15790

BRAINWARE UNIVERSITY

Term End Examination 2025-2026
Programme – B.Sc.(MLT)-2022/B.Sc.(MLT)-2023
Course Name – Andrology & Endocrinology
Course Code - BMLTC501
(Semester V)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Select cell type is the first to undergo cell division during spermatogenesis:
a) Spermatozoa b) Primary spermatocyte
c) Spermatogonia d) Secondary Spermatocyte

(ii) Choose the process that describes the final maturation of spermatids into spermatozoa
a) Spermatogenesis b) Spermiogenesis
c) Spermatocytogenesis d) None of these

(iii) Identify the method that is commonly used to estimate fructose levels in semen
a) Colorimetric assay b) ELISA (Enzyme-Linked Immunosorbent Assay)
c) Gas chromatography d) High-performance liquid chromatography (HPLC)

(iv) Name which of the following tests can be used to assess sperm viability:
a) Hemocytometer counting b) Sperm morphology assessment
c) Hypoosmotic swelling test (HOST) d) Sperm DNA fragmentation assay

(v) Identify the most commonly used ART procedure
a) IVF b) ZIFT
c) GIFT d) ICSI

(vi) Predict the role of cryopreservation in ART
a) To improve embryo quality b) To stimulate ovarian follicles
c) To enhance fertilization rates in IVF d) To preserve embryos, eggs, or sperm for future use

(vii) Choose the technique that is most commonly used for quantifying multiple hormones simultaneously
a) Mass spectrometry b) Western blot
c) Immunohistochemistry d) Northern blot

(viii) What is a common risk associated with both ZIFT and GIFT?

a) Ovarian cancer b) Hormonal imbalance
c) Preterm labor d) Ectopic pregnancy

(ix) Hormones thyroxine, adrenaline and the pigment melanin are formed from
a) Tyrosine b) Proline
c) Tryptophan d) Glycine

(x) Which of the following hormones are responsible for the "fight-or-flight" response?
a) Epinephrine and norepinephrine b) Insulin and glucagon
c) Esrtogen and progesterone d) Thyroxin and melatonin

(xi) In postmenopausal women, circulating testosterone is a precursor for which of the following steroids?
a) Androstenedione b) Cortisol
c) Dehydroepiandrosterone d) Estradiol

(xii) Select what effect does testosterone have on the secretion of luteinizing hormone (LH):
a) Increases LH secretion b) Decreases LH secretion
c) Has no effect on LH secretion d) Stimulates FSH secretion instead

(xiii) Predict what happens to the levels of FSH and LH during menopause:
a) Both FSH and LH levels decrease b) FSH levels decrease, and LH levels increase
c) Both FSH and LH levels increase d) FSH levels increase, and LH levels decrease

(xiv) Iodine is actively transported into the thyroid follicular cells by:
a) Na^+/K^+ pump b) Na^+/I^- symporter
c) Pendrin channel d) Chloride channels

(xv) Which enzyme catalyzes the oxidation of iodide and the iodination of tyrosine residues in thyroid hormone synthesis?
a) Tyrosine hydroxylase b) Iodase
c) Thyroid peroxidase d) Deiodinase

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Cite the difference between in vitro fertilization (IVF) and intrauterine insemination (IUI). (3)
3. Interpret how do hypothalamic-pituitary interactions affect water balance and osmolarity regulation (3)
4. What enzyme catalyzes both the iodination and coupling reactions in the thyroid gland? (3)
5. Explain the importance of the blood-testis barrier. (3)
6. Summarize the ethical considerations of cryopreservation of gametes (3)

OR

Predict the uses of ICSI (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Design a basic laboratory protocol to estimate fructose concentration in semen and interpret its significance. (5)
8. What is thyroglobulin and what role does it play in thyroid hormone synthesis? (5)
9. Assess the role of Intracytoplasmic Sperm Injection (ICSI) in ART and compare it with conventional IVF. (5)
10. Evaluate the significance of cross-reactivity in hormone assays and how it can impact test accuracy. (5)
11. Explain the feedback mechanism involved in the hypothalamic-pituitary-adrenal (HPA) axis. (5)
12. Explain the hormonal regulation of spermatogenesis and its importance in male fertility. (5)

OR

Contrast the relationship between insulin and glucagon in maintaining blood glucose homeostasis (5)