

Exam Questions of Pathological Physiology

Cluster 1:

General pathophysiology

1. Inflammation: acute and chronic, answer to cell damage, the phases of inflammation, cells and mediators participating in inflammation.
2. Fever: definition, pathogenesis, course and symptoms, classification.
3. Sepsis: definition, pathogenesis, manifestation.
4. Apoptosis: molecular mechanisms, signalisation, induction, regulation and timing of apoptosis, differences from necrosis.
5. The task of the immune system in defence of organism: nature, participating cells, regulatory mechanisms.
6. Immunodeficiency: primary, secondary.
7. Immune hypersensitivity and autoimmune diseases.
8. Monogenic disorders: cystic fibrosis, muscular dystrophies, malignant tumours.
9. Cellular signal-transduction pathways.
10. Dehydration: isotonic, hypertonic, hypotonic.
11. Hyperhydration: isotonic, hypertonic, hypotonic.
12. Disorders of acid-base balance.
13. Metabolic and respiratory acidosis and alkalosis.
14. Pain: aetiology, pathogenesis, biological implications, classification.
15. Oedema: interstitial, intracellular, pathogenetic factors, biological implications.
16. Stress: definition, stress and stressor, homeostasis, humoral and hemodynamic changes in stress.
17. Stress and diseases of civilisation: pathogenesis of functional disorders, corticovisceral theory, adaptation to stress.
18. Ionic imbalance: sodium, potassium, calcium, magnesium.
19. Hypoxemia: pathogenesis, types, clinical manifestations, compensatory mechanisms.
20. Carcinogenesis: malignant transformation, autonomy of tumours, disorder of growth regulation, angiogenesis, invasive metastatic growth.

Cluster 2:

Cardiovascular system

21. Regulatory mechanism of the contractile heart activity: preload, contractility, afterload, heart rate, synergism of contraction.
22. Heart failure: definition, classification, pathogenesis, compensatory mechanisms, vicious circle.
23. Heart failure: pathogenesis of clinical signs and symptoms.
24. Heart failure: pathophysiological principles of therapy.
25. Heart failure: right heart failure.
26. Hypertrophy of the heart: pathogenesis, classification, ambivalent nature, regression.
27. Cardiomyopathies: definition, classification, dilated and hypertrophic cardiomyopathy.
28. Mitral stenosis and insufficiency.
29. Aortic stenosis and insufficiency.
30. Congenital heart diseases: without cyanosis and with possible cyanosis.
31. Congenital heart diseases: with cyanosis.
32. Endocarditis: infective and rheumatic.
33. Endothelial dysfunction: aetiology, disorders of vascular tone, relation to atherosclerosis.
34. Pathogenesis of atherosclerosis: cells, pathomechanism, clinical manifestations.
35. Stable and unstable atherosclerotic plaque.
36. Coronary artery disease: physiology of coronary circulation, stable and unstable angina pectoris.
37. Myocardial infarction: pathogenesis, manifestation, complications, diagnostics.
38. Pathomechanism of the reperfusion injury: calcium paradox, oxygen paradox, clinical implications.
39. Dysrhythmias: supraventricular extrasystole, tachycardia, fibrillation, flutter.
40. Dysrhythmias: ventricular extrasystole, tachycardia, fibrillation, flutter.
41. Atrioventricular block.
42. Sudden cardiac death (SCD): definition, aetiology, pathogenesis, arrhythmogenic and non-arrhythmogenic SCD.
43. Blood pressure: determinants, regulatory mechanisms, arterial pulse.

44. Essential systemic arterial hypertension: formal pathogenesis, aetiologic and pathogenetic factors, value of optimal, normal and pathologic blood pressure.
45. Hypertension and peripheral organ damage: heart, vessels, brain, kidneys.
46. Secondary hypertension.
47. Collapse: definition, classification, pathogenesis, signs and symptoms.
48. Shock: pathogenesis, classification, clinical manifestations, compensatory mechanisms.
49. Hypovolemic shock.
50. Septic shock.
51. Cardiogenic shock.
52. Pulmonary oedema.
53. Pulmonary hypertension and pulmonary embolism.
54. Cor pulmonale: acute and chronic.
55. Disorders of the venous system: varices, chronic venous insufficiency, superficial and deep thrombosis.
56. Cardiovascular risk factors: internal, external, classification, score systems.

Cluster 3:

Uropoetic system

57. Proteinuria and nephrotic syndrome.
58. Haematuria and nephritic syndrome.
59. Acute renal failure.
60. Chronic renal failure.
61. Interstitial nephritis.
62. Glomerulonephritis.

Gastrointestinal system

63. Ulcer disease of stomach and duodenum.
64. Disorders of oesophagus.
65. Liver cirrhosis.
66. Liver failure.
67. Acute and chronic pancreatitis.

68. Inflammatory bowel diseases.
69. Ileus.
70. Diarrhoea and constipation.
71. Malabsorption syndrome.

Central nervous system

72. Brain ischemia and stroke: ischemic and haemorrhagic stroke, pathogenesis, manifestations.
73. Intracranial hypertension and oedema.
74. Degenerative disorders of CNS.

Endocrine system

75. Hyperthyroidism.
76. Hypothyroidism.
77. Cushing disease.
78. Addison disease.
79. Adrenogenital syndrome.
80. Pheochromocytoma.
81. Hyper- and hypoparathyroidism
82. Disorders of hypothalamus.
83. Disorders of hypophysis.
84. Pubertas and pseudopubertas praecox.
85. Diabetes mellitus type 1: classification, pathogenesis, manifestations.
86. Diabetes mellitus type 2: classification, pathogenesis, manifestations.
87. Complications of diabetes mellitus: acute and chronic.
88. Metabolic syndrome and insulin resistance.
89. Obesity: definition, pathomechanism, manifestation.
90. Disorders of calcium metabolism and osteoporosis.

Respiratory system

91. Dyspnoea: definition, pathogenesis, classification.
92. Disorders of ventilation, diffusion and perfusion, ventilation-perfusion imbalance.
93. Acute and chronic respiratory insufficiency: definition, pathogenesis, manifestation.
94. Pneumonia: definition, classification, pathogenesis, manifestations.
95. Interstitial lung diseases: definition, classification, pathogenesis, manifestations.

Pathophysiology of blood

96. Anaemic syndrome: definition, classification, pathogenesis, clinical implications.
97. Posthaemorrhagic anaemia: acute and chronic.
98. Haemolytic anaemia.
99. Iron-deficiency anaemia.
100. Megaloblastic anaemia.
101. Anaemia in secondary diseases.
102. Disorders of white blood cells: infections, leukaemias, lymphomas.
103. Disorders of thrombocytes and vascular purpura.
104. Disseminated intravascular coagulation.