

Question Paper

Exam Date & Time: 27-Jun-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

FOURTH SEMESTER BSc. HEALTH SCIENCES DEGREE EXAMINATION - JUNE/JULY 2024
SUBJECT: BHS-208 - MICROBIOLOGY AND GENETICS
(OLD SCHEME)

Marks: 75

Duration: 180 mins.

SECTION A: MICROBIOLOGY (25 MARKS)

Answer all the questions.

1. Answer in brief

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| 1A) | State TWO biological functions of IgG immunoglobulins | (2) |
| 1B) | Classify physical methods of sterilization | (2) |
| 1C) | Describe the modes of transmission and clinical manifestations of <i>Cryptococcus neoformans</i> | (2) |
| 1D) | List the general features of <i>Chlamydia</i> | (2) |
| 1E) | Describe the laboratory diagnosis of ascariasis | (2) |
| 1F) | List the modes of transmission of <i>Clostridium tetani</i> | (2) |
| 1G) | Describe the general properties of poliovirus | (2) |

2. Answer in short

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|-----|---|-----|
| 2A) | Describe the laboratory diagnosis of <i>Streptococcus pyogenes</i> infections | (2) |
| 2B) | Describe the general properties and mode of transmission of Influenza A virus | (2) |
| 2C) | Explain the laboratory diagnosis of HIV | (2) |

Answer the following

- 3) Explain the clinical manifestations and laboratory diagnosis of cholera (2+3=5 marks) (5)

SECTION B: GENETICS (25 MARKS)

Answer all the questions.

4. Answer in brief

- 4A) A scientist is studying two traits in a type of beetle: body texture and color. Smooth body (B) is dominant to bumpy body (b), and gray (G) is dominant to white (g). A BbGg and a bbgg beetle mate and produce the following offspring: (2)

Phenotype	Number of offspring
Bumpy white	355
Smooth gray	345
Bumpy gray	152
Smooth white	148

What is the percent recombination frequency for this cross?

- 4B) What is genomic imprinting? Give examples of genetic diseases related to errors in gene imprinting. (2)
- 4C) What is the role of Tumor Suppressor genes in cancer? Give some examples. (2)
- 4D) What is the cross known as when the progeny of F1 and a homozygous recessive plant is crossed? State its advantage. (2)
- 4E) List the advantages of using *E.coli* as a model organism. (2)
- 4F) Briefly discuss the chromosomal sex determination in mammals. (2)
- 4G) Give general applications of Cloning. (2)

5. Answer in short

- 5A) What are plasmids? Give its applications and name the types of plasmids. (3)
- 5B) Briefly discuss the different types of human immune system. (3)

Answer the following

- 6) Explain the different modes of inheritance pattern seen for single gene disorders. (5)

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