

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024  
(First Semester)

Branch - BIOCHEMISTRY

GENERAL BIOLOGY

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(10 × 1 = 10)

| Module No. | Question No. | Question                                                                                                                                                                                                                      | K Level | CO  |
|------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|
| 1          | 1            | Which stage of <i>Taenia solium</i> is infective to pigs?<br>a) Oncosphere                      b) Adult tapeworm<br>c) Cysticercus                      d) Egg                                                               | K1      | CO1 |
|            | 2            | What type of scales covers the body of a shark?<br>a) Cycloid scales                      b) Ctenoid scales<br>c) Placoid scales                      d) Ganoid scales                                                        | K2      | CO1 |
| 2          | 3            | What is the primary function of chromosomes?<br>a) To store energy<br>b) To carry genetic information<br>c) To provide structural support to cells<br>d) To facilitate cellular respiration                                   | K1      | CO2 |
|            | 4            | Klinefelter syndrome is typically diagnosed by:<br>a) Measuring hormone levels<br>b) Genetic testing (karyotyping)<br>c) Physical examination alone<br>d) Blood glucose testing                                               | K2      | CO2 |
| 3          | 5            | Which blood group is known as the universal recipient?<br>a) A                      b) B                      c) AB                      d) O                                                                                 | K1      | CO3 |
|            | 6            | What is the primary source of extra chromosomal inheritance in eukaryotes?<br>a) Mitochondrial DNA                      b) Nuclear DNA<br>c) Ribosomal RNA                      d) Transfer RNA                               | K2      | CO3 |
| 4          | 7            | Which term describes the increase in homozygosity resulting from inbreeding?<br>a) Genetic drift                      b) Inbreeding coefficient<br>c) Genetic recombination                      d) Gene flow                 | K1      | CO4 |
|            | 8            | Which practice is an example of eugenics?<br>a) Implementing recycling programs<br>b) Developing new vaccines<br>c) Conducting gene therapy<br>d) Designing new educational curricula                                         | K2      | CO4 |
| 5          | 9            | Which of the following is an indicator of biological water pollution?<br>a) High turbidity<br>b) Low pH<br>c) Presence of coliform bacteria<br>d) High levels of dissolved oxygen                                             | K1      | CO5 |
|            | 10           | How does reforestation contribute to forest protection?<br>a) It reduces biodiversity                      b) It replaces lost forest cover<br>c) It increases soil erosion                      d) It promotes deforestation | K2      | CO5 |

Cont...

**SECTION - B (35 Marks)**

Answer ALL questions

ALL questions carry EQUAL Marks

(5 × 7 = 35)

| Module No. | Question No. | Question                                                                              | K Level | CO  |
|------------|--------------|---------------------------------------------------------------------------------------|---------|-----|
| 1          | 11.a.        | Explain the nervous system of cockroach.                                              | K5      | CO1 |
|            | (OR)         |                                                                                       |         |     |
|            | 11.b.        | Discover the circulatory system of sharks.                                            |         |     |
| 2          | 12.a.        | Describe the symptoms and diagnosis of Turner syndrome.                               | K4      | CO2 |
|            | (OR)         |                                                                                       |         |     |
|            | 12.b.        | Identify the sex determination in a man. Include a diagram to illustrate the process. |         |     |
| 3          | 13.a.        | Examine the causes of hemophilia and how they affect blood clotting.                  | K5      | CO3 |
|            | (OR)         |                                                                                       |         |     |
|            | 13.b.        | Determine the skin color in humans with an example.                                   |         |     |
| 4          | 14.a.        | Explain the causes of phenylketonuria with a suitable example.                        | K4      | CO4 |
|            | (OR)         |                                                                                       |         |     |
|            | 14.b.        | Extend the genetic basis of sickle cell anemia, and how is it inherited?              |         |     |
| 5          | 15.a.        | List the sources and control measures of water pollution                              | K4      | CO5 |
|            | (OR)         |                                                                                       |         |     |
|            | 15.b.        | Explain the causes and control measures of air pollution.                             |         |     |

**SECTION - C (30 Marks)**

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

| Module No. | Question No. | Question                                                                                     | K Level | CO  |
|------------|--------------|----------------------------------------------------------------------------------------------|---------|-----|
| 1          | 16           | Elaborate on the life cycle of <i>Entamoeba histolytica</i> .                                | K6      | CO1 |
| 2          | 17           | Discuss the structure and types of chromosome.                                               | K6      | CO2 |
| 3          | 18           | Evaluate the importance of the Rh factor in blood group identification.                      | K5      | CO3 |
| 4          | 19           | Formulate the Hardy-Weinberg equilibrium and state the genetic variation within populations. | K6      | CO4 |
| 5          | 20           | Explain the structure and function of pond ecosystem.                                        | K4      | CO5 |

Z-Z-Z

END