MCQ of technology of hematological analysis part 2

Choose the correct answer:

1.	Which occurs last in the clotting process?	a. Formation of thrombin. b. Formation of thromboplastin. c. Aggregation of platelets. d. Formation of fibrin network
2.	Coagulation is one component in:	a. Fibrinolysis. b. Hemostasis. c. Disruption of the intrinsic system. d. Vascular dilatation.
3.	Largest WBCs in peripheral blood is	a. Neutrophil b. Large lymphocyte c. Monocyte d. Eosinophi
4.	Smallest blood cell is	a. Small lymphocyte b. Platelet c. RBC d. Neutrophil
5.	Hemostasis:	a. Plays a small part in stopping the flow of blood. b. Plays a large part in stopping the flow of blood after injury c. Is a vascular system. d. Represents 15-20% of platelet protein.
6.	Coagulation factors I through IV are, respectively:	a. Calcium, fibrinogen, prothrombin, and Christmas. b. Fibrinogen,

		prothrombin, thromboplastin, and calcium. c. Prothrombin, calcium, fibrinogen, and thromboplastin. d. Thromboplastin, prothrombin, calcium, and fibrinogen
7.	The characteristic erythrocyte found in megaloblastic anemia is	a. microcytic b. spherocytic c. hypochromic d. macrocytic
8.	Thrombocytosis means platelet count	a. is more than 150 x 109 /l b. is more than 320 x 109 /l c. is more than 50 x 109 /l d. is more than 450 x 109 /l
9.	Megaloblastic development in bone marrow indicates which one of the following	a. proliferation of erythrocyte precursors b. impaired synthesis of DNA c. inadequate production of erythropoietin d. deficiency of G6PD
10.	The characteristic peripheral blood morphologic feature in multiple myeloma is	a. Cytotoxic T-cells b. Rouleaux formation c. Spherocytosis d. macrocytosis
11.	Except one, all below mentioned cells are differentiated monocytes. Which of them is the exception?	a. microglia b. osteoclast c. goblet cell d. kupfer cell
12.	How many of basophils are in the blood?	a. 0 to 1 % of all WBC's b. 3 to 5 % of all WBC's c. 20 to 30 % of all WBC's d. 60 to 70 % of all WBC's

13.	How many of lymphocytes are in the blood?	a. 3 to 5 % of all WBC's b. 5 to 20 % of all WBC's c. 20 to 40 % of all WBC's d. 60 to 70 % of all WBC's
14.	How many platelets (trombocytes) are in the blood?	a. 15 000 to 40 000 in mm^3 b. 150 000 to 400 000 in mm^3 c. 1.5 000 000 to 4 000 000 in mm^3 d. 15 000 000 to 40 000 000 in mm^3
15.	Which of following statements about platelets is not true?	a. alpha (α) granules contain proteins involved in blood clotting b. delta (δ) granules contain ATP. ADP. serotonin and calcium c. lamda (λ) granules contain hydrolytic enzymes d. mu (μ) granules contain myeloperoxidase
16.	What is a leukocyte?	a. Red blood cells b. White blood cells c. Platetes d. Immature cells
17.	Which hormone or cytokine simulates formation of platelets?	a. Thrombopoietin b. Erytropoietin c. Interleukin 6 d. Vasopresin
18.	Which hormone or cytokine simulates maturation of granulocytes?	a. SCF (stem cell factor) b. Interleukin 5 (IL 5) c. Angiotensin d. GM-CSF
19.	Which of following cells is the least differentiated?	a. Metamyelocyte b. Promyelocyte

		c. Myeloblast d. Myelocyte
20.	Which type of leukocyte can myeloid progenitor cells NOT produce	a. B cells b. eosinophils c. platelets d. monocytes
21.	An increased white blood cell count is indicative of which disease?	a. Lupus b. Leukaemia c. Anaemia d. Melanoma
22.	Which of the following is the function of white blood cells?	a. Transport oxygen b. Maintain homeostasis c. Defend against infection d. Produce haemoglobin
23.	The process of coagulation is classically divided into how many pathways?	a. 3 b. 4 c. 2 d. 5
24.	The vitamin essential for blood clotting is _____	a. vitamin A b. vitamin B c. vitamin C d. vitamin K
25.	What prevents clotting of blood in blood vessels	a. Serotonin b. Fibrinogen c. Heparin d. Fibrin
26.	Clumping of platelets is known as _____	a. Clotting b. Mutation c. Agglutination d. glutathione
27.	Which of the following plasma protein is involved in coagulation of blood?	a. albumin b. globulin c. fibrinogen d. amylase
28.	In the clotting mechanism pathway, thrombin activates	a. XI VIII V b. XI IX X

	factors	c. VIII X V d. IX VIII X
29.	Tissue plasmin activator function	a. allergy response b. immunity c. helps in wound healing d. dissolves clot in blood vessels
30.	The formation of a blood clot is known as which of the following?	a. Coagulation b. Chemotaxis c. Leucopoiesis d. Erythropoiesis
31.	Platelets are formed from what type of cell?	a. Melanocytes b. Macrophages c. Astrocytes d. Megakaryocytes
32.	Which of the following white blood cells is capable of phagocytosis?	a. Basophils b. Esinophils c. Lymphocytes d. Neutrophils
33.	After tissue injury, the first step in coagulation is:	a. Binding of factor XII to subendothelial collagen b. Cleavage of factor XI to active factor IX c. Complexing of factor IX with factor VIII in the presence of ionized calcium conversion of prothrombin d. Formation of fibrin from fibrinogen
34.	Which of the following clotting factors is the first factor common to both intrinsic and extrinsic pathways	a. Factor I (fibrinogen) b. Factor IX (Christmas factor) c. Factor X (Stuart-Prower factor) d. Factor XI (plasma thromboplasma

		antecedent)
35.	Which is required for platelet adherence to injured endothelium	a. Thromboxane A_2 b. Glycoprotein (GP) IIb/IlIa c. Adenosine diphosphate (ADP) d. Von Willebrand factor (vWF)
36.	Which of the following is NOT one of the four major physiologic events of hemostasis?	a. Fibrinolysis b. Vasodilatation c. Platelet plug formation d. Fibrin production
37.	What anemia is megaloblastic?	a. chronic post hemorrhagic anemia b. folic acid deficiency anemia c. aplastic anemia d. hemolytic anemia
38.	One of the developmental stages of neutrophylic leukocyte is:	a. myeloblast b. prolymphocyte c. promonocyte d, monoblast
39.	One of the developmental stages of lymphocyte is:	a. myeloblast b. lymphoblast c. promonocyte d. monoblast
40.	Stages of monocyte maturation are:	a. myeloblast b. prolymphocyte c. promonocyte d. monoblast
41.	Morphologically recognized granulocytic cell is:	a. lymphoblast b. myeloblast c. monoblast d. erythroblast
42.	Granulocytes formed in:	a. spleen

		b. bone marrow c. liver d. nodi lymphatici
43.	8. What cells are mononuclear leukocytes?	a. eosinophils b. monocytes c. neutrophils d. basophils
44.	Type of leukocytes increase in allergic reactions more often	a. eosinophils b. neutrophils c. lymphocytes
45.	The functions of the neutrophils are:	a. synthesis of antibodies b. phagocytosis c. secretion of enzymes and bactericide agents d. secretion of histamine and heparin
46.	Acute purulent inflammatory processes lead to:	a. eosinophilia b. lymphocytosis c. neutrophilic leukocytosis
47.	Type of leukocytosis appears in chronic inflammatory processes very often	a. eosinophilic b. basophilic c. neutrophilic d. monocytic
48.	The types of nuclear shift to the left are:	a. myelocytic b. degenerative c. monocytic
49.	The nuclear shift to the right is the increase of the:	a. common count of leukocytes b. percent of the mature neutrophils with hypersegmentation c. percent of the lymphocytes

		d. count of granular leukocytes
50.	22. The nuclear shift to the left is:	a. decrease the mature leucocytes from common count of leucocytes b. increase the count of immature neutrophils c. increase percent of the lymphocytes d. decrease the count of granular leukocytes
51.	What type of leukocytes increases in viral infection?	a. eosinophils b. neutrophils c. monocytes d. lymphocytes
52.	What disease is accompanied with eosinophilia?	a. asthma b. bacterial pneumonia c. myocardial infarction d. multiple myeloma
53.	What diseases are often accompanied with monocytosis?	a. tuberculosis b. bacterial pneumonia c. malaria
54.	The endothelial cells of intact vessels prevent blood coagulation by secretion of:	a. prostacyclin b. thromboxane c. factor IX d. vitamin K
55.	The functions of platelets in hemostasis are:	a. angiogenesis b. adhesion c. coagulation d. bactericidal
56.	Platelet precursor is:	a. plasmacytoblast b. myeloblast c. megakaryoblast d. lymphoblast

57.	Which factor can initiate blood coagulation?	a. factor I b. factor X c. factor XII d. prothrombin
58.	Inducers of platelets aggregation are:	a. aspirin b. ADP c. urea d. thrombin
59.	Factors which induce platelet aggregation?	a. thromboxane A2 b. ADP c. ATP d. prostacycline I2
60.	Extrinsic coagulation pathway of hemostasis includes activation of:	a. factor VII b. factor VIII c. factor IX d. factor XII
61.	The factor which converts the prothrombin to thrombin:	a. factor I b. factor VII c. factor IXa d. factor Xa
62.	The components of anticoagulate system are:	a. antithrombin III b. antihemophilic globulin c. angiotensine d. plasmin
63.	Fibrinolytic system includes:	a. antithrombin III b. antihemophylic globulin c. heparin d. plasmin
64.	Substances can split the fibrin molecule?	a. plasminogen b. plasmin c. antiplasmin d. heparin
65.	What is the name of the condition that results when a	a. Thrombocytopenia b. Thromboangitis

	person does not have enough platelets	c. Thrombocythemia d. thrombopathia
66.	What is severe neutropenia?	a. An absolute neutrophil count (ANC) of less than 500 b. An ANC of less than 1,000 c. An ANC of less than 50 d. An ANC of less than 25
67.	Thrombocytopenia means platelet count:	a. is less than 150 x 109 /l b. is less than 320 x 109 /l c. is less than 50 x 109 /l d. is less than 400 x 109 /l
68.	Which of the following is NOT a cause of microcytic Anemia?	a. Thalassemia b. Anemia of chronic disease c. Iron deficiency anemia d. Pancytopenia e. Lead poisoning
69.	The lab reports for a patient with low mean cell volume show high serum ferritin and low total iron binding capacity. What is the most likely cause for this patient's anemia?	a. Fe deficiency b. Anemia secondary to inflammation c. Thalassemia d. Hemoglobinopathy
70.	What is the most important test for Fe stores?	a. Serum iron b. TIBC c. Serum ferritin
71.	Which lab investigations would you order if you suspect Fe deficiency anemia?	a. CBC b. Blood smear c. Serum iron d. Serum ferritin e. TIBC f. All of the above
72.	What is the difference between beta-thalassemia	a. Homozygous vs heterozygous

	major and beta-thalassemia minor?	b. Acute vs chronic c. Legal drinking age
73.	Which would you expect to see on a blood smear for beta-thalassemia EXCEPT ?	a. Heinz bodies b. Multinucleated neutrophils c. Target cells d. Hypochromic microcytic cells
74.	Choose the laboratory result that is not characteristic for iron deficiency anemia:	a. decreased transferrin saturation b. decreased serum iron level c. decreased serum ferritin level d. decreased MCHC (Mean Corpuscular Hemoglobin Concentration) in red blood cells e. decreased total iron-binding capacity
75.	In what anemia the count of reticulocytes is reduced?	a. in the acute posthemorrhagic anemia b. in the hemolytic anemia c. in the aplastic anemia
76.	In what anemia the count of reticulocytes is increased?	a. acute posthemorrhagic anemia b. vitamin B12 deficiency anemia c. aplastic anemia
78.	What anemia is called like "**hemoglobinopathy**"?	a. thalassemia b. iron deficiency anemia c. folic acid deficiency anemia
79.	What enzyme deficiency in RBCs leads to ATP depletion and hemolytic anemia?	a. glucose 6-phosphate dehydrogenase b. sodium-potassium ATPase

		c. pyruvate kinase
80.	What enzyme deficiency in RBCs leads to hemolytic anemia due to oxidative stress?	a. glucose 6-phosphate dehydrogenase b. pyruvate kinase b. hexokinase
81.	What factors may cause megaloblastic anemia?	a. intrinsic factor deficiency b. diet excess in folic acid c. chronic blood loss d. membrane protein diffecency
82.	What factors may cause iron deficiency anemia	a. deficiency of intrinsic *Castl's* factor b. increase production of hydrochloric acid by gastric mucosa c. an increased iron demands d. deficiency of vitamin Bl2
83.	Beta-thalassemia is characterized by the following EXCEPT:	a. anemia development b. reduction in the synthesis of beta-globin chains c. reduction in the synthesis of alpha-globin chains d. presence of target cells,erythroblast and tear drops in peripheral blood
84.	Manifestations in patients with hemolytic anemia include the following EXCEPT:	a. fatigue b. splenomegaly c. increased levels of free haptoglobin d. jaundice
85.	Macrocytosis with an MCV of approximately 100 to 105 fL/cell is most likely to	a. Aplastic anemia b. Chronic alcohol use c. Myelodysplasia

	occur in patients with which of the following conditions?	d. Reticulocytosis
86.	Which of the following is NOT a common cause of B12 deficiency?	a. Dietary deficiency b. Malabsorption due to gastric bypass c. Malabsorption due to tapeworm infection d. Pernicious anemia due to impaired intrinsic factor secretion
87.	Which of the following is the correct description of hemolysis?	a. Increased production of red blood cells (RBCs) by bone marrow b. Premature destruction of RBCs c. Low Hb levels leading to anemia d. Short RBC lifespan in transfused blood
88.	In determining a cause for hemolytic anemia, RBC morphology may provide clues. Which of the following RBC morphologic changes may result from G6PD deficiency, oxidant stress, or unstable Hb?	a. Spherocytes b. Schistocytes c. Agglutinated cells d. Heinz bodies or bite cells
89.	This about alpha-thalassemia is correct	a. Number of gene mutations decide the severity of the condition b. Haemoglobin fails to produce enough alpha protein in alpha-thalassemia c. B ONLY d. both a& b
90.	Cold agglutinin disease	a. Valvular heart disease

	(cold antibody disease) is caused by autoantibodies that react at temperatures < 37° C. About half the cases are idiopathic. The other half usually results from lymphoproliferative disorders or from which of the following?	b. Use of cephalosporins c. ystemic lupus erythematosus (SLE) d. Infections
91.	AIHA is diagnosed by detection of autoantibodies with the direct antiglobulin (direct Coombs) test. A positive reaction to which of the following suggests the presence of warm antibody hemolytic anemia?	a. C3 bound to RBCs b. IgG bound to RBCs c. Free antibodies in plasma d. IgM bound to RBCs
92.	Polycythemia vera is a disorder of the blood-producing cells of the bone marrow. This disorder results in which of the following?	a. Underproduction of white blood cells b. Underproduction of platelets c. Overproduction of red blood cells d. Overproduction of bone cells
93.	Which of the following blood levels is usually abnormally high in a person with polycythemia vera?	a. Hemoglobin b. Erythropoetin c. Sodium d. Potassium
94.	Which of the following is a common treatment for polycythemia vera?	a. Bisphosphonates b. Phlebotomy c. A high-protein diet d. Vitamin C supplements
95.	The ratio of red blood cells to total blood volume is known as	a. Hemoglobin b. Hematocrit c. MCV d. MCH

96.	What is NOT a symptom of polycythemia vera?	a. Pruritus b. Easily bleeding c. Dry skin d. Skin redness
97.	Which of the following are types of polycythemia? (Select all that apply)	a. Absolute b. Relative c. Alpha d. Beta
98.	What is the primary method used for diagnosing sickle cell disease?	a. Coomb's test b. Osmotic fragility test c. Hemoglobin electrophoresis d. Glucose-6-phosphate dehydrogenase test
99.	Which of the following is NOT a disorder categorized under sickle cell disease	a. Sickle cell anemia b. Sickle-hemoglobin C disease (HbS/C) c. Sickle β-thalassemia d. Autoimmune hemolytic anemia
100.	What is the inheritance pattern of sickle cell disease?	a. Autosomal dominan b. Autosomal recessive c. X-linked recessive d. Y-linked
101.	The first stage of iron deficiency is marked by which of the following?	a. Progressive depletion of bone marrow iron stores b. Gradual decline in transferrin functioning c. Slowing in iron elimination d. Sharp decline in hematocrit levels
102.	The response to treatment of iron deficiency anemia is assessed by:	a. Serial serum iron measurements b. Serial hemoglobin measurements c. Serial iron-binding

		capacity measurements d. Serial serum ferritin measurements
103.	What is the single best serum test to evaluate for iron-deficiency anemia (IDA)?	a. Hepcidin level. b. Ferritin level. c. Iron (Fe) level. d. Total iron binding capacity (TIBC).
104.	Which of the following lab values is NOT part of the basic workup to screen for iron deficiency anemia (IDA)?	a. Hemoglobin b. Serum ferritin c. Transferrin saturation d. Haptoglobin
105.	Which of the following is one of the most common nutrient deficiencies in the world?	a. Vitamin B12 deficiency b. Vitamin C deficiency c. Iron deficiency d. Zinc deficiency
106.	Which of the following are symptoms of iron deficiency anemia?	a. Cold torso, lack of fatigue, and glowing skin. b. Trouble swallowing, red spots on feet, and hair loss. c. Cold hands and feet, brittle nails, and pica. d. Pink rash, increased hair growth, and itchy skin.
107.	Which of the following statements is true about Thalassemia?	a. There is a kind of Thalassemia on the basis of the number of mutations in the genes. b. Thalassemia is caused by the mutations in DNA of cells that form the haemoglobin c. Mild Thalassemia may

		not require treatment d. All the above.
108.	Which of the following types of thalassemia disease is Cooley Anaemia?	a. Alloimmunization b. Alpha – Thalassemia c. Beta – Thalassemia d. None of the above
109.	Which blood tests can tell if a person is a thalassemia carrier?	a. Complete Blood Count (CBC) b. Prenatal Testing c. Reticulocyte Counts d. All the above
110.	What happens to the red blood cells in a person with hereditary spherocytosis?	a. They flatten out b. They become more ball shaped, smaller than normal and loss central pallor c. They become sickle shaped d. They remain immature