

## MANIPAL ACADEMY OF HIGHER EDUCATION

**SECOND SEMESTER M.Sc. MEDICAL (ANATOMY, PHYSIOLOGY, BIOCHEMISTRY, PHARMACOLOGY, MICROBIOLOGY) DEGREE EXAMINATION – NOVEMBER 2021**

**SUBJECT: MCC 602 - COMMON CORE: INTRODUCTION TO RESEARCH**

Wednesday, November 17, 2021

Time: 10:00 – 12:30 Hrs.

Maximum Marks: 50

✂ Answer ALL the questions.

✂ Long answer questions:

1. Explain in detail about the components of research Protocol.

(10 marks)

2A. Briefly describe steps followed in a test of significance.

2B. Normally distributed random sample of 600 school children showed mean Hb % of 12.5 gm% with standard deviation of 0.5. Find out the percentage of individuals having Hb% beyond 13.5gm%.

(10 marks)

3. Short Answer Questions:

3A. In a series of 100 individuals, the mean blood glucose in mg/dl was found to be 155 with standard deviation 52. In the same individuals the mean serum cholesterol levels in mg/dl was found to be 210 with standard deviation 36. Find out which character shows greater variation?

3B. Define Population and Sample in context of sampling. Explain Simple random sampling with its advantages and disadvantages.

3C. In a case-control study of oral contraceptive use and risk of MI (myocardial infraction). Use the data from below 2×2 contingency table test whether there is any significant association between oral pills and MI. (Given,  $X^2_{0.05,1}=3.84$ )

Oral pills users	Myocardial Infraction		Total
	Case	Control	
Yes	25	300	325
No	125	2550	2675
Total	150	2850	3000

3D. Explain Parallel group and cross-over experimental study designs with example.

3E. What is validity of diagnostic tests? What are the methods to check validity of diagnostic tests?

3F. What are the four principles of bioethics? Explain any one in detail.

(5 marks × 6 = 30 marks)



**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**SECOND SEMESTER M.Sc. (MEDICAL MICROBIOLOGY) DEGREE**  
**EXAMINATION – NOVEMBER 2021**

**SUBJECT: SYSTEMATIC BACTERIOLOGY - 1 (MIC 604)**

Thursday, November 18, 2021

Time: 10:00 – 12:30 Hrs.

Maximum Marks: 50

---

✍ Answer ALL the questions.

1. Describe the pathogenesis and laboratory diagnosis of enteric fever. Add a note on its drug resistance.  
(10 marks)
  
2. Classify Streptococci. Discuss the virulence factors, pathogenesis and laboratory diagnosis of *Streptococcus pyogenes* infection.  
(10 marks)
  
3. Write Short notes on:
  - 3A. Vancomycin resistant Enterococci.
  - 3B. Diphtheria toxin.
  - 3C. Laboratory diagnosis of Leprosy.
  - 3D. *Clostridium difficile* infection.
  - 3E. Diarrheagenic *Escherichia coli*.
  - 3F. *Mycobacterium tuberculosis* culture.(5 marks × 6 = 30 marks)

