

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. MEDICAL (ANATOMY, PHYSIOLOGY, BIOCHEMISTRY,
PHARMACOLOGY, MICROBIOLOGY) DEGREE EXAMINATION – AUGUST 2020

SUBJECT: INTRODUCTION TO RESEARCH – COMMON CORE (MCC 602)

Wednesday, August 12, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

✍ Answer ALL the questions.

✍ Long answer questions:

1. Explain the different components in a research proposal.

(10 marks)

2A. Define Skewness and Kurtosis. Discuss different measures of Skewness and Kurtosis.

2B. Assume that the age at onset Disease X is distributed normally with mean of 50 years and standard deviation of 12 years. What is the probability that an individual affiliated with X had developed it before age 35 years? (Given: Cumulative area under normal curve $Z=-1.25$ is 0.1056)

(10 marks)

3. Short answer questions:

3A. Find the range, standard deviation and coefficient of variation for the following values of birth weight(kg): 2.5, 2.8, 2.5, 2.8, 3.3, 3.5, 3.2, 3.0, 2.9, 3.5

3B. What is Probability Sampling? Discuss in brief the procedure of any two probability sampling techniques.

3C. A group of 15 normal children in a study had a mean serum iron level of 148 $\mu\text{g}\%$ and standard deviation of 44.03. Another group of 15 children with infantile cirrhosis of liver had mean serum iron level of 151 $\mu\text{g}\%$ and standard deviation of 49.04. Is the difference between the two serum means statistically significant? [Given: $t_{0.05, 28} = 2.05$]

3D. Explain cohort study design, with a suitable example. Add a note on its advantages and disadvantages.

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

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

(5 marks \times 6 = 30 marks)



MANIPAL ACADEMY OF HIGHER EDUCATION
SECOND SEMESTER M.Sc. (MEDICAL BIOCHEMISTRY) DEGREE
EXAMINATION – AUGUST 2020
SUBJECT: LIPID METABOLISM, ACID BASE BALANCE AND BIOLOGICAL
OXIDATION (MBC 604)

Thursday, August 13, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Describe the body buffer systems.

(10 marks)

2. Discuss the metabolic adaptations during well fed conditions.

(10 marks)

3. **Write briefly on:**

3A. Classification of fatty acids with examples

3B. Explain beta oxidation of palmitic acid

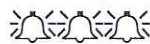
3C. Explain causes and features of ketoacidosis

3D. Fluid mosaic model of membrane

3E. Electron transport chain

3F. Explain high energy compounds with examples

(5 marks × 6 = 30 marks)



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MANIPAL ACADEMY OF HIGHER EDUCATION
SECOND SEMESTER M.Sc. (MEDICAL BIOCHEMISTRY)
DEGREE EXAMINATION – AUGUST 2020

**SUBJECT: VITAMINS, MINERALS, NUTRITION, ENVIRONMENTAL AND FOOD
POLLUTANTS (MBC 606)**

Friday, August 14, 2020

Time: 14:00 – 16:30 Hrs.

Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Explain the various indices to assess the quality of proteins in the diet. (10 marks)

2. Classify vitamins with examples. Explain the metabolic functions of vitamin D. (5+5 = 10 marks)

3. **Write briefly on:**

3A. Metabolic functions and deficiency manifestations of thiamin

3B. Antioxidant enzymes

3C. Metabolic functions of calcium

3D. Radiation hazards

3E. Food guide pyramid

3F. Nutritional anemias

(5 marks × 6 = 30 marks)

