REV-01
BMLT/49/54

2025/05

SET A

BACHELOR OF MEDICAL LABORATORY TECHNOLOGY
BIOCHEMISTRY VI
BMLT – 603

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

Objective

Time: 30 min. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. Origin of estrogens hormones are:
   a. Adrenal cortex
   b. Ovaries
   c. Both of the above
   d. None of the above

2. Source of follicle stimulating hormone (FSH) is:
   a. Anterior pituitary
   b. Posterior pituitary
   c. Stomach
   d. Intestine

3. Sex hormones are:
   a. Protein or peptide hormones
   b. Steroid hormones
   c. Amino acid derivatives
   d. All of the above

4. _____ was the first hormone to be isolated, purified, synthesized, sequenced and produced by recombinant DNA technology:
   a. Glucagon
   b. Epinephrine
   c. Oxytoxin
   d. Insulin

5. Source of gastrin hormone is:
   a. Intestine
   b. Stomach
   c. None of the above
   d. All of the above

6. Which of the following is a tumor marker used in liver cancer?
   a. CEA
   b. AFP
   c. PSA
   d. hCG

7. CEA is mainly associated with which type of cancer?
   a. Prostate
   b. Colon
   c. Liver
   d. Lung

8. Which hormone lowers blood glucose levels?
   a. Glucagon
   b. Cortisol
   c. Insulin
   d. Epinephrine

9. Growth hormone is secreted by:
   a. Thyroid gland
   b. Pancreas
   c. Adrenal cortex
   d. Pituitary gland

10. Which hormone regulates the basal metabolic rate?
    a. Insulin
    b. Thyroid hormone
    c. Cortisol
    d. Estrogen

11. The hormone that increases heart rate and prepares the body for "fight or flight" is:
    a. Glucagon
    b. Epinephrine
    c. Growth hormone
    d. Progesterone

12. Thyroid hormones mainly regulate:
    a. Calcium absorption
    b. Metabolic rate
    c. Heartbeat
    d. Blood clotting

13. Which hormone is responsible for the development of female secondary sexual characteristics?
    a. Testosterone
    b. Estrogen
    c. Progesterone
    d. Cortisol

14. Food adulteration refers to:
    a. Cooking food at high temperature
    b. Adding substances to improve nutrition
    c. Mixing harmful substances with food
    d. Food preservation methods

15. The prevention of Food Adulteration Act was enacted in:
    a. 1950
    b. 1954
    c. 1965
    d. 1972

16. The middle value in a set of data is called:
    a. Mean
    b. Mode
    c. Median
    d. SD

17. Standard deviation is a measure of:
    a. Accuracy
    b. Spread of data
    c. Average value
    d. Central tendency

18. Which term describes closeness of measured values to each other?
    a. Sensitivity
    b. Accuracy
    c. Precision
    d. Specificity

19. Internal quality control is done to:
    a. Compare with other labs
    b. Ensure consistent performance within lab
    c. Regulate patient behavior
    d. Check temperature

20. Accuracy is defined as:
    a. Repeated results
    b. Closeness to true value
    c. Ability to detect disease
    d. Consistency of method

-- --- --

Descriptive

Time : 2 hrs. 30 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. Explain what are hormones and their classification **10**

2. What is a tumor marker? Give 2 example. Elaborate some application of tumor marker. **10**

3. **a.** Give the classification of tumor marker. **10**
   b. Write short notes:
      1. Alpha-fetoprotein
      2. Prostate-Specific Antigen (PSA)

4. Write a short note on Sex Hormones. **10**

5. Write a detailed note on food adulteration. Mention its types and the harmful effect caused by adulterants. **10**

6. What is Quality Control and Quality Assurance? Discuss its parameters and differentiate between internal and external quality control methods. **10**

7. **a.** Define mean, median and mode with examples. **10**

   b. The following table shows fasting blood glucose levels of 50 patients.
   Calculate the Mean, Median and Mode.

Blood Glucose Range (mg/dL)	Frequency (f)
70-89	5
90-109	15
110-129	20
130-149	7
150-169	3

8. **a.** Define Standard Deviation (SD) and Coefficient of Variation (CV). **10**

b. The following table shows the hemoglobin levels (g/dL) of 40 individuals. Calculate the SD and CV.

Hb Range (g/dL)	Frequency (f)
8-9.9	5
10-11.9	12
12-13.9	15
14-15.9	6
16-17.9	2

= = *** = =