Endocrine System Practice Quiz and Exercises ANSWERS

1) Give 3 differences between the ways the autonomic nervous system and endocrine system control of homeostasis (3 marks)

   Endocrine is slower, more precise and occurs for a longer duration

2) What is a hormone? (1 mark)

   Chemical messenger

3) Explain the term up-regulation (1 mark)

   An increase in the number of receptor sites, creating increased sensitivity to a hormone

4) Name 6 endocrine glands (6 marks)

   Pituitary
   Thyroid
   Para-thyroids
   Adrenal
   Pancreatic Islets of Langerhans
   Pineal
   Thymus
   Ovaries
   Testes

5) Give 3 ways endocrine function can be tested (3 marks)

   Blood test
   Urine test
   Saliva test

6) Which structure in the brain controls the secretions of the pituitary and how does it achieve this in the anterior and posterior pituitary? (3 marks)

   Hypothalamus
   Inhibiting and releasing hormones to anterior pituitary through pituitary portal system
   Nervous impulses through nerve tissue to posterior pituitary

7) Name 6 hormones from the anterior pituitary (6 marks)

   GH = Growth hormone
   TSH = Thyroid stimulating hormone
   FSH = Follicle stimulating hormone
   LH = Lutenising hormone
   PRL = Prolactin
   ACTH = Adreno-corticotrophic hormone
   MSH = Melanocyte stimulating hormones
8) How are anterior pituitary hormones controlled? (1 mark)
Negative feedback mechanisms

9) When are levels of growth hormone highest? (1 mark)
At night and during adolescence

10) What is the action of TSH? (1 mark)
Thyroid stimulating hormone – Increases activity of thyroid gland, increase output of T3 and T4

11) Which hormone stimulates the release of ACTH? (1 mark)
Corticotrophin releasing hormone

12) What is the main function of prolactin? (1 mark)
Triggers and maintains lactation (with other hormones)
Prevents pregnancy during lactation
Breast maturation after childbirth
Rises just before menstruation (breast tenderness)

13) What is the role of FSH is females? (1 mark)
Maturation of ovarian follicles, ovulation
Secretion of oestrogen (ovaries)

14) Describe the oxytocin positive feedback mechanism (2 marks)
Thinking about baby and stimulation of breast by suckling increases oxytocin release. Oxytocin stimulate milk secretion from mammary glands

15) What is the function of ADH? (1 mark)
Reduce urine output

16) What disease do you suspect when an adult male client develops big hands, chin and ears? (1 mark)
Acromegaly

17) Give 3 symptoms of hyperprolactinemia (3 marks)
Galactorrhea
Amenorrhoea or oligomenorrhoea
Decreased libido in both sexes
Subfertility
18) What mineral is needed to make thyroxin and how does the thyroid respond to a lack of this mineral? (2 marks)

Iodine
Goitre development

19) What is the function of calcitonin? (1 mark)

Reduces blood Ca, preventing Ca reabsorption from the bone/kidneys

20) What is your suspicion if a 60 year old woman comes to you complaining of thinning hair, tiredness, weight gain, feeling cold and constipation? (1 mark)

Hypothyroidism

21) Give 3 ways in which parathyroid hormone acts on blood calcium (3 marks)

Increases calcium absorption from intestines
Increase calcium retention by the kidneys
Increases osteoclast activity

22) Give 4 signs/symptoms of hypoparathyroidism (4 marks)

Hypocalcaemia (detectable in blood test)
Muscle cramps
Tingling lips, fingers, and toes
Pain in the face, legs, and feet
Abdominal pain
Dry hair, Brittle nails & Dry, scaly skin
Cataracts
Weakened tooth enamel (in children)

23) Which hormones are produced in the adrenal medulla? (1 marks)

Adrenaline and Noradrenalin

24) What is the function of mineral corticoids and where are they produced? (2 marks)

Water/electrolyte balance
Adrenal cortex

25) What is Cushing’s syndrome? (1 mark)

Excessive secretion of glucocorticoids

26) A male patient is very worried because he feels nauseous, very weak and vomits frequently. His gums are relatively dark, what do you suspect? (1 mark)

Addison’s disease
27) Where is insulin made? (1 mark)

Beta cells of the pancreas

28) What is the function of glucagon? (1 mark)

Increases blood levels of glucose
Glycogen to glucose in liver and skeletal muscle
Gluconeogenesis

29) Give 3 typical symptoms that may lead you to suspect a patient has diabetes mellitus? (3 marks)

Large volume of urine
Thirst
More appetite
Tiredness
Weight gain round the middle
Infection that doesn’t heal

30) You find a middle aged man collapsed in the park, his breath smells of nail varnish remover. What do you suspect? (1 mark)

Ketoacidosis – Hyperglycaemic coma

31) Explain 2 complications of diabetes (2 marks)

Vascular problems
Neuropathy
Retinopathy
Nephropathy
Infections
Cataracts

(See slides for details)

32) Which gland secretes melatonin? (1 mark)

Pineal gland

33) What is the function of the thymus gland? (1 mark)

Lymphocyte development

34) Where is erythropoietin made and what is its function? (2 marks)

Kidneys – Red blood cell formation