



# ES Midterm

## Coronary batch

Questions collected in total:

**33/35**

Please review the notes at the bottom of every page to better understand the questions.

Thanks to everyone who contributed to collecting these questions.

The questions are written and collected by many students, which means the answers are not official or confirmed yet by their professors. If they are, this file will be updated, so check the updated version on our drive, which is on the last page of this file. Some questions or answers or options may not be accurate.

Last version updated (3): 14  
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# Anatomy

(1) The final position of the thyroid gland reaches at the:

- (A) 6th week
- (B) 3th week
- (C) 4th week
- (D) 7th week

(2) Ligation of which of the following arteries put the external laryngeal nerve at risk:

- (A) Superior thyroid artery
- (B) Inferior thyroid artery
- (C) Superior renal artery
- (D) Inferior renal artery
- (E) Middle renal artery

(3) Origin of the anterior pituitary (Rathke's pouch) gland is the:

- (A) Endoderm
- (B) Oral ectoderm
- (C) Neural ectoderm
- (D) Mesoderm

(4) Cells of the thyroid glands are:

- (A) Oxyphil and cheif cells
- (B) Follicular and parafollicular cells
- (C) Acidophilic and basophilic cells
- (D) Basophilic cells and chromophobes

(5) Which of the following is not the correct relation of the left adrenal gland:

- (A) Anterior to diaphragm
- (B) Posterior to the lesser sac
- (C) Anterior to the stomach
- (D) Anterior to the superior pole

(6) Inferior parathyroid gland origin is from the:

- (A) Ventral 3rd laryngeal pouch
- (B) Ventral 4th laryngeal pouch
- (C) Dorsal 3rd laryngeal pouch
- (D) Dorsal 4th laryngeal pouch

(7) Sex hormones are produced in the:

- (A) Zona glomerulosa
- (B) Zona fascicularis
- (C) Zona reticularis
- (D) Adrenal medulla

(8) The adenohypophysis is supplied by which artery of the following:

- (A) Inferior hypophysial artery
- (B) Superior hypophysial artery
- (C) Middle hypophysial artery
- (D) ...

# Pharmacology

**(9) Which of the following drugs may cause Cushing like syndrome:**

- (A) Cosyntropin**
- (B) Octreotide**
- (C) Pegvisomant**
- (D) Somatostatin**

**(10) Which of the following is used to treat infantile spasm:**

- (A) Cosyntropin**
- (B) Octreotide**
- (C) Pegvisomant**
- (D) Levothyroxine**

Note: These 2 questions are the exact ones from the batch (iris) before. Nothing new. Except for some of the wrong options, other drug names were mentioned.

# Pathology

(11) A 35-year-old woman presenting with fatigue, unexplained weight gain, and firm swelling in her neck. She reports feeling cold all the time and has noticed changes in her hair and skin texture. Her primary care physician orders thyroid function tests, revealing elevated levels of TSH thyroid peroxidase antibodies (TPOAb) and thyroglobulin antibodies (TgAb). What is the most likely diagnosis:

- (A) Hashimoto's thyroiditis
- (B) Multinodular goiter
- (C) Graves disease
- (D) Subacute granulomatous thyroiditis

(12) Papillary carcinoma related statement:

- (A) ...
- (B) ...
- (C) Lymphatic metastasis
- (D) ...

(13) Sheehan syndrome is due to:

- (A) ...
- (B) In women who experience significant hemorrhage and hypotension during the peripartal period
- (C) ...
- (D) ...

(14) Which of the following is not a clinical manifestation of the mass effect caused by pituitary adenomas:

- (A) Bone erosion
- (B) Intracranial pressure
- (C) Visual abnormalities
- (D) Hypertension
- (E) Cranial nerve palsy

(15) Which of the following is indicative of thyrotoxicosis:

- (A) Weight gain
- (B) Cold skin
- (C) Fatigue
- (D) Mental sluggishness
- (E) Exophthalmos

(16) A case about medullary carcinoma of the parafollicular cells:

- (A) ...
- (B) ...
- (C) Amyloid deposits
- (D) ...
- (E) ...

Notes: In question (14), hypertension is related to the CVS not the head or cranial cavity since pituitary is part of the CNS. Question (12), (13), and (16) options, unfortunately cannot be remembered but they were far from accurate.

# Biochemistry

(17) Caffeine is a potent inhibitor of cAMP phosphodiesterase (which breaks down cAMP). After consuming two shots of espresso, which of the following is expected to occur in a liver cell:

- (A) Prolonged effect of glucagon
- (B) Decreased/inhibited amount of PKA
- (C) Increased insulin effect
- (D) Decreased glucose output from the cells
- (E) Decreased glycogenolysis

(18) Cells express receptors for hormones that they secrete. This type of hormonal action is referred to as:

- (A) Paracrine secretion
- (B) Autocrine secretion
- (C) Endocrine secretion
- (D) Neural secretion

(19) Which of the following is not related to the concentration of a hormone at the target cell:

- (A) The rate and synthesis of the hormone from its origin
- (B) The proximity of the target cell to the hormone origin
- (C) The affinity of the hormone to its transport protein carrier
- (D) The number of receptors on the target cells
- (E) The rate of clearance of the hormone

(20) Which of the following hormones mediate its effect through cAMP related pathways:

- (A) Thyroxine hormone
- (B) Growth hormone
- (C) Cortisol hormone
- (D) Insulin hormone
- (E) Luteinizing hormone

(21) Regarding cortisol:

- (A) Its receptor is located intranuclear
- (B) Its receptor bounded on the cell membrane
- (C) HSP90 protein bounded to its receptor
- (D) Its receptor developed in the nucleus
- (E) cAMP pathways or others...

(22) A patient has a tumor in the alpha cells of the pancreas that release glucagon into the blood, which of the following will be seen in the patient:

- (A) Increased glycogenolysis in muscles
- (B) Increased gluconeogenesis in muscles
- (C) Increased glycogenolysis in liver
- (D) Low blood glucose

Notes: In question (17), caffeine inhibits cAMP phosphodiesterase, leading to elevated cAMP levels and prolonged activation of protein kinase A (PKA), which enhances glucagon signaling in the liver. Insulin, however, acts through a tyrosine kinase receptor and does not rely on cAMP, so options related to insulin function (like decreased glucose output or glycogenolysis) are not relevant here. In question (20), thyroxine and cortisol act through intracellular receptors that directly influence DNA without involving cAMP pathways, whereas growth hormone and insulin use tyrosine kinase pathways, not cAMP. In question (21), the cortisol receptor is synthesized and located in the cytoplasm, not the nucleus. Intracellular receptors typically do not exert their effects through cAMP or tyrosine kinase pathways, acting directly on DNA and transcription mainly or only. In question (22), it is a past paper question. You will notice (assuming the reader has already looked into the past paper question) that it's the same question and options except for the last option, (D), which in past papers mentioned "Increased gluconeogenesis in liver," but in our exam, this option has been replaced with "Low blood glucose." If that old option was mentioned, the question would then be wrong since it would have two correct answers.



# Physiology

(22) Which of the following effects is the opposite to the four in PTH deficiency:

- (A) Calcium plasma level
- (B) Phosphate plasma level
- (C) Phosphate urine level
- (D) 1,25 VitD plasma level
- (E) Bone resorption

(23) Which of the following is the least/not correct statement regarding oxytocin:

- (A) Oxytocin may bind to ADH receptor
- (B) It induces uterine contractions during breast feeding
- (C) It is involved in the let down reflex
- (D) It induces milk synthesis

(24) Which of the following is the opposite compared to the other four on the growth hormone:

- (A) Somatomedins
- (B) Somatostatin
- (C) Increased free fatty acid
- (D) GRHR
- (E) Growth hormone

(25) Circadian rhythm:

- (A) Growth hormone may follow this pattern of secretion
- (B) It is a pattern of secretion every month
- (C) ...
- (D) It is a pattern of secretion every week
- (E) It is a pattern of secretion every 6 hours

(26) Which of the following has the opposite effect compared to the other four regarding ADH:

- (A) Extracellular fluid osmolality increase
- (B) Pressure decrease
- (C) Pain
- (D) Extracellular volume increase

(27) Functions of vitamin D involve all of the following except:

- (A) Increase serum calcium
- (B) Cause calcium retention in kidney
- (C) Increase absorption of calcium in intestine
- (D) Increase absorption of phosphate in intestine

(28) Decreased plasma  $\text{Ca}^{+2}$  lead to which of the following:

- (A) Decreased intravascular clotting
- (B) Decreased sodium permeability in cells
- (C) Increased neural excitability
- (D) Decreased muscle contraction

(29) If the anterior pituitary was removed surgically, which of the following is expected to happen:

- (A) The hormones that act on the cells (non gland) of the body only, decrease
- (B) The hormones that act on the endocrine gland only, decrease
- (C) All hormones that act on the cells (non gland) and endocrine gland decrease
- (D) Prolactin levels increases

(30) If we inject TRH to a patient for approximately 1 week, which of the following is expected to happen:

- (A) Sequential increase in TSH after the injection of TRH
- (B) An increased level of TSH after the injection then it will be decreased.
- (C) Thyroid hormones would decrease after the injection.
- (D) ...
- (E) ...

(31) All of the following is true about Insulin like glucagon -1 except:

- (A) It gets produced by the liver by the effect of GH
- (B) It increases body linear growth
- (C) It may gets stimulated by insulin
- (D) It stimulates GH
- (E) It may be stimulated by growth hormone

(32) Which of the following is not correct if thyroid hormones are elevated:

- (A) Hyperglycemia
- (B) Increased lipolysis
- (C) Increased glycolysis
- (D) Increased gluconeogenesis
- (E) Increased proteolysis

(33) In cases of decreased  $\text{Ca}^{2+}$  levels, there is an increased activity of  $1\alpha$ -hydroxylase to restore calcium to normal levels. The increased activity of  $1\alpha$ -hydroxylase is indirectly stimulated by which of the following:

- (A) Thyroid hormones
- (B) PTH
- (C) 1,25 VitD
- (D)  $\text{Ca}^{2+}$
- (E) Phosphate

(34) ?

(35) ?

**Notes:** In question (22), a deficiency in PTH would reduce all of the mentioned options, except option (B), because less PTH results in decreased phosphate excretion, leading to an increase in its plasma levels and a decrease in its urine levels. In question (23), oxytocin does all of the mentioned options, except for option (D), as this is the function of prolactin not oxytocin, oxytocin induces ejection of milk not the synthesis of milk. In question (27), the professor announced for the team the answer is (A) + (B), question (27) is also a past paper question. In question (28), The professor said the correct answer is increased neural excitability not clotting or decreased muscle contraction because for decreased muscle contraction the calcium concentration inside and outside the cell is almost equal and muscle contraction depends mainly on intracellular sources of calcium not extracellular levels. For intravascular decreased clotting the professor explained it, and said it was an incorrect and irrelevant option. Thus the correct answer is increased neural excitability because when plasma calcium is decreased sodium channels become less stable and leaky making them more prone to generating action potentials. In question (29), option (A) refers to growth hormone, which is secreted by the anterior pituitary gland, that act on no gland, but the cells in general, option (B) refers to the other hormones secreted by the anterior pituitary (LH, FSH, ACTH, TSH, and PRL), excluding growth hormone, the correct answer is option (C), as removing the entire anterior pituitary gland would lead to a decrease in the secretion of all hormones produced by this gland, option (D) is incorrect because prolactin would decrease not increase. In question (32), the glucose remains normal due to the insulin activity, so it wouldn't increase or decrease.

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