

Topics and study materials for the 3rd credit test
General Medicine
2023/2024

Cardiology, haematology, respirology, nephrology

1. Cardiovascular system

- a) Physiology of the heart, cardiac cycle, pressures in the heart
- b) Congenital heart diseases, classification, causes, hemodynamic consequences, left to right shunt, right to left shunt; with cyanosis, without cyanosis.
- c) Valvular diseases, classification, etiology, hemodynamic changes; mitral; aortal.
- d) Heart failure, definition, classification, stages, compensatory mechanisms; pressure vs. volume overload, acute vs. chronic; left vs. right; backward vs. forward; diastolic vs. systolic dysfunction.
- e) Ischemic heart disease, atherosclerosis, mechanisms, risk factors; acute coronary syndrome, chronic forms of ischemic heart disease; myocardial infarction, classification, ECG diagnosis, biochemical markers.
- f) Dysrhythmias; conduction system of heart; description of action potential, ECG basic principles, causes and mechanisms of arrhythmias; classification; ECG diagnosis of dysrhythmias.
- g) Cardiomyopathy.
- h) Hypertension, mechanisms of blood pressure regulation, classification: essential vs. secondary hypertension; Hypotension

Study materials

- Unit 5 Circulatory Function; Ch 17 Control of Cardiovascular Function, p. 375 – 401; Ch 18 Disorders of Blood Flow and Blood Pressure, p. 402 – 443; Ch 19 Disorders of Cardiac Function, p. 444 – 485; Ch 20 Heart Failure and Circulatory Shock, p. 485 – 512 In: Porth, C.M. (Ed.) Essentials of pathophysiology, 4rd Edition, Wolters Kluwer/Lippincot Williams & Wilkins, 2011, ISBN-13: 978-1-4511-9080-9.
- Unit IX, Ch 31 Structure and Function of the Cardiovascular and Lymphatic Systems, p. 1083 – 1128; Ch 32 Alterations of Cardiovascular Function, p. 1129 – 1193, Ch 33 Alterations of Cardiovascular Function in Children, p. 1194 – 1224;. In: McCance, K.L., Huether, S.E. (Ed.) Pathophysiology, 7th Edition, Mosby, Elsevier Inc., 2014, ISBN: 978-0-323-08854-1.
- Recommended: lectures, tutorials, data on dept. web; Other reading: pract. seminars, internet resources (Wikipedia, etc.).

2. Haematology

- a) Anaemia, classification, clinical signs, compensatory mechanisms, diagnosis, haematological values.
- b) Leukaemia, classification, etiology, clinical signs.
- c) Coagulopathy, thrombocytopenia, coagulopathies; vasculopathies, thrombophilia, thrombosis, disseminated intravascular coagulopathy.

Study materials

- Unit 3 Hematopoietic Function, Ch 11 Disorders of White Blood Cells and Lymphoid Tissues, p. 241 – 260; Ch 12 Disorders of Hemostasis, p. 261 – 276; Ch 13 Disorders of Red Blood Cells, p. 277 – 295. In: Porth, C.M. (Ed.) Essentials of pathophysiology, 4rd Edition, Wolters Kluwer/Lippincot Williams & Wilkins, 2011, ISBN-13: 978-1-4511-9080-9.
- Unit VIII, Ch 27 Structure and Function of the Hematologic System, p. 945 – 981; Ch 28 Alterations of Erythrocyte Function, p. 982 – 1007; Ch 29 Alterations of Leukocyte, Lymphoid and Hemostatic Function, p. 1008 – 1054. In: McCance, K.L., Huether, S.E. (Ed.) Pathophysiology, 7th Edition, Mosby, Elsevier Inc., 2014, ISBN: 978-0-323-08854-1.
- Recommended: lectures, tutorials, data on dept. web; Other reading: pract. seminars, internet resources (Wikipedia, etc.).

3. Respiratory system

- a) Regulation of breathing, pathological forms of breathing
- b) Respiratory failure
- c) Obstructive vs. restrictive diseases, classification, causes, clinical signs, ventilometry differences
- d) Ventilation disorders, hypo-, hyperventilation, sleep apnoea
- e) Pulmonary oedema, ARDS
- f) Pulmonary hypertension, cor pulmonale

Study materials

- Unit 6 Respiratory Function, Ch 21 Control of Respiratory Function, p. 513 – 538; Ch 23 Disorders of Ventilation and Gas Exchange, p. 565 – 598 In: Porth, C.M. (Ed.) Essentials of pathophysiology, 4th Edition, Wolters Kluwer/Lippincot Williams & Wilkins, 2011, ISBN-13: 978-1-4511-9080-9.
- Unit X, Ch 34 Structure and Function of the Pulmonary System, p. 1225 – 1247; Ch 35 Alterations of Pulmonary Function, p. 1248 – 1289. In: McCance, K.L., Huether, S.E. (Ed.) Pathophysiology, 7th Edition, Mosby, Elsevier Inc., 2014, ISBN: 978-0-323-08854-1.
- Recommended: lectures, tutorials, data on dept. web; Other reading: pract. seminars, internet resources (Wikipedia, etc.).

4. Kidneys and urinary system

- a) Manifestation of renal diseases, physical and chemical characteristics of urine, proteinuria, hematuria - classification
- b) Acute and chronic renal failure, etiology, pathogenesis, symptoms, acute tubular necrosis, uremic syndrome
- c) Glomerulopathies, classification, etiopathogenesis, immunopathology, nephritic and nephrotic sy.
- d) Tubulopathies, congenital, acquired
- e) Tubulointestinal diseases, classification, pyelonephritis
- f) Renovascular diseases, blood pressure regulation, hepatorenal sy.
- g) Urolithiasis, classification, mechanisms, obstructive disorders of urinary tract

Study materials

- Unit 7 Kidney and Urinary Tract Function; Ch 24 Structure and Function of the Kidney, p. 599 – 616; Ch 25 Disorders of Renal Function, p. 617 – 638; Ch 26 Acute Kidney Injury and Chronic Kidney Disease, p. 639 – 655; Ch 27 Disorders of the Bladder and Lower Urinary Tract, p. 656 – 674 In: Porth, C.M. (Ed.) Essentials of pathophysiology, 4th Edition, Wolters Kluwer/Lippincot Williams & Wilkins, 2011, ISBN-13: 978-1-4511-9080-9.
- Unit XI, Ch 37 Structure and Function of the Renal and Urologic Systems, p. 1319 – 1339; Ch 38 Alterations of Renal and Urinary Tract Function, p. 1340 – 1375. In: McCance, K.L., Huether, S.E. (Ed.) Pathophysiology, 7th Edition, Mosby, Elsevier Inc., 2014, ISBN: 978-0-323-08854-1.
- Recommended: lectures, tutorials, data on dept. web; Other reading: pract. seminars, internet resources (Wikipedia, etc.).

Composition of the test

Multiple choice (40). Approximate composition:

1. Cardiovascular system

- a) Congenital heart diseases
- b) Valvular diseases
- c) Heart failure
- d) Ischemic heart disease, atherosclerosis, acute coronary syndrome, myocardial infarction
- e) Dysrhythmias
- f) Cardiomyopathy
- g) Hypertension

2. Haematology

- a) Anaemia

- b) Leukaemia
- c) Coagulopathy

3. Respiratory system

- a) Regulation of breathing, pathological forms of breathing
- b) Respiratory failure
- c) Obstructive vs. restrictive diseases
- d) Ventilation disorders
- e) Pulmonary oedema, ARDS
- f) Pulmonary hypertension, cor pulmonale

4. Kidneys and urinary system

- a) Manifestation of renal diseases, proteinuria, hematuria
- b) Acute and chronic renal failure, acute tubular necrosis, uremic syndrome
- c) Glomerulopathies, nephritic and nephrotic sy.
- d) Tubulopathies,
- e) Tubulointestinal diseases, pyelonephritis
- f) Renovascular diseases, blood pressure regulation, hepatorenal sy.
- g) Urolithiasis, obstructive disorders of urinary tract

Open questions. Approximate composition:

- a) Dysrhythmias
- b) Atherosclerosis, ischemic heart disease, angina pectoris, myocardial infarction
- c) Valvular disorders
- d) Congenital heart diseases
- e) Heart failure
- f) Hypotension and hypertension
- g) Anaemia
- h) Leukaemia
- i) Coagulopathy
- j) Obstructive & restrictive diseases
- k) Respiratory failure
- l) Proteinuria, hematuria, nephritic and nephrotic sy., glomerulopathies
- m) Acute and chronic renal failure
- n) Tubulopathies, tubulointestinal diseases, pyelonephritis
- o) Urolithiasis

In multiple choice test each question consists of 5 independent choices (a-e) to which students answer by Yes or No. Every one choice is awarded by 1 point. Altogether it is possible to achieve 200 points in multiple-choice part of test.

Each open question is credited by certain maxima of points, which can differ in various questions according to importance, content and difficulty.

Tests rating - grade in %

A - 100 - 93

B - 92 - 85

C - 84 - 77

D - 76 - 69

E - 68 - 60

Fx - 59 and less