1. The plasma cell produces specific antibodies against a certain antigen. When the antigen is introduced into the body, the number of plasma cells increases. What blood cells increase in number in this case, resulting in increased total number of plasma cells?

a. B lymphocytes
b. Basophils
c. Eosinophils
d. Monocytes
e. T lymphocytes

2. Дефіцит якого фактора згортання крові спричиняє захворювання гемофілію В?

a. VIII
b. V
c. VII
d. XI
e. IX

3. A 33-year-old woman has hepatocerebral dystrophy (Wilson's disease). Ceruloplasmin levels in her blood are decreased. Amino acid levels are sharply increased in her urine. These changes are primarily caused by the intensification of the following process:

a. Urea synthesis
b. Gluconeogenesis
c. Formation of copper complexes with amino acids
d. Reamination of amino acids
e. Breakdown of tissue proteins

4. RNA of human immunodeficiency virus (HIV) has penetrated the leukocyte and stimulated the cell to synthesize viral DNA using the revertase enzyme. Name this process:

a. Operon depression
b. Convariant replication
c. Reverse transcription
d. Reverse translation
e. Operon repression

5. A man has an impairment of a certain part of his central nervous system, which manifests as asthenia, muscle dystonia, and a balance disorder. What part of the central nervous system is affected in this case?

a. Red nuclei
b. Reticular formation
c. Vestibular nuclei
d. Substantia nigra
e. Cerebellum

6. The tonsils of a 4-year-old child are enlarged, hyperemic, and covered with non-removable whitish membranes. What type of inflammation characterizes the changes in the child's tonsils?

a. Fibrinous inflammation (croupous)
b. Purulent inflammation
c. Caseous necrosis
d. Fibrinoid necrosis
e. Fibrinous inflammation (diphtheritic)

7. Echo-planar imaging is a technique that uses gamma rays for MRI scans.

a. -
b. True
c. False
d. Not given
e. -

8. During examination the patient is found to have low production of adrenocorticotropic hormone. How would this affect production of the other hormones?

a. ---
b. Increase thyroid hormones \\ synthesis
c. Decrease hormone synthesis in the adrenal medulla
d. Increase sex hormones synthesis
e. Decrease insulin synthesis

9. Autopsy of the body of a 40-year-old man, who died of odontogenic sepsis, revealed sharp thickening of poorly mobile semilunar aortic valves. The tissue of the valve is whitish and opaque. Its outer surface has thrombotic deposits 1x1.5 cm in size. What type of endocarditis is it?
a. Diffuse endocarditis
b. Acute verrucous endocarditis
c. Recurrent verrucous endocarditis
d. Fibroplastic endocarditis
e. Ulcerative polypoid endocarditis

10. У п`ятирічної дитини зі спадковим ураженням нирок під час огляду виявлено ознаки рахіту, в лабораторних показниках концентрація вітаміну D в нормі. Яка найімовірніша причина розвитку рахіту?
a. Підвищена екскреція кальцію
b. Гіпофункція паращитовидних залоз
c. Гіперфункція паращитовидних залоз
d. Недостатність кальцію в їжі
e. Порушення синтезу кальцитріолу

11. A 35-year-old woman complains of pain in her joints and numbness of her fingers and toes. During examination, a doctor notes that the patient's face is amimic and has thickened skin. Biopsy of a cutaneomuscular flap was performed for this patient. Histology detects disorganization of dermal connective tissue, mucoid and fibrinoid swelling, weak cellular response, and foci of gross sclerosis and hyalinosis. Atrophy of integumental structures, sclerosis of vascular intima, and perivascular bulbar sclerosis are observed in the patient. Make the diagnosis.
a. Systemic scleroderma
b. Polyarteritis nodosa
c. Rheumatoid arthritis
d. Systemic lupus erythematosus.
e. Rheumatism

12. Яка група організмів має нуклеоїди - кільцеві молекули ДНК, що формують хромосоми простої будови (відсутні гістони)?
a. Гриби
b. Віруси
c. Бактеріофаги
d. Найпростіші
e. Бактерії

13. In Tay-Sachs amaurotic idiocy that has an autosomal recessive pattern of inheritance, irreversible severe disorders of the central nervous system develop, leading to death in early childhood. In this disease, disturbed metabolism of certain substances is observed. Name these substances.
a. Carbohydrates
b. Minerals
c. Amino acids
d. Lipids
e. Nucleic acids

14. Oxidation of carbohydrates and lipids produces a large amount of energy, the main portion of which is generated in the process of acetyl-CoA oxidation. How many ATP molecules are formed as a result of complete oxidation of one acetyl-CoA molecule?
a. 24
b. 12

c. 38
d. 8
e. 36

15. In some diseases of the nervous system, damage with chromatolysis phenomena can be observed in the neurocytes. What intracellular metabolic processes become disturbed in the neurons?
a. Synthesis of carbohydrates
b. Keratohyalin folding
c. Synthesis of protein
d. Synthesis of glycolipids
e. Synthesis of lipids

16. A patient with type 1 diabetes mellitus has been prescribed insulin as a substitution therapy. What is the mechanism of action of this drug?
a. COX-2 inhibition
b. Increase of the glucose permeability of cell plasma membranes
c. Stimulation of α-cells of pancreatic islets
d. Blockade of H1-histamine receptors
e. Intensification of anaerobic glycolysis

17. The key reaction of fatty acid synthesis is production of malonyl-CoA) What metabolite is the source of malonyl-CoA synthesis?
a. Acyl-CoA
b. Malonate
c. Succinyl-CoA
d. Citrate
e. Acetyl-CoA

18. A 55-year-old woman has mitral valve insufficiency and had myocarditis 10 years ago. Currently she has no complaints. Her hemodynamics is within the normal range. What general nosology concept corresponds with this situation?
a. Pathological process
b. Pathological reaction
c. Pathological condition
d. Typical pathological process
e. Compensatory reaction

19. A patient with pleurisy has a foul-smelling fluid, containing biogenic amines and gases, in the pleural cavity. What type of inflammation is observed in this case?
a. Putrefactive
b. Catarrhal
c. Fibrinous
d. Purulent
e. Alterative

20. In an experiment, despiralization of the DNA molecule was disrupted in an animal cell. What processes will primarily stop occurring in this cell?
a. Repair
b. Termination
c. Transcription
d. Processing
e. Translation

21. A 42-year-old man with verified HIV infection developed a fever, generalized lymphadenopathy, diarrhea, and slight weight loss. What period of HIV infection corresponds with these symptoms?
a. Incubation period
b. AIDS-related complex
c. HIV encephalomyelitis
d. Period of acquired immunodeficiency syndrome

e. Period of persistent generalized lymphadenopathy

22. A 36-year-old man developed angina pectoris attacks after a case of staphylococcal sepsis. In the left coronary artery, coronary angiography revealed parietal thrombosis without signs of atherosclerosis. In this case, the thrombus formation started because of the damage to the vascular endothelium and the release of:

a. Phospholipase A2
b. Adenosine diphosphate
c. Adenosine triphosphate
d. Platelet-activating factor
e. Serotonin

23. A group of researchers aimed to study cardiac physiology found that overstretching of atria in the heart leads to decreased sodium reabsorption in the distal convoluted tubule and increase in glomerular filtration rate. Which of the following is the most likely cause of physiologic effects discovered by researchers?

a. Aldosterone
b. Renin
c. Angiotensin
d. Natriuretic peptide
e. Antidiuretic hormone

24. A blood smear of an allergic person contains a large number of round cells with a segmented nucleus and large bright pink granules in the cytoplasm. Name these blood cells.

a. Erythrocytes
b. Lymphocytes
c. Neutrophilic granulocytes
d. Basophilic granulocytes
e. Eosinophilic granulocytes

25. A 16-year-old girl has no hair on the pubis and in the armpits, her mammary glands are underdeveloped, she has no menstruations. What hormone imbalance is the likely cause of these symptoms?

a. Medulloadrenal hyperfunction
b. Hyperthyroidism
c. Ovarian failure
d. Hyperfunction of pancreatic islet apparatus
e. Hypothyroidism

26. Elevated blood homocysteine is a risk factor for cardiovascular pathology. This amino acid is formed in the body from:

a. Cystine
b. Methionine
c. Cysteine
d. Alanine
e. Folic acid

27. A 37-year old female presents to the clinic complaining of severe pain in her left wrist and tingling sensation in her left thumb, index finger, and middle finger, and some part of her ring finger. The pain started as an occasional throb and she could ignore it or take ibuprofen but now the pain is much worse and wakes her up at night. She works as a typist and her pain mostly increases after typing all day. Her right wrist and fingers are fine. Nerve conduction studies reveal nerve compression. Which of the following nerves is most likely compressed in this patient?

a. Radial nerve
b. Ulnar nerve
c. Musculocutaneous nerve
d. Axillary nerve
e. Median nerve

28. After bilateral adrenalectomy performed on a dog, the animal developed muscle weakness, adynamia, low body temperature, and hypoglycemia. What other sign is likely to be observed in case of adrenal insufficiency?

a. Increased resistance to bacteria and toxins
b. Increased sodium and chloride levels in the blood serum
c. Arterial hypotension
d. Increased glycogen synthesis
e. Lymphopenia

29. A woman came to a medical and genetic consultancy requesting to assess the risk of hemophilia in her children. Her husband has hemophilia. History-taking revealed that the woman's family had no cases of hemophilia. What is the risk of this couple giving birth to a child with this disease?

a. 75%
b. Absent
c. 50%
d. 25%
e. 100%

30. After delivery of a child by pregnant woman, the midwife notices a defect in external genitalia of a newborn. The woman only had one prenatal ultrasound that reported a male fetus. On physical exam, the neonatologists notices a short, broad penis with an orifice in its dorsal aspect, both testicles are present in the scrotum. Which of the following is the most likely congenital abnormality?

a. Paraphimosis
b. Hypospadias
c. Epispadias
d. Phimosis
e. Ovotesticular disorder of sex development

31. Blood testing of a patient with jaundice revealed an increase in total bilirubin due to its indirect fraction. Patient's urine and feces have a saturated color. What is the most likely mechanism of these disorders?

a. Impaired bile outflow from the liver
b. Increased hemolysis of erythrocytes
c. Damaged liver parenchyma
d. Disturbed urobilinogen conversion in the liver
e. Disturbed formation of direct bilirubin

32. Під час аутопсії тіла чоловіка віком 47 років виявили виразку по задній стінці шлунка діаметром 3 см, яка проникає у прилеглу до кишки тканину підшлункової залози. У ділянці виразки у підшлунковій залозі та в оточуючій жировій тканині множинні стеатонекрози. Яке ускладнення виразкової хвороби виникло у чоловіка?

a. Перфорація
b. Пенетрація
c. Малігнізація
d. Флегмона стінки шлунка
e. Стеноз

33. In the hematology unit a patient with leukemia was prescribed 5-Fluorouracil. What is the mechanism of action of this drug?

a. Stimulates DNase
b. Catalyzes replication
c. Inhibits transcription
d. Inhibits DNA synthesis
e. Inhibits translation

34. A 43-year-old man seeks evaluation at an emergency department with complaints of fever with chills, malaise, diffuse abdominal pain for over a week, diarrhea and loss of appetite. He says that his symptoms are progressively getting worse. He recalls that the fever began slowly and climbed its way

up stepwise to the current 39.8°C) His blood pressure is 110/70 mm Hg. A physical exam reveals a coated tongue, enlarged spleen and rose spots on the abdomen. Serologic study shows the agglutinin O titre of 1:200 by the Widal test. Which of the following is the most likely causative organism for this patient's condition?

a. Mycobacterium tuberculosis
b. Salmonella typhi
c. Vibrio cholerae
d. Leptospira interrogans
e. Enterohemorrhagic E) coli

35. In a patient with diabetes mellitus, regeneration processes are reduced and wounds do not heal for a long time. What metabolic changes cause this condition in the patient?

a. Acidosis
b. Inhibition of protein synthesis
c. Reduced glucose supply to the cells
d. Lipid metabolism disorder
e. Accumulation of ketone bodies

36. Because of a cerebral hemorrhage, a patient developed impaired speech perception (sensory aphasia). What brain structure is likely to be damaged in this case?

a. Superior temporal gyrus
b. Inferior frontal gyrus
c. Postcentral gyrus
d. Inferior temporal gyrus
e. Superior frontal gyrus

37. Transcription is the reaction of mRNA matrix synthesis on DNA matrix. Name the stages of transcription.

a. Initiation, elongation, termination
b. Initiation, elongation, translation
c. Initiation, translation, elongation
d. Initiation, processing, splicing
e. Processing, splicing, termination

38. A patient complains of drooping eyelid (ptosis) that appeared recently. What nerve is affected in this case?

a. Abducens
b. Ophthalmic
c. Oculomotor
d. Optic
e. Trochlear

39. At the post-mortem examination the stomach of a patient with renal failure was found to have a yellow-brown coating on the thickened mucosa. The coating was firmly adhering to its surface and had significant thickness. Microscopy revealed congestion and necrosis of mucosal and submucosal layers, fibrin presence. What is the most likely diagnosis?

a. Corrosive gastritis
b. Esogastritis
c. Gastric abscess
d. Croupous gastritis
e. Fibrinous gastritis

40. A 48-year-old woman has been diagnosed with Raynaud syndrome (a spasm of peripheral blood vessels) and prescribed an adrenotropic agent. What group does this drug belong to?

a. Beta-1-blockers
b. Alpha-blockers
c. Alpha/beta-adrenergic agonists
d. Beta-1-adrenergic agonists

e. Beta-2-blockers

41. У жінки віком 45 років на шкірі обличчя з'явилося пігментне утворення у вигляді вузлика. Мікроскопічно в біоптаті визначаються поля веретеноподібних і поліморфних клітин, що містять бурий пігмент,з великою кількістю мітозів. Який патологічний стан виник у пацієнтки?
a. Меланома
b. Рак
c. Папілома
d. Пігментний невус
e. Дерматофіброма

42. A woman, who was undergoing treatment for insomnia, was found unconscious. Her respiration is inhibited, she is in a collaptoid state and presents with muscle hypotonia and absence of reflexes. Empty medicine packages were found at the site of the accident. What medicine could have caused such a condition in the patient?
a. Picamilon
b. Nialamide
c. Promedol (Trimeperidine)
d. Phenobarbital
e. Eleutherococcus tincture

43. Які механізми регуляції зумовлюють збільшення частоти серцевих скорочень під час зміни положення тіла з горизонтального у вертикалене?
a. Катехоламіни
b. Симпатичні рефлекси і катехоламіни
c. Умовні симпатичні рефлекси
d. Умовні та безумовні симпатичні рефлекси
e. Безумовні симпатичні рефлекси

44. A 56-year-old woman complains of pain in the small joints of her hands and feet. She has been experiencing these symptoms for the last 12 years. Examination of her hands detects a subluxation of the metacarpophalangeal joints with fingers bent outwards ("walrus flippers"). There are high molecular weight immune complexes in the patient's blood. What diagnosis can be made in this case?
a. Rheumatoid arthritis
b. Rheumatic polyarthritis
c. Systemic lupus erythematosus
d. Dermatomyositis
e. Gouty arthritis

45. A group of scientists studying the properties of cardiac muscle cells in vitro decides to conduct an experiment. They reveal that a stimulation of sympathetic innervation of the heart has a positive inotropic effect on the myocardium (i.e., increased contractility). Which of the following modifications of ion conductance in myocardial cell is most likely responsible for such changes in contractility?
a. ---
b. Outward potassium current
c. Inward potassium current
d. Outward calcium current
e. Inward calcium current

46. What will be observed in a 23-year-old man with untreated type 1 diabetes mellitus?
a. Acidosis, hypokalemia
b. Alkalosis, hyperkalemia
c. Acidosis, normokalemia
d. Acidosis, hyperkalemia
e. Alkalosis, hypokalemia

47. У чоловіка віком 46 років у лабораторних дослідженнях крові виявлено підвищення активності креатинфосфокінази. Який патологічний стан, найімовірніше, виник у пацієнта?
a. Гострий панкреатит

b. Інфаркт міокарда
c. Ниркова недостатність
d. Гемолітична анемія
e. Тромбоемболія легеневої артерії

48. A 35-year-old woman has come to her physician with chief complaint of elevated blood pressure up to 180/100 mm Hg. She currently does not take any medication. During the physical examination, her blood pressure is 140/80 mm Hg, heart rate is 65/min. and temperature is 36.8°C) She has a ''moon face'', hirsutism, centripetal obesity, and striae on the skin with atrophy over the abdomen and thighs. Which of the following is the most likely cause of this patient's condition?
a. Hypothyroidism
b. Cortisol-secreting adrenal adenoma
c. Hyperthyroidism
d. Ovarian insufficiency
e. Pancreatic islet cells hyperfunction

49. Під час проведення аутопсії жінки віком 58 років, яка хворіла на цукровий діабет, при гістологічному дослідженні нирок виявлено у клубочках сегментарні гомогенні оксифільні відкладення, стінки артеріол дифузно потовщені, гомогенні, оксифільні. Який патологічний стан виник у клубочках і судинах нирок?
a. Гіаліново-крапельна дистрофія
b. Гіаліноз
c. Мукоїдне набухання
d. Амілоїдоз
e. Фібриноїдне набухання

50. A 75-year-old man was diagnosed with rectal cancer. Into what regional lymph nodes can the metastases spread in this case?
a. Into the thoracic lymphatic duct
b. Into the perivesical lymph nodes
c. Into the lumbar lymph nodes
d. Into the inferior mesenteric lymph nodes
e. Into the superior mesenteric lymph nodes

51. Pathologies of lipid metabolism include sphingolipidoses that can be characterized by the accumulation of excess phospholipids and sphingolipids, mainly in the nervous tissue. What disease is associated with accumulation of GM2 ganglioside in the body?
a. Niemann-Pick disease
b. Krabbe disease
c. Fabry disease
d. Gaucher disease
e. Tay-Sachs disease

52. Порушення якої функції ока спостерігається у разі пошкодження циліарного тіла?
a. Трофічний
b. Захисний
c. Світловідчуваючий
d. Акомадаційний
e. Світлопровідний

53. У померлого від хронічної ниркової недостатності макроскопічно нирка збільшена, щільна, на зрізі має жовтувато-білий колір і нагадує старе сало – <<сальна нирка>>. Укажіть патологічний процес.
a. Фібриноїдне набухання
b. Гіаліново-крапельна дистрофія
c. Гіаліноз
d. Жирова дистрофія
e. Амілоїдоз

54. A patient has been diagnosed with a myocardial infarction. His blood was tested for the activity of cardiospecific enzymes. Which one among the detected enzymes has three isoforms?

a. Lactate dehydrogenase
b. Pyruvate kinase
c. Aspartate transaminase
d. Alanine transaminase
e. Creatine kinase

55. Genealogical analysis of a family with a hereditary pathology of optic nerve atrophy has determined that this medical condition is passed on only by the mothers, both girls and boys can be affected, and the sick father does not pass on the disease to his daughters or sons. What type of hereditary disease is it?

a. X-linked dominant
b. X-linked recessive
c. Mitochondrial
d. Autosomal dominant
e. Autosomal recessive

56. A person has a knee injury with a crushed patella. In this case, damage is likely to be observed in a tendon of the following thigh muscle:

a. Adductor longus muscle
b. Adductor magnus muscle
c. Quadriceps femoris muscle
d. Sartorius muscle
e. Biceps femoris muscle

57. A 6-year-old child was diagnosed with a helminthic infestation. What changes in the child's leukogram should be expected in this case?

a. Increased neutrophil count
b. Increased eosinophil count
c. Decreased eosinophil count
d. Increased lymphocyte count
e. Increased monocyte count

58. In an experiment on an animal, the removal of a section of the cerebral cortex erased the previously developed conditioned reflexes in response to light stimulation. What section of the cortex was removed?

a. Postcentral gyrus
b. Temporal lobe
c. Limbic cortex
d. Precentral gyrus
e. Occipital cortex

59. Histones are small basic proteins, bound to DNA in chromatin. They contain numerous positively charged amino acid residues, which ensures their strong bond with the acidic groups of DNA. Name the most common amino acids in histones.

a. Glutamic acid, glutamine
b. Aspartic acid, asparagine
c. Serine, methionine
d. Lysine, arginine
e. Cystine, cysteine

60. S aureus can cause various infections - from purulent complications of wounds to pneumonia and sepsis. Why is penicillin therapy of staphylococcal infections not very effective?

a. Allergic response to staphylococcal proteins
b. Acetylase production by S. aureus
c. Penicillin's inability to penetrate the membrane of S. aureus
d. Penicillinase production by S. aureus

e. No penicillin receptors in the cell envelope of S. aureus

61. Який препарат належить до групи блокаторів кальцієвих каналів третього покоління?
a. Лозартан
b. Атенолол
c. Магнію сульфат
d. Амлодипін
e. Лізиноприл

62. Дівчинці віком 13 років лікар призначив для лікування мегалобластної анемії препарат, що стимулює перехід мегалобластного типу кровотворення в нормобластний та бере участь у синтезі пурино- і піримідинових основ, активізує синтез білка, метіоніну. Який препарат призначено пацієнтці?
a. Еритропоетин
b. Заліза сульфат
c. Плоди шипшини
d. Гемостимулін
e. Ціанокобаламін

63. A histological specimen demonstrates a parenchymal organ, the structural and functional unit of which is a follicle. The wall of the follicle is formed by cuboidal cells. The cavity of the follicle is filled with a colloid. What organ is being demonstrated in the specimen?
a. Ovary
b. Pituitary gland
c. Testicle
d. Salivary gland
e. Thyroid gland

64. A patient with frequent hemorrhages from the internal organs and mucous membranes has proline and lysine in the composition of collagen fibers. Their hydroxylation is impaired because of the following vitamin deficiency:
a. Vitamin K
b. Vitamin A
c. Vitamin E
d. Vitamin C
e. Thiamine

65. Two weeks ago, an illness was reported in several children at the orphanage. Based on the description of its clinical manifestations and epidemiological data, the epidemiologist suspects an outbreak of measles infection. What type of laboratory analysis can confirm this provisional diagnosis?
a. Serology
b. Rhinocytoscopy
c. Allergy testing
d. Immunofluorescence
e. Inoculation of chicken embryos

66. A patient was hospitalized with the provisional diagnosis of coronavirus infection. To diagnose the disease, a serological reaction was performed. This reaction is based on the interaction between an antigen and an antibody that is chemically linked to peroxidase or alkaline phosphatase. What serological reaction was used in this case?
a. Radioimmunological method
b. Complement fixation test
c. Immobilization test
d. Enzyme-linked immunosorbent assay (ELISA)
e. Immunofluorescence assay

67. A 49-year-old woman developed leg edema after she had been standing for a long time. What is the likely cause of leg edema in this case?

a. Increased oncotic blood plasma pressure
b. Decreased hydrostatic blood pressure in the arteries
c. Increased arterial blood pressure
d. Increased hydrostatic blood pressure in the veins
e. Decreased hydrostatic blood pressure in the veins

68. An adult man has 24-hour urine output of 20 liters with low specific gravity. This condition is most likely caused by the deficiency of a certain substance in the body. Name this substance.
a. Renin
b. Parathyroid hormone
c. Antidiuretic hormone
d. Aldosterone
e. Natriuretic factor

69. A patient with femoral neck fracture, who for a long time had to remain in bed in a forced (supine) position, has developed dark-brown lesions along the backbone; soft tissues are swollen, in the areas of maceration there is a foul-smelling liquid. Name the clinicopathologic type of necrosis:
a. Sequestrum
b. Infarction
c. Dry gangrene
d. Coagulation necrosis
e. Bedsore

70. A 30-year-old man was hospitalized with profuse diarrhea lasting for 12 hours. There was no vomitting. What changes can be observed in the patient's water-electrolyte balance and acid-base balance?
a. Gaseous acidosis with dehydration
b. No changes in blood pH
c. Gaseous alkalosis with dehydration
d. Non-gaseous alkalosis with dehydration
e. Non-gaseous acidosis with dehydration

71. A patient with chronic heart failure developed signs of pulmonary edema. What diuretic must be prescribed to the patient for rapid correction of this complication?
a. Diacarb (Acetazolamide)
b. Spironolactone
c. Clopamide
d. Triamzid
e. Furosemide

72. Increased levels of angiotensin II have been detected in the blood of a patient with a hypertensive crisis. The pressor effect of angiotensin is associated with the:
a. Stimulation of vasopressin production
b. Hyperproduction of prostaglandins
c. Activation of biogenic amine synthesis
d. Contraction of arteriolar muscles
e. Activation of the kallikrein-kinin system

73. A 65-year-old patient with a history of coronary artery disease presents to the doctor's office complaining of dizziness and sudden onset of a <<bluish discoloration>> of his skin. Physical examination reveals cyanotic patient. His blood pressure is 100/50 mm Hg, heart rate --- 110/min., respiratory rate --- 14/min. Laboratory testing is significant for methemoglobinemia. Which of the following medications did this patient most likely misuse?
a. Calcium channel blockers
b. α-adrenoreceptor antagonists
c. Smooth muscle relaxant
d. Adenosine
e. Nitrovasodilator

74. A 34-year-old man visits his dentist complaining of toothache. After a dental procedure that involved extraction of several teeth, he develops severe bleeding lasting more than 15 minutes. He has a history of chronic hepatitis C) Which of the following is the most likely cause of prolonged bleeding in this patient?

a. Thrombocytopenia
b. Hypoalbuminemia
c. ---
d. Hypocalcemia
e. Hypofibrinogenemia

75. A 24-year-old male decided to run a marathon after being untrained for a long period. The next day he visits his doctor with a chief complaint of severe pain in his thighs and shins. Which of the following is the most likely cause of this condition?

a. Adenosine diphosphate accumulation in the muscles
b. ---
c. Muscle proteins breakdown
d. Creatinine accumulation in the muscles
e. Lactic acid accumulation in the muscles

76. A patient has been diagnosed with myocardial infarction of the posterior wall of the left ventricle. In this case, thrombosis has occurred in the basin of the following artery:

a. -
b. Ramus interventricularis anterior a.coronaria dextra
c. Ramus septalis anterior a.coronaria sinistra
d. Ramus interventricularis posterior a.coronaria dextra
e. Ramus septalis posterior a.coronaria dextra

77. X-ray of the skull base bones revealed enlarged sella turcica cavity, thinned out anterior clinoid processes, and destruction of various sella turcica regions. This type of bone destruction can be caused by a tumor of the following endocrine gland:

a. Thyroid
b. Thymus
c. Epiphysis
d. Hypophysis
e. Adrenal glands

78. Diphtheria toxin is a potent inhibitor of protein synthesis in eukaryotes. What is its molecular mechanism of action?

a. Protein kinase inhibition
b. Protein kinase phosphorylation
c. Inactivation of the initiation factor
d. Irreversible modification of an elongation factor
e. Dephosphorylation of the termination factor

79. A 28-year-old patient has been hospitalized with complaints of abdominal pain, loose stools, weakness, fatigue, and shortness of breath. The patient has a history of a surgery for acute intestinal obstruction 2 years ago, with resection of 60 cm of the small intestine. At the time of the hospitalization, patient's blood test results were as follows: erythrocytes - 2.4·10^12/L, reticulocytes - 0.4%, hemoglobin - 80 g/L, color index - 1.25. The blood smear test detected macroanisocytes, poikilocytes, schizocytes, isolated megalocytes, megaloblasts. What pathology of the blood system can be characterized by such findings?

a. B_12 deficient anemia
b. Hemolytic anemia
c. Chronic posthemorrhagic anemia
d. Iron deficient anemia
e. Hypoplastic anemia

80. An unidentified surgical specimen is received for histopathologic analysis. A portion of the

specimen is cut and stained with hematoxylin and eosin. Under the microscope, you see an organ encapsulated by dense connective tissue that extends to the deeper areas by way of the trabecular extensions. The organ can be subdivided into two regions: a cortex with lymphoid nodules and medulla with medullary cords populated by plasma cells, B-cells and T-cells. Which of the following structures is most likely the origin of this surgical specimen?

a. Lymph node
b. Tonsils
c. Spleen
d. Bone marrow
e. Thymus