

**First Professional BUMS Degree Regular/Supplementary
Examinations March 2026
Munafeul Aza – Paper II
(2022 Scheme)**

Time: 3 hrs

Max Marks: 100

- Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space
- Answer all parts of a single question together • Leave sufficient space between answers
- Draw table/diagrams/flow charts wherever necessary

1. Multiple Choice Questions (20x1=20)

The responses for MCQ questions (Q.No.i to Q.No.xx) shall be written continuously on the first two writing sheets (ie Page No. 3 & 4) only

- i. Aldosterone primarily acts on which part of the nephron
 - a) Proximal convoluted tubule
 - b) Loop of Henle
 - c) Distal convoluted tubule
 - d) Bowman's capsule
- ii. Which ion is primarily reabsorbed in the thick ascending limb of the loop of Henle
 - a) Sodium
 - b) Potassium
 - c) Calcium
 - d) Magnesium
- iii. Renin released by the juxtaglomerular cells, ultimately leads to the production of:
 - a) Aldosterone
 - b) Angiotensin II
 - c) Erythropoietin
 - d) ADH
- iv. The first urge to urinate typically occurs when the bladder volume reaches:
 - a) 50 ml
 - b) 100 ml
 - c) 150 ml
 - d) 300 ml
- v. Which of the following electrolytes is most commonly adjusted during dialysis to prevent complications
 - a) Sodium
 - b) Potassium
 - c) Calcium
 - d) Chloride
- vi. Which component of the dermis is most responsible for its tensile strength
 - a) Collagen fibers
 - b) Elastin fibers
 - c) Adipocytes
 - d) Melanin
- vii. In response to heat, the body increases sweat production to cool down through:
 - a) Conduction
 - b) Convection
 - c) Evaporation
 - d) Radiation
- viii. Apocrine sweat glands are mainly activated by:
 - a) Thermal stress
 - b) Emotional stress
 - c) Hypotension
 - d) All of the above
- ix. Melanocytes are primarily located in which layer of the skin
 - a) Stratum spinosum
 - b) Stratum granulosum
 - c) Stratum basale
 - d) Stratum corneum
- x. Which protein produced by keratinocytes, strengthens and waterproofs the skin
 - a) Collagen
 - b) Elastin
 - c) Keratin
 - d) Melanin
- xi. Which ion contributes to the repolarization of the action potential in nerve fibers
 - a) Calcium
 - b) Potassium
 - c) Chloride
 - d) Sodium
- xii. Which neurotransmitter is responsible for the regulation of sleep-wake cycles
 - a) Dopamine
 - b) Histamine
 - c) Glutamate
 - d) Epinephrine
- xiii. Which of the following is the primary photo pigment involved in vision
 - a) Rhodopsin
 - b) Melanin
 - c) Hemoglobin
 - d) Myoglobin

(PTO)

- xiv. The normal volume of CSF in an adult is approximately:
a) 50-100 mL b) 100-150 mL c) 150-200 mL d) 200-300 mL
- xv. The taste modality "sour" is primarily due to presence of which ion
a) Sodium b) Potassium c) Hydrogen d) Calcium
- xvi. Which endocrine gland secretes the hormone melatonin
a) Pineal gland b) Pituitary gland c) Adrenal gland d) Pancreas
- xvii. Parathyroid hormone promotes the conversion of 25-hydroxyvitamin D to its active form in:
a) Bone b) Kidney c) Intestine d) Liver
- xviii. In iodine-deficient goitre, TSH levels are typically:
a) Increased b) Decreased
c) Unchanged d) Randomly fluctuating
- xix. The adrenal medulla primarily secretes which hormones
a) Androgens b) Glucocorticoids
c) Catecholamines d) Mineralocorticoids
- xx. Melatonin synthesis is inhibited by:
a) Darkness b) Exposure to blue light
c) Low body temperature d) Increased serotonin levels

Short Answer Questions

(8x5=40)

2. Describe characteristics and composition of gastric juice
3. Explain the transport of oxygen and carbon dioxide
4. Explain the functions of nephron
5. Describe renal regulation of fluid and electrolytes
6. Explain the functions of skin
7. Describe neurotransmitters
8. Explain the functions of CNS
9. Explain menopause

Long Answer Questions

(4x10=40)

10. Describe the digestion and absorption of Proteins
11. Explain pulmonary volumes and capacities in detail
12. Describe the synthesis, regulation and functions of insulin and glucagon
13. Describe the hormonal changes and physiological events of menstrual cycle
