

MANIPAL ACADEMY OF HIGHER EDUCATION

**SECOND SEMESTER M.Sc. MEDICAL (ANATOMY, PHYSIOLOGY, BIOCHEMISTRY,
PHARMACOLOGY, MICROBIOLOGY) / M.Sc. FORENSIC SCIENCE DEGREE
EXAMINATION – SEPTEMBER 2021**

**SUBJECT: MCC 602 - COMMON CORE: INTRODUCTION TO RESEARCH
MFS 602 - COMMON CORE-2: RESEARCH METHODOLOGY**

Monday, September 13, 2021

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Explain in detail the components of the research article. (10 marks)

- 2A. What is the concept of Confidence Interval? Calculate the 95% confidence interval of the mean of a sample of size 10 with mean 20 and standard deviation 5.
- 2B. The weight of 200 students are normally distributed with mean 50 kg and standard deviation 5 kg. What percentage of students will have weight above 60 kg?
(Given: Cumulative area under Normal Curve $Z=2$ is 0.9772) (10 marks)

3. **Short Answer Questions:**

- 3A. Find the Standard Deviation of the respiratory rate/ minute found to be 16, 18, 19, 17, 21, 24, 22, 23, 25, 28 in ten individuals.
- 3B. What is Probability sampling? Explain Systematic Sampling with its advantages and disadvantages.
- 3C. What is one-way ANOVA? Discuss its application with example.
- 3D. What is Experimental study design? Discuss role of Randomization in Experimental design.
- 3E. Assume a Population of 1000 people, of whom 300 have a disease and 700 do not have the disease. A screening Test is used to identify the 300 people with disease. Result of the screening Test is given below. Calculate Sensitivity, Specificity, PPV and NPV and comment on performance of screening Test.

Results of Screening	True Characteristic in the Population	
	Disease	No Disease
Positive	180	100
Negative	120	600
Total	300	700

- 3F. What is the role of informed consent in medical research?

(5 marks × 6 = 30 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
SECOND SEMESTER M.Sc. (MEDICAL PHYSIOLOGY)
DEGREE EXAMINATION – SEPTEMBER 2021
SUBJECT: CENTRAL NERVOUS SYSTEM (MPY 604)

Tuesday, September 14, 2021

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

1. Explain in detail the connections and functions of cerebellum. Add a note on cerebellar function tests and enumerate symptoms of cerebellar lesion.

(6+2+2 = 10 marks)

2. Describe in detail the pathway, functions of pyramidal tracts with the help of a diagram. Add a note on pyramidal tract lesions.

(8+2 = 10 marks)

3. **Write short notes on:**

3A. Referred pain and its clinical significance.

3B. Functions of hypothalamus.

3C. Enumerate the clinical features of Parkinson's disease. Explain any one.

3D. Functions of thalamus.

3E. Explain properties of synapse.

3F. List the differences between REM and NREM sleep

(5 marks × 6 = 30 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION
SECOND SEMESTER M.Sc. (MEDICAL PHYSIOLOGY) DEGREE
EXAMINATION – SEPTEMBER 2021

SUBJECT: SPECIAL SENSES (MPY 606)

Wednesday, September 15, 2021

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

1. With the help of a labelled diagram explain the course of visual pathway. Name the visual field defect caused by lesions at different levels of the pathway.

(6+4 = 10 marks)

2. Describe in detail the functions of middle ear. Explain two tests to differentiate between conductive deafness and neural deafness.

(6+4 = 10 marks)

3. **Write short notes on:**

3A. What is dark adaptation? Name a condition in which dark adaptation is prolonged.

3B. Explain color blindness

3C. What is presbyopia? Explain the mechanism of image formation and the correction for this condition

3D. Name the different types of taste sensations. Explain the mechanism for appreciation of any one of them

3E. Explain the travelling wave theory of hearing

3F. Explain the formation, circulation, drainage and functions of aqueous humor.

(5 marks × 6 = 30 marks)

