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MANIPAL ACADEMY OF HIGHER EDUCATION
SECOND MBBS DEGREE EXAMINATION – APRIL 2024

SUBJECT: MICROBIOLOGY – PAPER I (ESSAY)

(OLD REGULATION - 2018-19 & PRIOR BATCH)

Friday, April 19, 2024

Time: 10:20 – 13:00 Hrs.

Maximum Marks: 80

✍ **Answer all questions.**

✍ **Your answers should be specific to the questions asked. Draw neat, labeled diagrams wherever necessary**

✍ **Essay questions:**

1. Enumerate the methods of gene transfer and discuss the mechanisms of drug resistance in bacteria

(3+7 = 10 marks)

2. 16-year-old school student came to the clinic with complaints of a sore throat, fever, and difficulty swallowing. The student mentioned that over the past week, he felt increasing fatigue and malaise. On examination, a grayish-white pseudomembrane covering his tonsils and the posterior pharynx was observed. This membrane was firmly adherent and bled when an attempt was made to scrape it off. The student also revealed that he had missed his adolescent booster shots due to a change of residence and was unsure of his vaccination history.

2A. What is the likely diagnosis in this case?

2B. What laboratory tests should be performed to confirm the diagnosis?

2C. Describe the pathogenesis of this disease.

2D. What are the vaccines available against this disease in humans?

(1+4+3+2 = 10 marks)

3. Write short notes on:

3A. List four common factors influencing immunogenicity.

3B. Define infection. Write briefly on types of infections.

3C. Lab diagnosis of skin infection by *Streptococcus pyogenes*

3D. List four organisms causing food poisoning

3E. Write four differences between Gram positive and Gram negative bacterial cell wall

3F. Explain the significance and limitations of KOCH's Postulates

3G. Laboratory diagnosis of Enteric fever

3H. Specific serological tests for Syphilis

3I. List the primary bacterial pathogens responsible for causing Pyogenic meningitis in humans.

3J. Weil felix reaction – principle and uses

3K. Define Autoclave and discuss its principle

3L. Enumerate four diseases due to complement deficiency

3M. Principle and uses of ELISA

3N. Methods of Anaerobiosis

3O. Explain the basic principle behind the polymerase chain reaction (PCR) and enumerate its primary applications in clinical microbiology.

(4 marks × 15 = 60 marks)

