

- a. Prazocin                      b. Labetalol                      c. Yohimbine                      d. Butaxamine                      e. Doxazocine  
**97. Advantage of cardio-selective  $\beta$  blockers over non-selective  $\beta$  blockers is:**  
 a. No bronchoconstriction                      b. No bradycardia                       c. Prolonged action                      d. No drug interaction                      e. Low price

- 98. Treatment of choice for cheese reaction is:**  
 a. Prazocin                      b. Phentolamine                       c. Phenoxybenzamine                      d. Pentazocine                      e. Propranolol  
**99.  $\beta$  adrenergic blockers are contraindicated in:**  
 a. Compensated CCF                      b. Hyperthyroidism                       c. Hypertrophic obstructive cardiomyopathies                      d. Diabetes Mellitus                      e. Angina  
**100. From antimetabolites Purine antagonist is:**  
 a. Methotraxate                      b. Azathioprine                      c. Cyclophosphamide                      d. 6-Mercaptopurine                      e. 5-Flourouracil  
**101. Level of which of the following should be checked as immune competency before starting anti tuberculosis drugs**  
 a. TNF                      b. IL-8                       c. TGF-beta                      d. Rfts  
**102. Pateint on renal transplantation uses a drug called cyclophosphamide the major side effect of the drug is**  
 a. Deranged Rfts                      b. Gastric Ulcers                       c. Toxicity of bladder                      d. Zwellenger syndrome  
**103. Immuno therapy with with of the following drugs will be best for Chronic granulomatous disease**  
 a. INF alpha                      b. INF beta                       c. INF gamma                      d. all of the above  
**104. Immune modulator used for covid is dexamethasone, main effect of dexta is**  
 a. increase IL-2 receptor                       b. Inhibit NFkB                      c. Increase glucose level                      d. Decrease TNF  
**105. Which of the following hypertensive drugs will increase the level of cyclosporine**  
 a. Atenolol                       b. propranolol                      c. Diltiazem                      d. Verapamil  
**106. Allopurinol will increase the toxicity of which of the following;**  
 a. 6MP                      b. azathioprine                      c. Brufen                       d. Both A and B  
**107. Wart therapy for HPV with imiquimod stimulate which of the following receptor**  
 a. IL 2 receptor                      b. Toll like receptor                       c. NFkB                      d. NFAT  
**108. Most common syndrome caused by cyclophosphamide is**  
 a. Zwellenger syndrome                      b. Serotonin syndrome                       c. Malignant hypothermia                      d. SIADH  
**109. Best immunosuppressive drug for kidney transplant is**  
 a. Cyclophosphamide                      b. Cyclosporine                       c. Sirolimus                      d. Dexamethasone  
**110. Immunosuppressive therapy with suppressant will lead to infection with**  
 a. CMV                      b. Toxoplasma                      c. Candida                       d. Nocardia

Block H (Multisystem I, Blood & Immunology II and MSK II Modules)  
Theory Paper -3<sup>rd</sup> Year MBBS - Internal Assessment  
KMU Institute of Medical Sciences, Kohat

Name: Zia Khan Roll No. 87

1. Which of the following best describes pleomorphism?  
a. Uncontrolled mitosis  
b. Multiple nuclei  Variability in shape and size  
c. The cells are different from where they arose from  
d. Dark discoloration of nuclei & nucleoli  
e. Atypical cell seen with a high N/C ratio
2. A 38-year-old female undergoes a routine PAP smear examination. The smear is reported as "Atypical cell seen with a high N/C ratio, hyperchromatic and pleomorphic nuclei." A cervical biopsy is advised. The biopsy shows a tumor composed of sheets and nests of malignant squamous cells invading the underlying stroma. Many of the malignant squamous cell nests show presence of keratin pearls at the center. Which of the following is the best description of her lesion?  
a. Severe dysplasia  
b. Mild dysplasia  
c. Invasive squamous cell carcinoma, well differentiated   
d. Invasive squamous cell carcinoma, poorly differentiated  
e. Invasive adenocarcinoma, well differentiated
3. Grading of cancer is based on which of the following statements?  
a. Size of the primary tumor  
b. Spread of cancer cells to regional lymph nodes  Presence of blood borne metastasis  
c. Degree of differentiation of tumor cells, anaplasia and no. of mitosis  
d. Presence of capsular invasion by tumor cells  
e. Presence of interstitial invasion by tumor cells
4. A young man with a history of Hepatitis B infection presented to the ER complaining of vague abdominal pain, intermittent fevers, and a 20-lb weight loss over the past 6 months. On examination, Diffuse abdominal tenderness, hepatomegaly and yellow sclera. A CT scan showed a diffusely nodular liver with a dominant nodule measuring 3 cm. Which of the following serum markers is useful for monitoring the disease progression in this patient?  
a. AFP   
b. CEA  
c.  $\beta$ -HCG  
d. CA-125  
e. PSA
5. A 21-year-old woman presents with a painful right knee. An x-ray reveals a mass arising from the distal femur. Biopsy shows a malignant tumor arising from the bone, an osteosarcoma; When the patient was 2 years old, a cancerous lesion was surgically removed from the right eye. Which of the following regulatory genes is most likely responsible for these eye and bone lesions?  
a. MYC proto-oncogene  
b. RAS proto-oncogene  
c. RB suppressor gene   
d. TP53 suppressor gene  
e. BRCA1 suppressor gene
6. A clinical study is performed involving complex genetic traits such as hypertension, heart disease, and diabetes. The study makes use of naturally occurring variations in DNA sequences that are found in exons and introns and are frequent and stable. Which of the following genetic markers is being used in this study?  
a. Proto-oncogenes  
b. Robertsonian translocations  
c. Single-nucleotide polymorphisms   
d. Three-base pair frameshift deletions  
e. Trinucleotide repeat mutations
7. A 23-year-old woman, G2, P1, gives birth at 37 weeks to a small-for-gestational-age male infant. During the pregnancy, fetal ultrasound showed an endocardial cushion defect and polyhydramnios from probable duodenal atresia. He has a large tongue, slanting eyes and simian palmar crease. Which of the following chromosomal abnormalities is most likely to be present?  
a. 45,X  
b. 47,XX,+21  
c. 47,XY,+18   
d. 69,XXY  
e. 47,XXY
8. A 39-year-old woman gives birth to a term infant with an umbilical hernia, Brushfield spots on the iris, macroglossia, low-set ears, oblique palpebral fissures, and a heart murmur. The infant survives to childhood and exhibits only mild mental retardation. Which of the following chromosomal abnormalities, affecting autosomes, is most likely to be present in the somatic cells of this child?  
a. Haploidy  
b. Monosomy  
c. Mosaicism   
d. Tetraploidy  
e. Triploidy
9. Which one of the following represents a benign tumor?  
a. Leukemia  
b. Lymphangioma  
c. Lymphoma  
d. Chordoma  
e. Mesothelioma
10. The chemical carcinogen, aflatoxin B-1 derived from a fungus, which contaminates grain foods most commonly induce:  
a. Transitional cell carcinoma of lungs  
b. Adenocarcinoma of rectum  
c. Squamous cell carcinoma of skin   
d. Hepatocellular carcinoma  
e. Renal cell carcinoma
11. A 53-year-old man noticed enlargement over 2 months in the skin lesion on the upper, outer area of his right arm. Biopsy findings show atypical squamous cells with excessive keratinization on histology. Physical examination yields no other remarkable findings. Which of the occupations is this man most likely to have had earlier in life?  
a. Auto repair mechanic  
b. Chemist in a factory  
c. Lifeguard on the beach   
d. Miner in a coal mine  
e. Radiation oncologist at a cancer center
12. A 20-year-old man has noted a cluster of small lesions on his upper lip for the past 5 days. On physical examination, there are four lesions ranging from 0.2 to 0.5 cm that are raised and filled with clear fluid. Which of the following descriptive terms best applies to his lesions?  
a. Bullae  
b. Macules  
c. Papules   
d. Pustules  
e. Vesicles
13. A 27-year-old woman has developed areas of scaling skin over the past month. On physical examination there are 1- to 3-cm light pink plaques covered with silvery scale on her arms and torso. A punch biopsy of one lesion examined microscopically shows keratinocyte nuclei retained within cells in the stratum corneum. Which of the following descriptive terms best applies to this microscopic finding?  
a. Acanthosis  
b. Dyskeratosis  
c. Hyperkeratosis   
d. Parakeratosis  
e. Spongiosis
14. A 39-year-old man on vacation is involved in a skiing accident in which he sustains a right tibial diaphyseal fracture. The fracture is set with open reduction and internal fixation for proper alignment. What is the most likely function of osteoclasts present at his fracture site 1 week later?  
a. Dividing mitotically  
b. Elaborating cytokines  
c. Forming collagen   
d. Resorbing bone  
e. Synthesizing osteoid

52. Gout is a disorder of which one of the following?  
 a. Purine metabolism    b. Pyrimidine metabolism    c. Ketone metabolism    d. Protein metabolism    e. Cystine metabolism
53. Which one of the following best reflects the evidence on smoking-cessation interventions to increase the chances of quitting?  
 a. There is good evidence that acupuncture is more effective than control (sham acupuncture).  
 b. There is good evidence that hypnotherapy increases rates of abstinence at six months more than no treatment.  
 c. Although physicians advise their patients to quit, there is no good evidence that such advice increases the odds of quitting.  
 d. Although training health professionals to ask patients about smoking and to offer them treatment leads to an increase in the number of smokers offered advice and support.  
 e. There is no evidence that such training leads to more people quitting.
54. Which one of the following is likely to be the most effective at helping smokers quit?  
 a. Group behavioral therapy    b. Self-help materials     c. Opioid antagonists (such as naltrexone)
55. Roughly what is the percentage of attempts to quit smoking without assistance that are successful?  
 a. 1%-10%    b. 30%-40%    c. 60%-70%
56. Based on the best available clinical evidence, how much does nicotine-replacement therapy increase the odds of quitting?  
 a. 1.5- to 2-fold     b. 2- to 4-fold    c. 5- to 7-fold
57. Blood-borne pathogens may enter your system through:  
 a. Skin abrasions    b. Open cuts    c. Mucous membranes     d. All of the above
58. Which best distinguishes an infectious disease from a noninfectious disease?  
 a. Infectious diseases can be cured with antibiotics; noninfectious diseases cannot.  
 b. Infectious diseases can be prevented with vaccines; noninfectious diseases cannot.  
 c. Infectious diseases can be spread from one organism to another; noninfectious diseases cannot.  
 d. Infectious diseases cannot be transmitted from one organism to another; noninfectious diseases can be.
59. If you are exposed to potentially infectious materials (PIM) while working, you may request a vaccine for which blood-borne disease?  
 a. Syphilis    b. HIV     c. HBV    d. Influenza
60. When discussing the Blood-borne Pathogen Standard, what are the main diseases of concern?  
 a. HIV, HBV, HCV    b. PVC, HAV, HDV    c. CDC, PCP, HEV    d. HIV, HEV, BVD
61. In Pneumoconiosis all are included except  
 a. Asbestosis    b. Silicosis    c. Anthracosis     d. Bagasosis
62. Ergonomics is related to  
 a. Economics    b. Agriculture    c. Engineering means to reduce occupational hazards    d. Agricultural economics
63. The acceptable level of iron in portable water is:  
 a. 0.1mg/l     b. 0.4mg/l    c. 0.5mg/l    d. 0.01mg/l
64. The health authorities are launching a smoking cessation program by designing different activities for the smokers. These are very expensive but still useful as a large proportion of lung cancer will be eliminated if smoking is stopped. This proportion of lung cancer can be indicated by:  
 a. Relative Risk    b. prevalence    c. Attributable risk    d. Attributable fraction     e. Incidence density
65. A researcher was studying maternal mortality in Kohat district. He observed more deaths in women who were brought to hospital without taking other factors into account concluded that hospital managed cases have more mortality as compared to home deliveries. This is an example of:  
 a. Indirect association     b. Relative risk    c. spurious association    d. Attributable risk    e. causal association
66. The trend in mortality from tuberculosis in England showed a steady fall in years 1855-1965, but thereafter a gradual rise in the incidence of this disease was reported. This type of time trend or fluctuation in disease occurrence is termed as:  
 a. Epidemic Trend    b. cyclical trend    c. seasonal trend    d. secular trend    e. pandemic trend
67. In the mid nineteenth century, an epidemiologist suggested that cholera was caused by drinking water in which an invisible agent is present. This type of association gives;  
 a. specificity    b. Temporal sequence     c. Biological plausibility    d. consistency    e. Gradient
68. Bhopal gas tragedy is an example of:  
 a. slow epidemic    b. continuous epidemic     c. point source epidemic    d. propagated epidemic    e. An accident which did not warrant an emergency
69. Residents of three villages with three different types of water supply were asked to participate in a study to identify cholera carriers because several cholera deaths had occurred in the recent past. virtually everyone was present at the time of examination. The proportion of carriers in each village was computed and compared. This study is a:  
 a. Cross sectional study    b. Case control study     c. Concurrent cohort study    d. Non-concurrent cohort study    e. Retrospective cohort study
70. To compare the death rate of Nepal with death rate of Pakistan, the most appropriate measure is a comparison between:  
 a. Age specific mortality rates    b. Crude death rates    c. Maternal mortality rates    d. Standardized mortality rates    e. Life expectancy
71. Crude death rates means  
 a. Number of deaths per 10% population in a given year    b. Number of deaths per 100% population in a given year  
 c. Number of deaths per 100 population in a given year    d. Number of deaths per 1000 population in a given year  
 e. Number of deaths per 10,000 population in a given year
72. Stapes Foot-plate Covers  
 a. Sinus Tympani     b. Oval Window    c. Pyramid    d. Round Window

31. A two years old child with severe pallor is diagnosed as a case of  $\beta$ -thalassemia major on Hb electrophoresis. To treat anemia, he will receive regular blood transfusions throughout his life. Which one of the following is a primary risk to this patient?  
 a. Electrolyte imbalance b. Fluid overload  c. Iron overload d. Citrate toxicity e. Hyperviscosity
34. A 70 years old male presents with severe anemia. Examination shows massive hepatosplenomegaly. On complete blood count Hb is 5gm/dl, platelet count is  $600 \times 10^3/L$  and TLC  $32 \times 10^9/L$ . Peripheral smear shows left shift with 30% myelocytes, 5% metamyelocytes, 5% band forms, 47% neutrophils, 03% basophils, 05% eosinophils and 05% blasts. What is the most probable diagnosis?  
 a. Acute myeloid leukemia b. Chronic lymphocytic leukemia  c. Acute lymphoblastic leukemia  
 d. Chronic myeloid leukemia e. Myelodysplastic syndrome
35. A six years old child presents with fever, malaise and pallor. His complete blood count shows Hb 6gm/dl, platelet  $80 \times 10^9/L$  and TLC  $20 \times 10^9/L$ . Bone marrow examination reveals 90% blasts which are negative on Myeloperoxidase and sudan black stain. Which one of the following is the most likely diagnosis?  
 a. Acute lymphoblastic leukemia b. Chronic myeloid leukemia  c. Chronic lymphocytic leukemia  
 d. Acute myeloid leukemia e. Myelofibrosis
36. Antibodies against intrinsic factor can cause which one of the following nutritional deficiency?  
 a. Combine folate and vitamin B12 deficiency b. Folate deficiency c. Iron deficiency  
 d. Vitamin B12 deficiency e. Combine iron and folate deficiency
37. An African American presents with hemolytic crisis. He is being treated for a malarial infection received on recent mission trip. Blood test shows Heinz bodies and bite cells. Which one of the following is most likely?  
 a. G6PD deficiency b. Autoimmune hemolytic anemia  c. Drug induced hemolysis d. Sickle cell anemia e. Pernicious anemia
38. Which change is seen at the 6<sup>th</sup> position of the  $\beta$  globin chain in patients with sickle hemoglobin (Hbs)?  
 a. Valine for glycine b. Glycine for valine  c. Valine for glutamic acid d. Glutamic acid for valine e. Glutamic acid for glycine
39. A 10 years old male child presented with easy bruisability and prolonge bleeding after minor cuts. There is history of prolonge bleeding at the time of circumcision. His maternal uncle is suffering from the same condition. Lab investigation shows normal Platelet count, normal BT, normal PT and prolonge APTT. Keeping in view the above scenario what is the most probable diagnosis?  
 a. Hemophilia A b. von Willebrand disease  c. Bernard soulier syndrome  
 d. Glanzman's thrombasthenia e. Disseminated intravascular thrombosis
40. A mountain climber develops dyspnea at high altitude and is airlifted to the ground hospital. Blood tests show an increased level of erythropoietin and reduced plasma volume with increased hemoglobin. This patient likely has a secondary form of which of the following?  
 a. Pure red cell aplasia b. Mylophthistic anemia  c. Aplastic anemia d. Polycythemia e. Thrombocytosis
41. Which of the following cells of the immune system do not perform phagocytosis?  
 a. Macrophage b. Neutrophil  c. Eosinophil d. Basophil  e. Helper T Cell
42. A 40-year-old laboratory technician accidentally injects a chemical into his skin. The next day, he notes that an area of erythematous, indurated skin is forming around the site of injection. Two days later, the induration measures 10 mm in diameter. A microscopic section from this area, with immunostaining using antibody to CD4, shows many positive lymphocytes. Which of the following immunological reactions is most consistent with this appearance?  
 a. Systemic anaphylaxis  b. Arthus reaction c. Graft-versus-host disease d. Delayed-type hypersensitivity e. Serum sickness
43. Which of the following best describes Interferons?  
 a. Cytokine barriers b. Physical barriers c. Cellular barriers  d. Physiological barriers e. Blood brain barrier
44. A patient is treated with penicillin G, but within minutes after injection, he develops itching and erythema of the skin. This is quickly followed by severe respiratory difficulty with wheezing and stridor. Which of the following immunoglobulins has most likely become attached to the penicillin G and mast cells to produce these symptoms?  
 a. IgA b. IgG c. IgM d. IgD  e. IgE
45. On gross examination, the mass is cystic and filled with hair. Microscopically, squamous epithelium, tall columnar glandular epithelium, cartilage, and fibrous connective tissue are present. Which of the following is the most likely diagnosis?  
 a. Adenocarcinoma b. Fibroadenoma  c. Glioma d. Hamartoma e. Teratoma
46. Carcinoma of which organ has been linked to occupational exposure to aniline dyes?  
 a. Bone marrow (hematopoietic stem cells) b. Breast c. Kidneys d. Lungs e. Urinary Bladder
47. What does TNM stand for?  
 a. Tumor size, lymph node, malignancy b. Tumor size, leiomyoma, malignancy c. Tumor shape, lymph node, metastasis  
 d. Tumor size, lymph node, metastasis e. Tumor turgor, lymph nodes, metastasis
48. Which one of the following viruses is associated with increased risk of cervical carcinoma?  
 a. Epstein-Barr virus  b. Herpes simplex virus c. Hepatitis B virus  d. HIV e. Human papillomavirus
49. The presence of IgM indicates which one of the following?  
 a. Activation of B Cells  b. A recent exposure has taken place c. An allergic reaction is present  
 d. A reaction between mother and foetus across placenta e. Activation of memory cells
50. A 62-year-old man with a history of chronic alcoholism has noted a 6-kg weight loss over the past 5 months. Physical examination shows no masses or palpable lymphadenopathy. Laboratory studies include an elevated serum  $\alpha$ -fetoprotein level. Which of the following is the most likely diagnosis?  
 a. Prostatic adenocarcinoma b. Pulmonary squamous cell carcinoma  c. Multiple myeloma  
 d. Pancreatic adenocarcinoma e. Hepatocellular carcinoma
51. A 30-year old female presents with morning stiffness with pain and swelling of metacarpophalangeal joints and proximal interphalangeal joints of her hands. Serum RA factor is positive. This condition results from an autoimmune reaction against:  
 a. Articular cartilage b. Periosteum of bone c. Hyaline cartilage d. Synovium e. Unknown arthritogenic antigen

73. An eleven months infant presents to OPD with complaints by the mother that he is unable to sit. He is also having history of repeated chest infections. Infant was born full term, NVD with immediate cry. He achieved neck holding at 5 months of age. Clinically child has stable vitals but shows frontal bossing, wide anterior fontanelle and wrist widening. On inspection of his chest, it shows beaded appearance at costo-chondral junction. He weighs 10 kilograms. What is the most likely diagnosis?  
 a. Congenital Hypothyroidism b. Thalassemia  c. Hydrocephalus d. Rickets e. Osteomalacia
74. A four years old has a 7 days history of right knee joint pain. Pain is associated with swelling and limitations of movement. There is also history of high grade fever. He has received some oral antibiotics and pain killers but his condition has not improved. There is no history of loose stools, vomiting or any rash. Clinically child is looking toxic with swollen and tender right knee joint. Blood investigations reveal a high leukocyte count with left shift and raised ESR. What is the most likely diagnosis?  
 a. Osteomyelitis b. Reactive arthritis  c. Septic arthritis d. Juvenile idiopathic arthritis e. Trauma
75. An eight years old has off and on episodes of lower limbs pain for the past one year. Pain commonly occurs at night and leads to frequent awakening of the child from sleep. Pain occurs in anterior thighs, shin and calves' areas. Mother says that she is quite worried despite the fact that she is involved in sport activities at school. Pain is usually absent the next morning. There is no history of fever, rash or headache associated with it. What is the most likely diagnosis?  
 a. Bone tumour b. Growing pain  c. Osteomyelitis d. Reactive arthritis e. Trauma
76. A ten years old girl is brought by her parents to OPD with complaints that the child is not gaining height. She was born full term and was having normal weight and appearance at birth. She started sitting and walking at appropriate age. According to mother she has remained short for her age from the early infancy. There is no history of repeated chest infections or diarrhea. She has good appetite and is active. O/E she has a height of 110 cm. Her limbs appear short and trunk looks normal. She has a small face and having lordosis. What is the most likely diagnosis?  
 a. Achondroplasia b. Growth hormone deficiency c. Hypothyroidism d. Malabsorption syndrome e. Rickets
77. Poisoning caused by an excessive single dose, or several doses, taken over a short interval of time, is:  
 a. Acute b. Chronic c. Fulminant d. Sub-acute
78. Most Rapid rate of absorption of a drug is through which route of administration?  
 a. Intra-dermal  b. Intra-muscular c. Oral d. Sublingual
79. Some persons may react adversely to a particular drug though the general population tolerates the drug. This phenomenon is known as;  
 a. Dependence b. Idiosyncrasy c. Intoxication  d. Tolerance
80. Minimum quantity of blood that is required to be preserved in cases of poisoning is;  
 a. 50 ml b. 100 ml c. 200 ml  d. 400ml
81. Tetrathyl pyrophosphate (T.E.P.), paraoxon & parathion come under the which class of poisons;  
 a. Inorganic metals  b. Inorganic non-metals c. Organic Polyphosphates d. Halogenated Hydrocarbons
82. Which of the following is a Mechanism for Rigor mortis?  
 a. Depletion of ATP b. Loss of muscle tone c. Loss of reflexes d. Severe nervous stress
83. Rigor mortis appears first in the muscles of;  
 a. Upper limb  b. Lower limb c. Neck d. Trunk e. Face.
84. Cadaveric spasm is common in which type of death;  
 a. Homicidal and violent b. Ante-mortem stress c. Suicidal & accidental  d. Excessive activity e. Convulsive deaths.
85. Mummification occurs when the climate is:  
 a. Dry and hot b. Dry and cold  c. Moist and hot d. Moist and cold
86. A ring of opacity over in the peripheral part of body of eye at the age of 40 or above is called;  
 a. Arcus senilis b. Arcus cataract  c. Arcus ophthalmos d. Arcus senilis
87. If all epiphyses are united then the person is most probably at the age of;  
 a. 25 years b. 20 years c. 18 years d. 15 years
88. Permanent teeth appear first in;  
 a. Upper jaw  b. Lower jaw c. Simultaneously in both jaws d. May appear 1st in any jaw
89. Sexual infantilism, short stature, webbing of neck and osteoporosis, are features of;  
 a. Gonadal agenesis b. Klinefelter's syndrome  c. Turner syndrome d. True hermaphroditism
90. Fatty food expedites (speeds up) the process of absorption of which poison;  
 a. Arsenic b. Oxalic acid  c. Phosphorus d. Sulphuric Acid
91. Allopurinol prevents conversion of:  
 a. Hypoxanthine to xanthine b. Xanthine to Hypoxanthine c. Hypoxanthine to I.M.P  d. Xanthine to Uric acid e. Both b and d
92. Long term use of Aspirin in Rheumatoid Arthritis is limited by its propensity to cause:  
 a. Metabolic acidosis  b. Hypersensitivity reactions c. Gastric mucosal damage d. Salicylism e. Short duration of action
93. Drug of choice for acute Gout is:  
 a. Colchicine b. Indomethacin  c. Allopurinol d. Dexamethasone e. Methotrexate
94. All are endogenous catecholamine except:  
 a. Epinephrine b. Norepinephrine c. Dopamine  d. Dobutamine
95. A Novel Beta-Blocker with Nitric Oxide-Induced Vasodilatation:  
 a. Nebivolol b. Nidolol  c. Atenolol d. Propranolol e. Esmolol
96. Which of the following is selective  $\alpha_2$  antagonist:

15. When mechanical stress is placed upon bone, osteoprogenitor cells produce WNT proteins that bind to receptors on osteoblasts, increasing  $\beta$ -catenin. As a result, which of the following proteins is most likely to diminish osteoclast activity and increase bone formation?  
 a. Bone morphogenetic protein b. Matrix metalloproteinase c. Nuclear factor kappa B d. Osteoprotegerin e. RANK ligand
16. A 70-year-old man complains of right hip and thigh pain of 8 months' duration. On physical examination, he has reduced range of motion in both hips. Radiographs of the pelvis and right leg show sclerotic, thickened cortical bone with a narrowed joint space near the acetabulum and Cotton wool appearance. Laboratory studies show a serum alkaline phosphatase level of 173 U/L, calcium of 9.5 mg/dL, and phosphorus of 3.4 mg/dL. Which of the following conditions is most likely to produce these findings?  
 a. Degenerative osteoarthritis b. Hyperparathyroidism c. Osteochondroma d. Paget disease of bone e. Vitamin D deficiency
17. An 82-year-old man has had progressively worsening lower back, bilateral hip, and right shoulder pain for the past 6 years. He reports that he has had to buy larger hats. On physical examination, the range of motion is reduced. Radiographs show narrowing of joint spaces with adjacent bony sclerosis. A skull radiograph shows thickening but diminished density of the skull bones. A bone biopsy specimen at the iliac crest shows a loss of normal trabeculae, with a mosaic pattern and increased numbers of osteoclasts and osteoblasts. Which of the following complications is the patient most likely to experience as a result of this condition?  
 a. Ankylosing spondylitis b. Enchondromatosis c. Fibrous dysplasia d. Osteoid osteoma e. Osteosarcoma
18. A 33-year-old woman has been bothered by a bump on the dorsum of her left wrist for the past 4 months. On physical examination, there is a 1-cm firm but fluctuant subcutaneous nodule over an extensor tendon of the left wrist. The nodule is painful on palpation and movement. Mucoïd fluid is aspirated from the nodule. What is the most likely diagnosis?  
 a. Ganglion cyst b. Giant cell tumor c. Lipoma d. Nodular fasciitis e. Rheumatoid nodule
19. A 36-year-old woman has noted a nodule beneath the skin in her left groin since adolescence. On physical examination, the lesion has a 2-cm diameter and is non tender, soft, rubbery, and movable. Which of the following cell types is most likely to comprise this lesion?  
 a. Adipocyte b. Endothelial cell c. Fibroblast d. Skeletal muscle e. Smooth muscle
20. A 71-year-old man has experienced aching pain in the right knee, lower back, right distal fifth finger, and neck over the past 10 years. He notices that the joints feel slightly stiff in the morning, but this passes quickly. The pain is worse toward the end of the day. Some joint crepitus is audible on moving the knee. Laboratory studies show normal levels of serum calcium, phosphorus, alkaline phosphatase, and uric acid. What is the most likely cause of hypercalcemia?  
 a. Ankylosing spondylitis b. Gouty arthritis c. Multiple myeloma d. Osteoarthritis e. Pseudogout
21. A child stung by a bee experiences respiratory distress within minutes and lapses into unconsciousness. This reaction is probably mediated by:  
 a. IgE antibody b. IgG antibody c. Sensitized T cells d. Complement e. IgM antibody
22. If an individual was genetically unable to make J chains, which immunoglobulin(s) would be affected?  
 a. IgG b. IgM c. IgA d. IgG and IgM e. IgM and IgA
23. The antigen-binding site on antibodies is formed primarily by:  
 a. The constant regions of H and L chains b. The hypervariable regions of H and L chains c. The hypervariable regions of H chains d. The variable regions of H chains e. The variable regions of L chains
24. The class of immunoglobulin present in highest concentration in the blood of a human newborn is:  
 a. IgG b. IgM c. IgA d. IgD e. IgE
25. Complement can enhance phagocytosis because of the presence of receptors on macrophages and neutrophils for:  
 a. Factor D b. C3b c. C6 d. C9 e. Properdin
26. In cell mediated type IV hypersensitivity reaction (delayed type), the epithelioid cells of granuloma are derived from?  
 a. B lymphocytes b. T lymphocytes c. Macrophages d. Epithelial cells e. Neutrophils
27. Type III hypersensitivity reaction is mediated by?  
 a. Mast cells IgE b. CD4 and TH<sub>1</sub> cells c. CD4 and TH<sub>2</sub> cells d. Ag-Ab Complex e. Ag presenting cells
28. In an experiment, antigen is used to induce an immediate (type I) hypersensitivity response. Cytokines are secreted that are observed to stimulate IgE production by B cells, promote mast cell growth, and recruit and activate eosinophils in this response. Which of the following cells is most likely to be the source of these cytokines?  
 a. CD4+ lymphocytes b. Natural killer cells c. Macrophages d. Dendritic cells e. Neutrophils
29. A macrophage ingests a virion and degrades it so that viral capsid peptides can be linked to class I HLA heavy chains and  $\beta_2$ -microglobulin. This trimer is transported to the macrophage cell surface and displayed. Which of the following cell types has receptors that can interact with the displayed MHC-peptide complex?  
 a. CD8+ lymphocyte b. Langerhans cell c. Macrophage d. Mast cell e. Neutrophil
30. Laboratory tests are ordered for two hospitalized patients. During the phlebotomy procedure, the Vacutainer tubes drawn from these patients are mislabeled. One of the patients receives a blood transfusion later that day. Within 1 hour after the transfusion of RBCs begins, the patient becomes tachycardic and hypotensive and passes pink-colored urine. Which of the following statements best describes how this reaction is mediated?  
 a. Release of tumor necrosis factor  $\alpha$  into the circulation b. Antibody-dependent cellular cytotoxicity by natural killer cells c. Antigen-antibody complex deposition in glomeruli d. Complement-mediated lysis of RBCs e. Mast cell degranulation
31. A 16 years old boy presents with severe pallor, high grade fever and bleeding gums. His peripheral smear reveals pancytopenia. Bone marrow aspiration is dry tap. Trephine biopsy shows hypocellularity with lymphocytes and plasma cells predominant. Which one of the following options best explains the above scenario?  
 a. Macrocytic anemia b. Dimorphic anemia c. Microcytic anemia d. Hemolytic anemia e. Aplastic anemia
32. Along with the complete blood count, which one of the following is a key component to the initial evaluation of suspected hemolytic anemia?  
 a. Hematocrit b. Serum ferritin c. Serum transferrin d. Lactate dehydrogenase e. Serum iron