Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

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

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

Monday, October 19, 2020

Time: 14:00 – 16:30 Hrs. Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. What are the different types of research? Discuss the steps involved in research process.

(10 marks)

2A. Write an explanatory note on sampling distribution with example.

2B. If Z is normally distributed with $\mu = 0$ and $\sigma = 1$. Find the following probabilities:

i) $P(Z \leq 2)$ ii) $P(-1 \leq Z \leq 2)$ iii) $P(Z \geq 3)$

(10 marks)

3. **Short Answer Questions:**

3A. Calculate the variance from the following distribution of marks obtained by students.

Marks	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of Students	2	3	12	23	7	2	1

3B. What is Non-probability sampling? Explain quota sampling with its advantages and disadvantages.

3C. From the following data, use X^2-test and conclude whether inoculation is effective in preventing tuberculosis:

Group	**Attacked**	**Not Attacked**	**Total**
Inoculated	20	90	**110**
Not inoculated	36	74	**110**
Total	**56**	**164**	**220**

(Given, $X^2_{0.05,1} = 3.84$)

3D. Explain case-control study design, its advantages and disadvantages with an example.

3E. Define following terms:

i) Sensitivity ii) Specificity iii) Positive predictive value

iv) Negative predictive value.

3F. Describe any five salient statements of Nuremberg code.

(5 marks × 6 = 30 marks)

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MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. (MEDICAL BIOCHEMISTRY) DEGREE EXAMINATION – OCTOBER 2020
SUBJECT: LIPID METABOLISM, ACID BASE BALANCE AND BIOLOGICAL OXIDATION (MBC 604)

Tuesday, October 20, 2020

Time: 14:00 – 16:30 Hrs. Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Discuss the metabolic adaptations during starvation.

(10 marks)

2. Outline the steps of cholesterol synthesis. Add a note on its regulation and special compounds synthesized.

(10 marks)

3. **Write briefly on:**

3A. Role of kidney in acid base balance
3B. Chemiosmotic hypothesis
3C. Membrane transport systems
3D. Types and functions of lipoproteins
3E. Ketone body metabolism
3F. High energy compounds

(5 marks × 6 = 30 marks)

Reg. No.										

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER M.Sc. (MEDICAL BIOCHEMISTRY) DEGREE EXAMINATION – OCTOBER 2020

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

Wednesday, October 21, 2020

Time: 14:00 – 16:30 Hrs. Maximum Marks: 50

✍ **Answer ALL the questions.**

✍ **Long answer questions:**

1. Describe the metabolism of Vitamin A under the following headings:

1A. Chemistry

1B. Absorption, transport and storage

1C. Functions

1D. Deficiency manifestations

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

2. Discuss the metabolism of Iron as per the following:

2A. Sources

2B. Any Four functions

2C. Absorption and transport

2D. Deficiency manifestations

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

3. **Write briefly on:**

3A. Mention the factors affecting BMR

3B. Functions of vitamins E and K

3C. Nutritional anaemias

3D. Occupational and industrial hazards

3E. Reactive oxygen species

3F. Protein energy malnutrition

(5 marks × 6 = 30 marks)