

**OR**

**b How will you conduct ames test?**

**15 a Explain Hfr.**

**OR**

**b Describe transformation.**

## SECTION - C (30 Marks)

**Answer any THREE Questions**
**ALL Questions Carry EQUAL Marks ( 3 x 10 = 30)**

**16 Write an essay on eukaryotic cell organelles and its function.**

**17 Enumerate the mitosis with neat sketch.**

**18 Justify DNA as the genetic material.**

**19 Compare physical and chemical mutagenesis.**

**20 Highlight DNA uptake and mechanism of transformation.**

**Z-Z-Z END**