

“APPROVED”

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**QUESTIONS FOR PRACTICAL CLASSES AND EXAM QUESTIONS
(Anesthesiology and Reanimatology. Toxicology)
FOR Vth YEAR STUDENTS FOR THE 2024-2025 ACADEMIC YEAR**

1. General anesthesia

1. Inhalational anesthetics.
2. Intravenous anesthetics.
3. Muscle relaxants: types, mechanism of action.
4. Opioid analgesics.
5. Preoperative assessment and medication. ASA anesthesia risk score.
6. Stages of general anesthesia.
7. Monitoring during anesthesia.
8. Complications related to general anesthesia.

2. Locoregional anesthesia

1. Local anesthetics: mechanism of action. Differential nerve block.
2. Local anesthetics: classification and clinical characteristics.
3. Technics for local/regional anesthesia.
4. Spinal anesthesia.
5. Epidural anesthesia.
6. Complications related to local/regional anesthesia.
7. Regional anesthesia: awake or asleep?
8. Modern challenges and future of anesthesia.

3. Acute respiratory failure

1. Acute respiratory failure: definition and classification.
2. Hypoxemic respiratory failure: causes, mechanisms of hypoxemia, symptoms.
3. Hypercapnic respiratory failure: causes, mechanisms of hypercapnia, symptoms.
4. Respiratory monitoring in ICU.
5. Management of airway obstructions.
6. Acute respiratory distress syndrome: etiology, mechanisms of hypoxemia, symptoms.
7. Acute respiratory distress syndrome: diagnosis and treatment.
8. Severe exacerbation of bronchial asthma: symptoms and treatment.
9. Oxygen therapy: indications and complications.
10. Nosocomial pneumonia.
11. Mechanical ventilation: indications and complications.

4. Cardiovascular monitoring. Acute heart failure

1. Acute heart failure definition. Causes of right- and left-sided, mixed and diastolic acute heart failure.
2. Oxygen transport: components and equation. Cardiac output determinants.
3. Preload and afterload: definition and components.
4. Cardiovascular monitoring. Definition of 10 cardiac parameters.
5. Intra-aortic balloon pump counterpulsation.

6. Cardiac output measurement techniques.
7. Treatment of life-threatening arrhythmias.
8. Vasoactive and inotropic agents used in the treatment of acute heart failure (Epinephrine, Norepinephrine, Phenylephrine, Dobutamine, Dopamine, Ephedrine).

5. Shock

1. Shock: definition, classification, pathophysiology.
2. Hypovolemic shock: etiology and pathogenesis.
3. Hypovolemic shock: clinical manifestations, treatment.
4. Cardiogenic shock: etiology, pathogenesis, clinical manifestations, treatment.
5. Septic shock: etiology, pathogenesis, clinical manifestations and treatment.
6. Anaphylactic shock: etiology, pathogenesis, clinical manifestations and treatment.
7. Neurogenic shock: etiology, pathogenesis, clinical manifestations and treatment.
8. Pulmonary embolism: clinical manifestations and treatment.

6. Hydroelectrolytic disturbances

1. Hypovolemia, causes, signs/symptoms, treatment.
2. Hypervolemia, causes, signs/symptoms, treatment.
3. Hypernatremia, causes, signs/symptoms, treatment.
4. Hyponatremia, causes, signs/symptoms, treatment.
5. Hyperkalemia, causes, signs/symptoms, treatment.
6. Hypokalemia, causes, signs/symptoms, treatment.

7. Acid-base disturbances

1. Buffering systems and acid-base balance.
2. Renal and pulmonary regulation of acid-base balance.
3. Acid-base balance parameters.
4. Metabolic acidosis.
5. Metabolic alkalosis.
6. Respiratory acidosis.
7. Respiratory alkalosis.

8. Acute disorders of consciousness. Brain death.

1. Degrees of neurological status impairment.
2. Coma etiology.
3. Key concepts in neurologic/neurosurgical intensive care.
4. Determinants of cerebral blood flow and intracranial pressure.
5. Coma diagnosis: medical history, physical examination, neurologic evaluation, paraclinical investigation.
6. General principles of treatment of coma.
7. Brain death: diagnostic criteria. Patient with brain death as potential organ donor.

9. Acute liver failure

1. Acute liver failure: definition and causes.
2. Acute liver failure: etiological treatment.
3. Acute liver failure: supportive treatment (cardio-vascular system, respiratory system, nervous system).
4. Acute liver failure: specific treatment (coagulation disorders, infection, kidney failure).

10. Acute kidney injury

1. Acute kidney injury: definition, classification, diagnostic criteria.
2. Acute kidney injury: causes, pathogenesis, clinical picture, differential diagnosis.
3. Acute kidney injury: clinical picture, treatment.
4. Acute intrinsic kidney injury: causes, pathogenesis, clinical picture, differential diagnosis.
5. Acute intrinsic kidney injury: clinical picture, treatment.
6. Assessment of the patient with acute kidney injury.
7. Renal replacement therapy in acute kidney injury: indications.
8. Renal replacement therapy in acute kidney injury: methods and complications.

11. Acute pain management

1. Definition and classification of pain (by time scale, mechanism, diagnosis etc).
2. The physiology of pain. Peripheral (peripheral receptors, mechanisms of inflammatory pain) and central mechanisms (spinal cord and supra-spinal modulations).
3. The physiological effects of unrelieved pain (endocrine, cardiovascular, respiratory, gastrointestinal, and immune systems).
4. Acute pain assessment tools (unilateral and multidimensional scales, self-assessment scales and observational scales).
5. Multimodal perioperative pain management. WHO analgesic ladder.
6. Patient-Controlled Analgesia: patient selection and contraindications for use. Side effects. PCA programmes: loading dose, bolus dose, dose duration, lockout interval, background infusion.
7. Principles of acute pain management in the opioid-dependent patients undergoing surgery.
8. Managing perioperative pain in patients with acute postsurgical neuropathic pain: pathophysiology, clinical features, pharmacological and non-pharmacological treatments.

12. Acute exogenous poisonings. General principles of diagnosis and treatment. Principles of intensive care in alcohol, opioid poisonings, and poisonings with psychotropic drugs.

1. Definition of toxic substance, acute exogenous intoxication, classification of toxicants, classification of intoxications.
2. Principles and peculiarities of diagnosis of acute exogenous poisonings.
3. Principles and peculiarities of treatment of acute exogenous intoxications.
4. Acute opioid intoxication. Clinical picture, diagnosis, principles of treatment.
5. Acute poisonings with psychotropic drugs. Clinical picture, diagnosis, principles of treatment.

13. Acute exogenous poisonings. Principles of intensive care in carbon monoxide, cyanide, organophosphate, paracetamol, salicylate, mushroom poisonings.

1. Acute intoxication with paracetamol and salicylates. Clinical picture, diagnosis, principles of treatment.
2. Acute carbon monoxide intoxication. Clinical picture, diagnosis, principles of treatment.
3. Organic phosphorus poisoning. Clinical picture, diagnosis, principles of treatment.
4. Acute cyanide poisoning. Clinical picture, diagnosis, principles of treatment.
5. Mushroom poisoning. Clinical picture, diagnosis, principles of treatment.

14. Transfusion and fluid therapy. Nutrition support in critically ill patients

1. Red blood cell concentrate. Indications for perioperative transfusion.
2. Fresh frozen plasma and cryoprecipitate. Indications for use.
3. Platelet concentrate. Indication for use.
4. Infusion therapy. Electrolyte solutions.
5. Infusion therapy. Colloid solutions.
6. Indications for parenteral nutrition. Components.
7. Estimation of parenteral nutrition requirements.

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