[LD 461] **AUGUST 2013** **Sub. Code: 1461**

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q. P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

Answer ALL questions in the same order.

I. Elaborate on: **(2 x 15 = 30)**

1. G Protein – coupled receptors and their role in disease pathogenesis.
2. Describe the synthesis and the factors governing the secretion of Arginine Vasopressin (AVP).

II. Write Notes on: **(10 x 7 = 70)**

1. Aberrant ACTH receptors.
2. The role of transcription factors in the development of the pancreas.
3. The role of Parathyroid related peptide (PTHrP) in health and disease.
4. Describe the anatomy of the Hypothalamus.
5. Somatostatin receptors.
6. Inhibins and Activins.
7. The mechanism of insulin resistance.
8. Ghrelin and Growth Hormone secretagogues (GHS).
9. Genetic syndromes involving pituitary tumors.
10. Evaluation of a patient with hypocalcaemia.

****

[LH 461] **AUGUST 2015** **Sub. Code: 1461**

D.M. – ENDOCRINOLOGY

PAPER I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code : 161461

Time : Three Hours **Maximum : 100 marks**

Answer ALL questions

I. Elaborate on: **(2 x 15 = 30)**

1. Describe in detail about the terminal metabolism and action of cortisol.
2. Biosynthetic pathway and Metabolism of catecholamines.

II. Write notes on : **(10 x 7 = 70)**

1. Regulation of Expression of genes encoding polypeptide hormones.
2. Ligand dependent gene activation.
3. Brown adipose tissue and Biege adipose tissue.
4. Mechanisms in thyroid dyshormono genesis.
5. Dominant negative inhibition.
6. Diencephalic syndrome.
7. Gene mutations for Beta cell function and diabetes.
8. Genetics of turner's syndrome.
9. SOX – gene regulation of gonadal phenotype.
10. Phosphate metabolism.

****

(LJ 461) AUGUST 2016 **Sub. Code:1461**

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P.Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe briefly the endocrine changes in pregnancy.
2. Pituitary development and pituitary transcription factors.

II. Write notes on: **(10 x 7 = 70)**

1. Glands can hear- Hearing dysfunction in endocrine disorders.
2. High dose hook effect in endocrine.
3. Hormone receptor antibodies.
4. Hormone dependant cancers.
5. Neuroendocrine regulation of prolactin in health and disease.
6. PET Scans in Endocrinology.
7. Terminal metabolism and action of cortisol.
8. Thyroid hormone receptors and action.
9. Insulin signalling.
10. Cytokine receptors.

****

(LL 461) AUGUST 2017 **Sub. Code:1461**

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P.Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Explain in detail the analytic validation procedures being done for hormonal assays in your lab.

2. The generation of steroids and metabolites from cortisol.

II. Write notes on: **(10 x 7 = 70)**

1. Orphan Receptor.
2. Indirect calorimetry.
3. Mass spectrometry.
4. Developmental and Genetic causes of Pituitary failure.
5. Specificity spill over syndromes.
6. Embryology of parathyroid gland development.
7. FRAX scoring: Merits and demerits.
8. RET Proto oncogene.
9. High dose hook effect.
10. The Insulin tolerance test to assess cortisol and growth hormone.

****

(LM 461) FEBRUARY 2018 **Sub. Code: 1461**

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P.Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Adrenal physiology during pregnancy in health and disease states.
2. Pathophysiology of bone disease in Chronic Kidney Disease.

II. Write notes on: **(10 x 7 = 70)**

1. Physiology of testicular descent and effects of cryptorchidism.
2. Pathogenesis of Graves' disease.
3. Glucose transporters.
4. White, brown and pink adipocytes: the extraordinary plasticity of the adipose organ.
5. Implications of Klotho in health and disease.
6. Role of mass spectrometry in Endocrinology.
7. The role of Antimullerian Hormone in health and disease.
8. Neuroendocrine adaptations to bariatric surgery.
9. Insulin-like growth factor – II: its role in metabolic and endocrine disease.
10. Pathology of the pancreas in Type 2 diabetes.

****

(LN 461) AUGUST 2018 **Sub. Code: 1461**

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P.Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Transcription factors and pituitary development.
2. Immunometric assays.

II. Write notes on: **(10 x 7 = 70)**

1. Genetics of male sex differentiation.
2. Hormonal and metabolic changes in puberty.
3. Bone- Pancreas loop.
4. Adrenarche.
5. Endocrine rhythms.
6. Adaptation of thyroid hormones during critical illness.
7. PPAR receptors.
8. Adipocyte browning and metabolic health.
9. Thyroid hormone transporters- Functions and clinical implications.
10. Pathophysiology of cyclical Cushing syndrome.

****

(LO 461) FEBRUARY 2019 **Sub. Code: 1461**

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Disorders of water and sodium homeostasis.
2. Congenital adrenal hyperplasia.

II. Write notes on: **(10 x 7 = 70)**

1. Nuclear receptor ligands and their receptors.
2. Genes associated with Familial pituitary tumor syndromes.
3. Growth Hormone stimulation tests.
4. Thyroid hormone resistance.
5. Insulin signalling pathways.
6. The role of Co- peptin in the differential diagnosis of Diabetes Insipidus.
7. Diagnostic tests for Primary hyperaldosteronism.
8. Parathyroid independent hypercalcemia.
9. Bone- resorption and bone-formation markers.
10. Parathyroid hormone-related protein (PTHrP).

****

(LP 461) AUGUST 2019 **Sub. Code: 1461**

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Nuclear receptor signalling mechanisms.
2. Biosynthetic pathway and metabolism of catecholamines.

II. Write notes on: **(10 x 7 = 70)**

1. Neuroendocrine regulation of ACTH in health and disease.
2. Antibody based assays.
3. Placental hormones.
4. Radioisotopes in thyroid disorders.
5. Thyroglobulin in health and disease.
6. IGF-Binding proteins.
7. Biochemical markers of bone turnover.
8. Genetics of male patient with congenital hypogonadotrophic hypogonadism.
9. Calcium sensing receptors (CasR): Role in calcium homeostasis and pathological states.
10. Embryology of thyroid with a note on lingual thyroid.

****

(DM 0821) AUGUST 2021 **Sub. Code: 1461**

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Laboratory techniques for recognition of endocrine disorders.

2. G protein coupled receptors and the clinical conditions associated with G protein receptor mutations.

II. Write notes on: **(10 x 7 = 70)**

1. Placental hormones.
2. Mineralocorticoid receptor.
3. Synthesis of thyroid hormones.
4. IGF and other growth factors.
5. Specificity spillover.
6. Two cell hypothesis of ovarian steriodogenesis.
7. TSH receptor antibodies.
8. Growth hormone stimulation tests.
9. Descent of testis.
10. FNAC thyroid.

****

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0822] AUGUST 2022 Sub. Code :1461

D.M. – ENDOCRINOLOGY

Paper I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. The embryological development of pancreas, the various transcription factors involved and its clinical relevance.

2. The synthesis and degradation of aldosterone. Also mention the action of mineralocorticoids on its receptor and downstream pathways.

II. Write notes on: **(10 x 7 = 70)**

1. Appetite regulation in the hypothalamus.
2. Role of gut microbiota in obesity.
3. Endocrine functions of the gastrointestinal tract.
4. Animal models used in diabetes mellitus.
5. Assays used for measurement of parathormone.
6. Thyroid receptors – structure and function.
7. Genomic imprinting in endocrinology.
8. Interpretation of likelihood ratios.
9. Body composition analysis – techniques and interpretation.
10. Twin cycle hypothesis.

****

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0124] JANUARY 2024 Sub. Code :1461

D.M. – ENDOCRINOLOGY

PAPER I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. G – Protein coupled receptors and the clinical conditions associated with G – Protein Receptor Mutations.

2. The development of the female Reproductive System.

II. Write notes on: **(10 x 7 = 70)**

1. Hyporeninemic hypoaldosteronism.
2. Mass Spectromertry : Applications.
3. Growth Hormone Receptor.
4. Natriutetic Peptides.
5. Disorders of Magnesium Homeostasis.
6. Physiology of Insulin Secretion.
7. Leptin.
8. Brown Adipose Tissue.
9. Glucose Transporters.
10. DAX – 1 Gene Mutation.

****

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0824] **AUGUST 2024** **Sub. Code :1461**

D.M. – ENDOCRINOLOGY

PAPER I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Foetal development of the adrenal gland and its clinical relevance in Endocrine disorders.

2. The synthesis, action and degradation of thyroid hormones. The types, location and function of thyroid receptors in health and disease.

II. Write notes on: **(10 x 7 = 70)**

1. Regulation of glucose metabolism.
2. Changes in gut microbiome after bariatric surgery.
3. Bone as an endocrine organ.
4. Mouse models used in Obesity.
5. Prolactin assays -Pitfalls and errors.
6. PTH Receptors – Structure, location, regulation and action.
7. The genetic basis of Familial tumoral calcinosis.
8. Interpretation of a Forest Plot.
9. Quantitative computed tomography for assessment of bone health.
10. Pituitary transcription factors.

****

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

[DM 0225] **FEBRUARY 2025** **Sub. Code :1461**

D.M. – ENDOCRINOLOGY

PAPER I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Describe development of the pituitary gland. Elaborate on the defects in the transcription factors and associated hormone deficiency syndromes.

2. Describe the physiology of energy homeostasis. Discuss the causes and management of monogenic obesity.

II. Write notes on: **(7 x 10 = 70)**

1. Describe the high dose hook effect in hormonal assays. Does it still exist?
2. ROC curve.
3. Write briefly on the Testosterone "T-trials".
4. Autoantibodies in diabetes.
5. Cardiac autonomic neuropathy in diabetes – diagnosis and treatment.
6. Treatment of hypercholesterolemia in a 60-year-old female with ischemic heart disease and statin intolerance.
7. Discuss the diagnosis and management of polyglandular autoimmune syndrome type 1.
8. Describe the diagnosis of carcinoid syndrome and management of carcinoid crisis.
9. Glucolipotoxicity.
10. Hypothalamic amenorrhoea.

****

THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[DM 0126] **JANUARY 2026** **Sub. Code :1461**

D.M. – ENDOCRINOLOGY

PAPER I – BASIC SCIENCES OF ENDOCRINOLOGY

Q.P. Code: 161461

Time: Three Hours **Maximum: 100 Marks**

I. Elaborate on: **(2 x 15 = 30)**

1. Discuss the mechanisms of hormone action through receptors. Describe the major receptor families, their signalling pathways, second messengers and regulatory mechanisms. Add diagrammatic representation where appropriate.

2. Outline the development of male gonad from the indifferent gonad. Discuss the phases of testicular descent and gonadotropins control of testicular function.

II. Write notes on **(7 x 10 = 70)**

1. Adipose tissue as an Endocrine organ.
2. Endocrine Rhythms.
3. Iodothyronine Deiodinases.
4. Clinical utilities of polymerase chain reaction (PCR) in endocrine diseases.
5. Fatty acid oxidation in health and diseases.
6. Transcription factors involved in anterior pituitary development.
7. Insulin sensitivity assessment methods.
8. Vitamin D clinical assessment and utility.
9. Glycated haemoglobin assay methods – Compare and Contrast.
10. Two cell hypothesis of ovarian steroidogenesis.

****