

(LD 124)

OCTOBER 2013

Sub. Code: 2021

M.D. DEGREE EXAMINATION

BRANCH V – PHYSIOLOGY

HISTORY OF MEDICINE, RECENT ADVANCES IN CLINICAL  
PHYSIOLOGY, ENDOCRINOLOGY AND REPRODUCTIVE SYSTEMS

*Q.P. Code : 202021*

**Time: Three Hours**

**Maximum: 100 marks**

**I. Essay:**

**(2X10=20)**

1. Describe the phases of menstrual cycle. Explain various changes that occur in the uterus and ovaries during the cycle. Discuss its hormonal regulation.
2. Describe the synthesis of thyroid hormones. Explain the actions of thyroid hormones.

**II. Short Questions:**

**(8X5=40)**

1. What are the indicators of ovulation?
2. What is neuro-endocrine reflex? Explain using an example.
3. List the effects of growth hormone on metabolism.
4. List the steps involved in spermatogenesis.
5. List the contributions of Ernest Starling to Physiological sciences.
6. 2010 Nobel Prize in Physiology or Medicine was awarded for the development of *in vitro* fertilization technique. Write a short note on *in vitro* fertilization.
7. What is meant by the terms pluripotency and totipotency. Discuss the therapeutic uses of stem cells.
8. List the important discoveries of Charles Sherrington in the field of neuroscience.

**III. Reasoning Out:**

**(4X5=20)**

1. Calcium is required for muscle contraction. However, hypocalcemia results in tetany. Explain why.
2. Patients with diabetic ketoacidosis often develop hypokalemia on treatment with insulin. Explain why.
3. Patients with hyperaldosteronism DO NOT develop edema despite sodium and water retention caused by mineralocorticoids. Explain why.
4. Gonadal sex of a fetus is determined by the Y-chromosome. Explain how.

(PTO)

**IV. Very Short Answers:**

**(10X2=20)**

1. What is meant by 'permissive effect' of glucocorticoids?
2. List any four hormones secreted by the adipocytes.
3. List any four hormones that act through inositol triphosphate-mediated signal transduction.
4. Differentiate between 'Cushing's disease' and 'Cushing's syndrome'.
5. List the functions of progesterone.
6. Peter Agre won the 2003 Chemistry Nobel Prize for the discovery of aquaporins. What is the role of aquaporins in the maintenance of water balance by the kidneys?
7. What is the role of parathyroid gland Calcium Receptors (CaR) on calcium homeostasis?
8. How does exercise help in glycemic control in patients with diabetes mellitus?
9. List any four hormones that are released in response to hypoglycemia.
10. What is the cause for hyperpigmentation of skin and mucous membranes in Addison disease?

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