ACTIVITY 1.1

Complete the following activities, which serve as part of your summary in preparing for the examination.

(a) Define cardiovascular diseases.

(b) What are endothelial cells and from which embryonic layer do they develop?

(c) What are the functions of normal endothelial cells?

(d) List the factors that activate the endothelial cells.

(e) Compare the characteristics of stimulated and unstimulated endothelial cells.

(f) Discuss the properties of endothelial cells found in capillaries and in larger vessels.

(g) Which substances are expressed by activated endothelial cells?

(h) Describe the subtypes of capillary endothelium.

FEEDBACK ON ACTIVITY 1.1

(a) Did you mention abnormal conditions of the heart and blood vessels?

(b) Endothelial cells are not a type of epithelium, but develop from the mesoderm.

(c–e) Read section 1.2.3. and pages 76–77 in the textbook by Finlayson and Newell.

(f) Distinguish between capillaries and larger vessels.

(g) Think of the tissue restoration process.

(h) Study section 1.4.2 and page 77 in the textbook by Finlayson and Newell.

ACTIVITY 1.2

(a) Discuss the properties of smooth muscle cells.

(b) Name the types and complications of aneurysms.

(c) What are congenital heart diseases?

(d) Describe the aetiology of congenital heart diseases.

(e) What is cyanosis?

(f) Distinguish between acyanotic and cyanotic heart diseases.

(g) List four common acyanotic congenital heart diseases.

(h) Describe two types of cyanotic heart disease.

FEEDBACK ON ACTIVITY 1.2

(a) Did you mention contraction and relaxation, endothelin, catacholamines or angiotension II, fibroblast-like function, i.e. collagen, elastin and proteoglycans, growth factors and cytokines?

(b) The types of aneurysm are listed in section 1.6.

(c) Did you mention malformations of the heart structure existing at birth?

(d) Aetiology is the study of the causes of a disease, see section 1.7.1.

(e) Cyanosis, did you mention bluish discoloration of the skin due to poor circulation or inadequate oxygenation of the blood?

(f) Study section 1.7.1.

(g) In answering this question, refer to section 1.7.2.

(h) Did you mention the Tetralogy of Fallot and the transposition of the great vessels?

Activity 1.3

(a) Define systemic hypertension.

(b) Describe how blood pressure is controlled in the body.

(c) Describe the three major causes of hypertension.

(d) Describe the complications of hypertension.

(e) Distinguish between atherosclerosis and arteriosclerosis.

(f) What is accelerated hypertension?

FEEDBACK ON ACTIVITY 1.3

(a) Did you mention systolic and diastolic pressure values?

(b) Do include cardiac output, heart rate, stroke volume and the available circulating blood volume. Did you mention baroreceptors, the sympathetic nervous system, hormones, kidneys, the renin-angiotensin system, aldosterone and antidiuretic hormones?

(c) See section 1.8.2 above.

(d) In your discussion, did you include atherosclerosis, arteriosclerosis and accelerated hypertension?

(e) Discuss aneurysms (section 1.6 above) and see pages 76–77 in the textbook by Finlayson and Newell.

(f) In accelerated hypertension, did you mention baseline blood pressure?

ACTIVITY 1.4

(a) Define ischaemic heart disease.

(b) What are coronary arteries?

(c) Discuss the causes of ischaemic heart disease.

(d) What is angina pectoris and what are its symptoms?

(e) Explain the characteristics of impaired blood flow to the coronary arteries.

(f) What is myocardial infarction?

(g) Discuss the aetiology and risk factors of myocardial infarctions.

(h) Discuss acute, healing and healed myocardial infarction.

FEEDBACK ON ACTIVITY 1.4

(a) Consider heart and blood vessels.

(b) Heart's own blood supply.

(c) Consider the major causes of ischaemic heart disease, lifestyle and genetic factors.

(d) Pain in the chest.

(e) Consider symptoms of heart failure.

(f) Blood supply and demand.

(g) Risk factors, consider the causes of atherosclerosis.

(h) Study section 1.10 above and pages 85-90 in the textbook by Finlayson and Newell (2009).

ACTIVITY 1.5

(a) Define thrombosis.

(b) Distinguish between a thrombus and an embolus.

(c) What is a thromboembolism?

(d) Describe venous and arterial thrombosis.

(e) Define haemostasis.

(f) What are the functions of normal haemostasis?

(g) Write down the antithrombotic secretions of the endothelium.

(h) Discuss the physiological functions of:

1) Endothelin-1; 2) Tissue factor; 3) Platelet activating factor; 4) Von Willebrand factor and 5) Thromboxane A2.

(i) Describe the mechanism of coagulation cascades.

(j) Distinguish between haemophilia and Christmas disease.

(k) Discuss the three pathologically significant locations of a thrombus.

(l) Define thrombolysis.

(m) Discuss the sequelae following thrombosis.

(n) Describe the five causes of embolus.

(o) Distinguish between the four types of thromboembolism.

(p) What is meant by disseminated intravascular coagulation?

(q) Write down the complications of disseminated intravascular coagulation.

(r) Define cardiac valvular disease and write down two functional abnormalities.

(s) Discuss valvular stenosis and valvular regurgitation.

(t) What are the major causes of cardiac valvular disease?

(u) What are myocardial diseases?

(v) Name and discuss the five primary myocardial diseases.

(w) Distinguish between myocarditis, pericarditis and endocarditis.

(x) Name the different types of pericarditis.

(y) What is cardiac tamponade?

FEEDBACK ON ACTIVITY 1.5

(a–q) Refer to section 1.12 of the study guide and pages 88–94 of the textbook.

(r–t) Study section 1.15 of study guide and pages 94–95 of the textbook.

(u–y) Read pages 96–97 of the textbook and section 1.16 (a–d).

ACTIVITY 2.1

(a) What are pulmonary diseases?

(b) Describe how pulmonary circulation operates.

(c) Name the three categories of pulmonary disease.

(d) Name the risk factors that increase the chances of blood clot formation.

(e) Write down the symptoms of pulmonary embolism.

(f) Write down the three potential sources of oxygen in the lungs.

(g) What is pulmonary hypertension?

(h) List the causes and risk factors of pulmonary hypertension.

(i) Define and write down the characteristics of pneumonia.

(j) Name two main types of pneumonia depending on the site of infection.

(k) Distinguish between lobar pneumonia and bronchopneumonia.

(l) Discuss the four evolutionary stages of lobar pneumonia.

(m) Define bronchiectasis.

FEEDBACK ON ACTIVITY 2.1

(a) Did you mention blood vessels along the route between the heart and lungs?

(b) Did you mention CO2, O2, deoxygenated and oxygenated blood?

(c) Embolism, infarction and hypertension.

(d–f) Study section 2.3 (1) above.

(g) Study sections 2.3 (3) and 2.3 (4) and pages 98–99 in the textbook.

(h) Look at section 2.3.3. and study pages 98–99 in the textbook.

(i–m) Study sections 2.4 and 2.5 and pages 100–103 in the textbook.

ACTIVITY 3.1

(a) Define malabsorption.

(b) Describe three conditions that predispose malabsorption.

(c) Describe the characteristics of malabsorption.

(d) Discuss gluten-sensitive enteropathy.

(e) List five conditions that can lead to diarrhoea.

(g) Serological tests test for antibodies against which substances in gluten-sensitive enteropathy?

(h) What are peptic ulcers?

(i) Describe lactose intolerance.

(j) What factors are responsible for the formation of peptic ulcers?

(k) What is meant by gastroesophageal reflux disease?

(l) How does gastroesophageal reflux disease cause heartburn?

(m) Distinguish between squamous cell carcinoma and gastric adenocarcinoma.

(n) Define lymphoma and describe two types.

(o) Distinguish between Hodgkin’s and non-Hodgkin’s lymphoma.

(p) Describe neuroendocrine tumours and gastrointestinal stromal tumours.

(q) Describe Crohn's disease and its symptoms.

FEEDBACK ON ACTIVITY 3.1

(a) Did you mention digestion and absorption defects or the inability to ingest food?

(b) Did you mention coeliac disease, Crohn's disease, lactose intolerance and intestinal damage?

(c–i) Study sections 3.4. and 3.5 above and pages 114–117 in the textbook by Finlayson and Newell.

(j–m) Study sections 3.4. and 3.5 above and pages 115–117 in the textbook by Finlayson and Newell.

(k) Gastroesophageal reflux disease (GERD); study section 3.5 and page119 in the textbook by Finlayson and Newell.

(n–q) Refer to section 3.8 and pages 121–125 in the textbook by Finlayson and Newell.

ACTIVITY 3.2

(a) What is an adenoma?

(b) Define a polyp.

(c) Name the three growth patterns of adenomatous polyps.

(d) What is an adenomatous polyp?

(e) Describe two examples of inherited colorectal carcinomas.

(f) What are the characteristics of anal cancer?

(g) Distinguish between colorectal and anal cancer.

FEEDBACK ON ACTIVITY 3.2

(a–d) Study section 3.13 above and pages 126–127 in the textbook by Finlayson and Newell.

(e–g) Study section 3.14 and pages 126–127 in the textbook by Finlayson and Newell.

ACTIVITY 4.1

(a) What are gynaecological diseases?

(b) Classify ovarian cancers according to the type of cell from which they originate.

(c) Name three types of epithelial cell tumour.

(d) What are germ cell carcinomas?

(e) Distinguish between teratoma and dysgerminoma and germ cell carcinomas.

(f) Classify the cells of the sex cord tumours.

(g) Write down the four types of benign uterine tumours.

(h) Describe the four types of uterine cancer.

(i) Define cervical cancer and list the risk factors.

(j) Distinguish between amenorrhoea and dysmenorrhoea.

FEEDBACK ON ACTIVITY 4.1

(a–d) Look at section 4.3 above and study pages 164–167 in the textbook by Finlayson and Newell.

(e–l) Refer to section 4.3 (c–h) and pages 168–171 of the textbook by Finlayson and Newell.

ACTIVITY 5.1

(a) Define central nervous system disorders.

(b) What causes central nervous system disorders?

(c) What are cerebrovascular accidents? List the various types.

(d) Define stroke, and list four symptoms.

(e) What are the risk factors for strokes?

(f) Explain what traumatic brain injury and intercranial haemorrhage entail.

(g) Describe an epidural haemorrhage.

(h) Describe what a brain contusion involves.

FEEDBACK ON ACTIVITY 5.1

(a–e) Refer to section 5.3 and pages 176–179 in the textbook by Finlayson and Newell.

(f–h) Look at section 5.3.1 above and pages 178–181 in the textbook by Finlayson and Newell.

ACTIVITY 5.2

(a) Write short explanatory notes on brain tumours.

(b) Distinguish between primary and secondary brain tumours.

(c) What is meningitis?

(d) List five types of meningitis.

(e) Describe tuberculous, viral and fungal meningitis.

(f) Define encephalitis.

(g) Distinguish between primary and secondary encephalitis.

(h) What is meant by a brain abscess?

(i) Write short notes on tetanus, botulism and polio.

(j) Name the muscle activities affected by motor neuron disease.

(k) Distinguish between Parkinson's and Huntington's diseases.

(l) What is multiple sclerosis? Give three examples.

(m) What is dementia?

(n) Distinguish between Alzheimer's and Creutzfeldt-Jakob disease.

(o) What are prion diseases? Discuss two types.

(p) Discuss vascular dementia.

FEEDBACK ON ACTIVITY 5.2

(a–h) Section 5.4–5.7 above will provide you with in-depth knowledge about brain tumours and encephalitis. Also study pages 182–185 in the textbook by Finlayson and Newell. (i–p) Study section 5.8 (a–h) above and revisit pages 186–191 in the textbook by Finlayson and Newell.

ACTIVITY 6.1

(a) Describe pituitary diseases.

(b) What is the function of the hypothalamus?

(c) Name three ways in which endocrine diseases generally present themselves.

(d) Discuss the consequences of inappropriate ADH secretion.

(e) Define diabetes insipidus.

(f) Describe the two major forms of diabetes insipidus.

(g) Distinguish between diabetes insipidus and diabetes mellitus.

(h) Discuss the causes of hypopituitarism.

(i) Describe craniopharyngioma and its presentation.

(j) Describe the four types of thyroid cancer.

(k) Describe the clinical features of thyroid gland diseases.

(l) Distinguish between hypothyroidism and hyperthyroidism.

(m) Describe the characteristics of secondary hyperthyroidism.

(n) Describe the pathology of Graves' disease and goitre.

(o) Distinguish between goitre and cretinism.

(p) Describe the types of thyroiditis.

(q) Distinguish between primary, secondary and tertiary hyperparathyroidism.

(r) Describe the characteristics of parathyroid gland diseases.

(s) Describe the characteristics of hypoparathyroidism.

(t) Discuss pseudohypoparathyroidism and pseudopseudohypoparathyroidism.

(u) Describe the different types of multiple endocrine neoplasia.

(v) Describe pheochromocytoma.

(w) Distinguish between Cushing's and Addison's disease.

(x) Describe apparent mineralocorticoid excess.

FEEDBACK ON ACTIVITY 6.1

(a–x) Understanding pituitary diseases will be very helpful. Read sections 6.3–6.7 above and also review pages 192–201 in the textbook by Finlayson and Newell.

ACTIVITY 7.1

(a) Describe the physiological functions of the kidney.

(b) Describe the types of kidney disease.

(c) Define polycystic kidney diseases.

(d) Differentiate between autosomal dominant and recessive polycystic kidney disease.

(e) Distinguish between acute and chronic kidney disease.

(f) Define renal agenesis, horseshoe kidney and foetal pelvic kidney.

(g) What is ureteral duplication?

(h) Describe bladder exostrophy and urethral hypospadias.

(i) Discuss Potter's syndrome.

(j) Describe the vascular diseases of the kidney.

(k) Give details of acute and chronic kidney injury.

(l) Explain the risk factors of kidney diseases.

(m) Explain the factors affecting the kidneys or patterns of kidney disease.

(n) Distinguish between nephrotic and nephritic kidney diseases.

(o) What are the presenting factors of nephrotic and nephritic kidney diseases?

(p) What are the causes of interstitial nephritis?

(q) Distinguish between acute and chronic glomerulonephritis.

(r) Describe the possible causes of glomerulonephritis.

(s) Differentiate between proliferative and nonproliferative glomerulonephritis.

(t) Explain tubulointertitial diseases.

(u) Discuss nephrocalcinosis.

(v) Describe renal neoplasm, bladder cancer and testicular neoplasm.

(w) Name the five types of testicular cancer.

FEEDBACK ON ACTIVITY 7.1

(a–e) Sections 7.1–7.5 may be very helpful in answering the questions. Also see pages 148–155 in the textbook by Finlayson and Newell.

(f–w) The study guide provides further enlightenment regarding the above questions. Study sections 7.6–7.9 in addition to pages 148–155 in the textbook by Finlayson and Newell.