

## Outline of questions - Anatomy and Physiology

### **general**

1. Structural levels of the body
2. Water, body fluids
3. Acids, bases, salts and buffers
4. Epithelial tissues
5. Glandular epithelium
6. Connective tissues
7. Cartilage, joints
8. The integumentary system - skin and adnexes
9. Bones and osseous tissue, skeleton
10. Hormones in mineral metabolism (calcium and phosphate)
11. Muscle tissue and muscular system
12. Skeletal muscle - structure, nervous control
13. Action potential in muscular tissue, excitation-contraction coupling
14. Sliding - filament theory of muscle contraction, energy
15. Types of muscle contraction, twitch, tetanus, fatigue
16. Smooth muscle - structure, physiology
17. Cardiac muscle - structure, physiology
18. Nervous tissue, neurons - description, neuroglia
19. Physiology of neurons - membrane potentials, action potential, conduction
20. Synapses - types, postsynaptic potentials, neurotransmitters, receptors

### **systemic**

21. Spinal cord, spinal nerves, reflex arc
22. Organization of the nervous system (CNS, PNS) functional anatomy
23. Meninges, ventricles and cerebrospinal fluid
24. Brainstem - medulla, pons, midbrain - structure, reticular activating system
25. Cerebellum - anatomy and function
26. Cerebrum - structure and function
27. Diencephalon - thalamus and hypothalamus
28. Wakefulness and sleep
29. Motivation, learning and memory
30. Cranial nerves
31. Motor control (central nervous motor area, descending motor tracts)
32. Autonomic nervous systems - basic characteristics and functions
33. Sympathic autonomic nervous system
34. Parasympathic autonomic nervous system
35. Somatic sensation (receptors, ascending tracts, central area)
36. Special senses eye and vision, ear and hearing and equilibrium
37. Chemical senses - taste and smell
38. Endocrine system – anatomy and function, major organs, hormones
39. Hypophysis (pituitary gland) – anatomy, structure and function
40. Thyroid and parathyroid glands - anatomy, structure and function
41. Adrenal glands – cortex, medulla - anatomy, structure and function
42. Pancreas as an endocrine gland, insulin, glucose
43. Male and female sex hormones
44. Hormones in mineral metabolism (calcium and phosphate)
45. Structure of the heart, blood supply
46. Impulse - conducting system of the heart, ECG

47. Cardiac cycle, pressure and volume units
48. Neuroendocrine control of the heart function (centers, baroreceptors, chemoreceptors, regulation of cardiac output)
49. Blood – components - plasma, elements, function
50. Hemostasis, coagulation
51. Blood vessels – main arteries and veins, structure and function
52. Physiology of circulation
53. Blood pressure, regulation of blood flow
54. The lymphatic system - components, function
55. Specific body defences – immunity – antigens, cells of immune system, humoral immune response
56. Respiratory tract – functional anatomy
57. Mechanics of breathing, neurochemical control and gas transport
58. Control of respiration – effect of exercise, high altitudes
59. Digestive system – functional anatomy mouth, pharynx, esophagus, stomach, small and large intestine
60. Physiology of digestion and absorption, motility,
61. Gastrointestinal hormones and nonhormonal secretions of the GI tract
62. Nutrition, metabolism, body temperature
63. The liver, bile
64. The urinary system – functional anatomy
65. Mechanisms of urine formation - filtration, reabsorption and secretion, renal clearance
66. Renal handling of ions and water, Renal regulation of extracellular volume and osmolality
67. Role of kidney in acid - base balance
68. Micturition
69. Female reproductive organs – anatomy and physiology
70. Women’s monthly rhythm, fertilization and pregnancy
71. Male reproductive organs - anatomy and physiology, sexual response