DPMA PATHOLOGY – MOCK TEST

Q.1) Increased lipolysis of fat stores, which can result from starvation, diabetes mellitus, or corticosteroid use, is most likely to cause steatosis (fatty liver) through which one of the listed mechanisms?

a) Decreased free fatty acid excretion from the liver leads to free fatty acid accumulation in hepatocytes
b) Excess NADH (high NADH/NAD ratio) causes excess production of lactate from pyruvate, which accumulates in hepatocytes
c) Increased free fatty acid delivery to the liver leads to triglyceride accumulation in hepatocytes
d) Inhibition of apoprotein synthesis by the liver leads to phospholipid accumulation in hepatocytes
e) Inhibition of HMG-CoA reductase activity leads to cholesterol accumulation in hepatocytes

Q.2) An adult patient presents with the sudden onset of massive diarrhea. Grossly, this individual's stool has the appearance of "rice-water" because of the presence of flecks of mucus. Cultures of this patient's stool grow Vibrio cholerae, a curved, gram-negative rod that secretes an enterotoxin consisting of a toxic A subunit and a binding B subunit. The cholera enterotoxin causes massive diarrhea by

a) Inhibiting the conversion of Gi-GDP to Gi-GTP
b) Inhibiting the conversion of Gs-GTP to Gs-GDP
c) Stimulating the conversion of Gi-GDP to Gi-GTP
d) Stimulating the conversion of Gs-GDP to Gs-GTP
e) Stimulating the conversion of Gs-GTP to Gs-GDP

Q.3) In an evaluation of an 8-year-old boy who has had recurrent infections since the first year of life, findings include enlargement of the liver and spleen, lymph node inflammation, and a superficial dermatitis resembling eczema. Microscopic examination of a series of peripheral blood smears taken during the course of a staphylococcal infection indicates that the bactericidal capacity of the boy's neutrophils is impaired or absent. What is the most likely cause of this child's illness?

a) Defect in the enzyme NADPH oxidase
b) Defect in the enzyme adenosine deaminase (ADA)
c) Defect in the IL-2 receptor
d) Developmental defect at the pre-B stage
e) Developmental failure of pharyngeal pouches 3 and 4

Q.4) Primary type II hyperlipidemia (familial hypercholesterolemia) results from a defect in

a) Lipoprotein lipase
b) Low-density lipoprotein (LDL) receptor
c) Apolipoprotein E
d) Apolipoprotein CII
e) Lipoprotein(a)

Q.5) Which one of the listed statements best explains the pathophysiology involved in the production of a type IV secondary hyperlipidemic pattern because of decreased insulin in an individual with diabetes mellitus?

a) Decreased production of albumin causes increased fatty acid binding to VLDL, which inhibits its degradation to LDL
b) Increased binding of bile salts in the gut decreases the enterohepatic circulation of cholesterol
c) Increased lipolysis causes increased fatty acid delivery to the liver, which increases production of VLDL
d) Stimulation of β-oxidation of acyl-CoA in the liver increases the production of ketone bodies from acetyl-CoA
e) Stimulation of HMG-CoA reductase in the liver increases the production of cholesterol, which decreases the synthesis of hepatic LDL receptors

Q.6) Which of the following red cell abnormalities is most indicative of hemolysis?

a) Target cells
b) Acanthocytes
c) Schistocytes
d) Basophilic stippling
e) Heinz bodies

Q.7) Markedly decreased blood levels of which one of the listed substances are most characteristic of intravascular hemolysis?

a) Alkaline phosphatase
b) Bilirubin
c) Haptoglobin
d) Lactate dehydrogenase
e) Methemoglobin

Q.8) A single nucleotide change in a codon on chromosome 11 that causes valine to replace glutamic acid at the sixth position of the β chain of hemoglobin is associated with

a) α thalassemia
b) Glucose-6-phosphate dehydrogenase deficiency
c) Hereditary spherocytosis
d) Paroxysmal nocturnal hemoglobinuria
e) Sickle cell anemia

Q.9) Histologic sections (routine H&E stain) of lung reveal the alveoli to be filled with pale, nongranular pink fluid. Neither leukocytes nor erythrocytes are present within this fluid. What is the most likely (i.e., most common) cause of this abnormality?

a) Bacterial pneumonia
b) Congestive heart failure
c) Lymphatic obstruction by tumor
d) Pulmonary embolus
e) Viral pneumonia

Q.10) A 7-year-old boy accidentally inhales a small peanut, which lodges in one of his bronchi. A chest x-ray reveals the mediastinum to be shifted toward the side of the obstruction. The best description for the lung changes that result from this obstruction is

a) Absorptive atelectasis
b) Compression atelectasis
c) Contraction atelectasis
d) Patchy atelectasis
e) Hyaline membrane disease

Q.11) Histologic sections of lung tissue from an individual with adult respiratory distress syndrome (ARDS) are most likely to reveal

a) Angioinvasive infiltrates of pleomorphic lymphoid cells
b) Deposits of needle-like crystals from the membranes of eosinophils
c) Infiltrating groups of malignant cells having intercellular bridges
d) Irregular membranes composed of edema, fibrin, and dead cells lining alveoli
e) Plexiform lesions within pulmonary arterioles

Q.12) A 48-year-old male living in an underdeveloped country presents with pain in the left side of his face. Physical examination reveals a large, indurated area involving the left side of his jaw with multiple sinuses draining pus. This draining material contains a few scattered small yellow granules. This lesion is most likely caused by an infection with

a) Streptococcus pyogenes
b) Borrelia vincentii
c) Corynebacterium diphtheriae
d) Klebsiella rhinoscleromatis
e) Actinomyces israelii

Q.13) A 4-year-old boy presents with multiple laryngeal squamous papillomas. Obtaining a history, you discover this boy has had the same types of lesions removed in the past, but they have now recurred. This boy's condition (juvenile papillomatosis) is most likely related to which one of the listed organisms?

a) Cytomegalovirus (CMV)
b) Epstein-Barr virus (EBV)
c) Herpes simplex virus (HSV)
d) Human immunodeficiency virus (HIV)
e) Human papillomavirus (HPV)

Q.14) The most common histologic type of carcinoma of the oral cavity is

a) Adenocarcinoma
b) Clear cell carcinoma
c) Large cell undifferentiated carcinoma
d) Small cell undifferentiated carcinoma
e) Squamous cell carcinoma

Q.15) A newborn infant is noted to have coughing and cyanosis during feeding. This infant is also noted to have marked gastric dilation due to "swallowed" air. Workup reveals that this infant has the most common type of esophageal atresia. Which one of the listed statements correctly describes this type of congenital abnormality?

a) Atresia of the esophagus with fistula between both segments and the trachea
b) Atresia of the esophagus with fistula between the trachea and the blind upper segment
c) Atresia of the esophagus with fistula between the trachea and the distal esophageal segment
d) Atresia of the esophagus without tracheoesophageal fistula
e) Fistula between a normal esophagus and the trachea

Q.16) A 49-year-old female presents with increasing problems swallowing food (progressive

dysphagia). X-ray studies with contrast reveal that she has a markedly dilated esophagus above the level of the lower esophageal sphincter (LES). No lesions are seen within the lumen of the esophagus. This patient's symptoms are most likely caused by

a) Decreased LES resting pressure
b) Absence of myenteric plexus in the body of esophagus
c) Absence of myenteric plexus at the LES
d) Absence of submucosal plexus in the body of esophagus
e) Absence of submucosal plexus at the LES

Q.17) An anxious 19-year-old female presents with perioral numbness and carpopedal spasm. Laboratory examination reveals decreased PCO2 and decreased bicarbonate. Which one of the listed conditions is most consistent with these findings?

a) Metabolic acidosis due to ketoacidosis
b) Metabolic acidosis due to renal tubular acidosis
c) Metabolic alkalosis due to thiazide diuretic
d) Respiratory acidosis due to hypoventilation
e) Respiratory alkalosis due to hyperventilation

Q.18) In utero bilateral renal agenesis is most likely to produce

a) Anencephaly
b) Gastroschisis
c) Oligohydramnios
d) Polycythemia
e) Retrolental fibroplasia

Q.19) An uncircumcised 49-year-old male presents with the sudden onset of severe pain in the distal portion of his penis. The emergency room physician examines the patient and finds that the foreskin is retracted but cannot be rolled back over the glans penis. The ER physician calls the urologist, who performs an emergency resection of this patient's foreskin. What is the correct diagnosis for this individual's condition?

a) Balanoposthitis
b) Epispadias
c) Omphalocele
d) Paraphimosis
e) Phimosis

Q.20) Histologic examination of an excision specimen from a lesion on the dorsal surface of the penis reveals a papillary lesion with clear vacuolization of epithelial cells on the surface and extension of the hyperplastic epithelium into the underlying tissue along a broad front. The correct diagnosis for this lesion is

a) Condyloma acuminatum
b) Bowen's disease
c) Erythroplasia of Queyrat
d) Verrucous carcinoma
e) Squamous cell carcinoma

Q.21) A 42-year-old man presents because recently he has had to change his shoe size from 9 to 101⁄2. He also says that his hands and jaw are now larger. The disorder is most likely mediated through the actions of excess

a) Prolactin
b) ACTH
c) Somatomedin
d) Antidiuretic hormone
e) Thyrotropin

Q.22) A 25-year-old female presents with the acute onset of cessation of lactation. She delivered her first child several months ago and has been breast-feeding since then. She reports that she has not menstruated since the delivery. She also says that lately she has been tired and has been "feeling cold" all of the time. Laboratory workup reveals a deficiency of ACTH and other anterior pituitary hormones. What is the most likely cause of this patient's signs and symptoms?

a) Craniopharyngioma
b) Cushing's disease
c) Empty sella syndrome
d) Nonsecretory chromophobe adenoma
e) Sheehan's syndrome

Q.23) A 35-year-old male presents with a 0.3-cm flat light brown lesion on his left forearm. The lesion is excised, and microscopy reveals nests of round nevus cells within the lower epidermis at the dermal-epidermal junction. There is no "fusion" present of adjacent nests of nevus cells. Cytologic atypia is not present, nor are nevus cells seen in the superficial or deep dermis. What is the correct diagnosis for this lesion?

a) Compound nevus
b) Dysplastic nevus
c) Halo nevus
d) Junctional nevus
e) Spitz nevus

Q.24) A 68-year-old female presents with a uniformly brown, round lesion which appears to be "stuck on" the right side of her face. Histologically, this lesion will most likely reveal

a) Hyperkeratosis with horn and pseudohorn cysts
b) Hyperkeratosis with papillomatosis but no koilocytosis
c) Hyperkeratosis with papillomatosis and koilocytosis
d) A cup-shaped lesion with a central keratin-filled crater
e) Atypia of epidermal keratinocytes

Q.25) A young boy is being evaluated for a history of numerous fractures in the past. These fractures have resulted from minimal trauma. Examination of his peripheral blood reveals leukoerythroblastosis with numerous target cells. Which one of the following abnormalities is most characteristic of this boy's disease process?

a) Abnormal "tunneling" of osteoclasts into bone trabeculae
b) Abnormal osteoclasts that lack the normal ruffled border
c) Decreased calcification of osteoid matrix
d) Decreased cartilage cell proliferation at epiphyseal plates of long bones
e) Defective synthesis of type I procollagen

Q.26) A 4-year-old boy presents with a history of numerous fractures that are not related to excessive trauma. Physical examination reveals evidence of previous fractures along with abnormally loose joints, decreased hearing, and blue scleras. X-rays of the boy's arms reveal the bones to be markedly thinned. What is the correct diagnosis?

a) Osteopetrosis
b) Osteoporosis
c) Osteomalacia
d) Osteogenesis imperfecta
e) Osteitis deformans

Q.27) A 50-year-old male presents with headaches, vomiting, and weakness of his left side. Physical examination reveals his right eye to be pointing "down and out" along with ptosis of his right eyelid. His right pupil is fixed and dilated and does not respond to accommodation. Marked weakness is found in his left arm and leg. Swelling of the optic disk (papilledema) is found during examination of his retina. Which one of the following is most likely present in this individual?

a) Aneurysm of the vertebrobasilar artery
b) Arteriovenous malformation involving the anterior cerebral artery
c) Subfalcine herniation
d) Tonsillar herniation
e) Uncal herniation

Q.28) A newborn infant is being evaluated for a cystic mass found in his lower back at the time of delivery. Physical examination reveals a large mass in the lumbosacral area that transilluminates. Workup finds flattening of the base of the skull along with a decrease in the size of the posterior fossa. Clinically it is thought that this infant might have an Arnold-Chiari malformation and would therefore be at the greatest risk for developing which one of the following within the first few days after delivery?

a) Holoprosencephaly
b) Hydrocephalus
c) Aplasia of the cerebellar vermis
d) Facial angiofibromata
e) Hemangioblastoma of the cerebellum

Q.29) The proto oncogene associated with Burkitt lymphoma is?

a) ABL
b) BRAF
c) HGF
d) MYC
e) None of the above

Q.30) Which of the following is an autosomal recessive disorder?

a) Duchenne muscular dystrophy
b) Friedreich ataxia
c) Wiskott Aldrich syndrome
d) Lesch Nyhan syndrome
e) None of the above

Q.31) If the following features of the acute inflammatory reaction were placed in chronological order which would come fourth?

a) Arteriolar contraction.
b) Blood flow slows.
c) Dilatation of arterioles.
d) Emigration of leucocytes from blood vessels.
e) Protein rich fluid escapes from blood vessels.

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Q.32) Which ONE of the following is not an endogenous mediator of increased vascular permeability?
a) Angiotensin.
b) C3a and C5a.
c) 5-hydroxytryptamine.
d) Kallikrein.
e) Prostaglandin E2.

Q.33) Which ONE of the following is not a useful effect of acute inflammation?
a) Dilution of toxins.
b) Formation of fibrin.
c) Phagocytosis.
d) Stimulation of immune response.
e) Swelling of tissues.

Q.34) Which ONE of the following is not an organ specific auto-immune disease?
a) Auto-immune adrenalitis.
b) Chronic auto-immune gastritis.
c) Chronic auto-immune thyroiditis.
d) Insulin dependent diabetes.
e) Rheumatoid arthritis.

Q.35) If the following events were placed in chronological order, which would come *fourth?*
a) Adult worms migrate to the perivesical veins.
b) Cercaria released from snail.
c) Human epidermis penetrated.
d) Maturation in the portal veins.
e) Miracidia hatch from eggs in fresh water.

Q.36) Dermatitis herpetiformis is associated with which *ONE* of the following conditions?
a) Ankylosing spondylitis.
b) b. Coeliac disease.
c) c. Diverticulitis.
d) d. Emphysema.
e) e. Whipple's disease.

Q.37) Which *ONE* of the following is not a virus infection of the skin?
a) Condyloma acuminatum.
b) Molluscum contagiosum.
c) Pemphigus vulgaris.
d) Verruca vulgaris.
e) Zoster.

Q.38) Which one of the following is *least* likely to lead to metastases by the blood stream?
a) Follicular carcinoma of thyroid.
b) Giant cell carcinoma of thyroid.
c) Medullary carcinoma of thyroid.
d) Papillary carcinoma of thyroid.
e) None of the above

Q.39) Which one of the following is *not* associated with male infertility?
a) Alcoholic cirrhosis.
b) Germ cell aplasia.
c) Sperm count of 70 x 109/litre.
d) Testis small with prominent Leydig cells.
e) Nove of the above

Q.40) Which *ONE* of the following is *not* true of prostatic carcinoma?
a) Acid phosphatase level raised in serum.
b) Alkaline phosphatase detected in tumour cells.
c) Metastases are osteoplastic.
d) Microacinar adenocarcinoma.
e) Usually arises at periphery of the gland.

Q.41) After recovering from a viral respiratory tract infection, a 23-year-old female presents with weakness in her distal extremities that rapidly ascends to involve proximal muscles. Physical examination reveals absent deep tendon reflexes, and a lumbar puncture reveals the CSF protein to be increased, but very few cells are present. A biopsy of a peripheral nerve reveals inflammation and demyelination (radiculoneuropathy). What is the best diagnosis?
a) Brown-Séquard's syndrome
b) Charcot-Marie-Tooth disease
c) Diabetes mellitus
d) Guillain-Barré syndrome
e) Syringomyelia

Q.42) Carpal tunnel syndrome, produced by damage to or pressure on the median nerve deep to the flexor retinaculum, is characterized best by which one of the following abnormalities?
a) Hyperextension of fingers at metacarpophalangeal joints and flexion at interphalangeal joints (claw hand)
b) Numbness in fifth finger and medial portion of ring finger
c) Pain in thumb, index finger, middle finger, and lateral half of ring finger
d) Adduction, extension, and internal rotation of upper limb ("porter's tip" sign)

e) Weakness of extensors of wrist and fingers (wristdrop)

Q.43) A 59-year-old woman presents with difficulty swallowing, ptosis, and diplopia. Which of the following is most consistent with these symptoms?
a) Antibodies to the acetylcholine receptor
b) Antibodies to the microvasculature of skeletal muscle
c) Lack of lactate production during ischemic exercise
d) Rhabdomyolysis
e) Corticosteroid therapy

Q.44) An 8-year-old boy presents with weakness and pain over several of his proximal muscle groups. Physical examination reveals periorbital edema along with a lilac discoloration around his eyes and erythema over his knuckles. Which of the following statements is most consistent with the cause of this young boy's symptoms?
a) Antibodies to the acetylcholine receptor
b) Antibodies to the microvasculature of skeletal muscle
c) Antibodies to calcium channels on the motor nerve terminals
d) Lack of lactate production during ischemic exercise
e) Rhabdomyolysis

Q.45) A 19-year-old male presents with a rash that involves a large, irregular portion of his trunk. Examination reveals several annular lesions that have a raised papulovesicular border with central hypopigmentation. Examination of this area under a Wood's lamp reveals a yellow fluorescence. A scraping of this area viewed under the microscope after KOH is added reveals characteristic "spaghetti and meatball" forms. What is the cause of this skin lesion?
a) Malassezia furfur
b) Molluscum contagiosum
c) Sarcoptes scabiei
d) Staphylococcus aureus
e) Trichophyton rubrum

Q.46) A 52-year-old male presents with multiple tense bullae that involve his skin but not his oral mucosa. Physical examination finds that none of the bullae have ruptured, and the Nikolsky sign is negative. A biopsy from one of the skin lesions reveals acantholytic intraepidermal bullae. No deposition of IgA is seen with special staining techniques. What is the correct diagnosis for this individual's skin disorder?
a) Pemphigus vulgaris
b) Bullous pemphigoid
c) Dermatitis herpetiformis
d) Psoriasis
e) Lichen planus

Q.47) Histologic sections of the thymus that reveal reactive follicles with germinal centers are diagnostic of
a) Acute inflammation
b) Chronic inflammation
c) Thymic hyperplasia
d) Thymic hypoplasia
e) Thymoma

Q.48) What type of cell in the normal thymus gland is the cell of origin for a thymoma?
a) Epithelial cell
b) Lymphocyte
c) Myoid cell
d) Neuroendocrine cell
e) Thymocyte

Q.49) A 24-year-old female presents with severe pain during menses (dysmenorrhea). To treat her symptoms, you advise her to take indomethacin in the hopes that it will reduce her pain by interfering with the production of
a) Bradykinin
b) Histamine
c) Leukotrienes
d) Phospholipase A2
e) Prostaglandin F2

Q.50) Which one of the listed statements is the best histologic definition of an abscess?
a) A circumscribed collection of neutrophils with necrotic cellular debris
b) A localized defect that results from the sloughing of necrotic inflammatory tissue from the surface of an organ
c) A localized proliferation of fibroblasts and small blood vessels
d) An aggregate of two or more activated macrophages
e) The excessive secretion of mucus from a mucosal surface

Q.51) A 25-year-old female presents with a history of losing four pregnancies in the past 5 years. She also has a history of recurrent pains

in her legs secondary to recurrent thrombosis. Her symptoms are most likely due to a deficiency of

a) PA inhibitors
b) Protein C
c) Plasmin
d) Thrombin
e) C'1 inactivator

Q.52) Evaluation of a pedigree for a certain abnormality reveals the following information: there are skipped generations with male-to-male transmission; females are affected at the same rate as are males; and the disease is produced in the homozygous state, while heterozygous individuals are carriers. What is the inheritance pattern for this disorder?

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

Q.53) A 10-month-old baby is being evaluated for visual problems and motor incoordination. Examination of the child's fundus reveals a bright "cherry red spot" at the macula. Talking to the family of this visually impaired 10-month-old infant, you find that they are Jewish and their family is from the eastern portion of Europe (Ashkenazi Jews). Based on this specific family history, which one of the following enzymes is most likely to be deficient in this infant?

a) Aryl sulfatase
b) β-glucocerebrosidase
c) Hexosaminidase A
d) Hexosaminidase B
e) Sphingomyelinase

Q.54) A 4-year-old male with mental retardation, self-mutilation, and hyperuricemia is likely to have a deficiency of an enzyme involved in the

a) Conversion of homogentisic acid to methylacetoacetate
b) Degradation of galactocerebroside
c) Breakdown of branched-chain amino acids
d) Recycling of guanine and hypoxanthine
e) Synthesis of UMP and CTP

Q.55) A young boy is being evaluated for developmental delay, mild autism, and mental retardation. Physical examination reveals the boy to have large, everted ears and a long face with a large mandible. He is also found to have macroorchidism (large testes), and extensive workup reveals multiple tandem repeats of the nucleotide sequence CGG in his DNA. Which ne of the following is the correct diagnosis for this patient?

a) Fragile X syndrome
b) Huntington's chorea
c) Myotonic dystrophy
d) Spinal-bulbar muscular atrophy
e) Ataxia-telangiectasia

Q.56) A biopsy of an enlarged salivary gland from an individual with Sjögren's syndrome is most likely to histologically reveal an extensive infiltrate of

a) Basophils
b) Eosinophils
c) Epithelioid cells
d) Lymphocytes
e) Neutrophils

Q.57) An 8-month-old male infant is admitted to the hospital because of a bacterial respiratory infection. The infant responds to appropriate antibiotic therapy, but is readmitted several weeks later because of severe otitis media. Over the next several months, the infant is admitted to the hospital multiple times for recurrent bacterial infections. Workup reveals extremely low serum antibody levels. The infant has no previous history of viral or fungal infections. The most likely diagnosis for this infant is

a) Isolated IgA deficiency
b) Chronic granulomatous disease
c) DiGeorge's syndrome
d) Wiskott-Aldrich syndrome
e) X-linked agammaglobulinemia of Bruton

Q.58) A 35-year-old male living in a southern region of Africa presents with increasing abdominal pain and jaundice. He has worked as a farmer for many years, and sometimes his grain has become moldy. Physical examination reveals a large mass involving the right side of his liver, and a biopsy specimen from this mass confirms the diagnosis of liver cancer (hepatocellular carcinoma). The pathogenesis of this tumor involves which of the following substances?

a) Aflatoxin B1
b) Direct-acting alkylating agents

c) Vinyl chloride
d) Azo dyes
e) β-naphthylamine

Q.59) A 59-year-old male is found to have a 3.5-cm mass in the right upper lobe of his lung. A biopsy of this mass is diagnosed as a moderately differentiated squamous cell carcinoma. Workup reveals that no bone metastases are present, but laboratory examination reveals that the man's serum calcium levels are 11.5 mg/dL. This patient's paraneoplastic syndrome is most likely the result of ectopic production of
a) Parathyroid hormone
b) Parathyroid hormone–related peptide
c) Calcitonin
d) Calcitonin-related peptide
e) Erythropoietin

Q.60) A 22-year-old female presents with the sudden onset of a high fever, a diffuse erythematous skin rash, and shock. She started menstruating at age 13 and for several years has used tampons. Which one of the following is the most likely diagnosis for this individual's illness?
a) Erysipelas caused by Streptococcus pyogenes
b) Fifth disease caused by human parvovirus B19
c) Scarlet fever caused by S. pyogenes
d) Secondary syphilis caused by Treponema pallidum
e) Toxic shock syndrome caused by Staphylococcus aureus

Q.61) Several days after exploring a cave in eastern Kentucky, a 39-year-old female develops shortness of breath and a low-grade fever. Chest x-rays reveal several irregular areas in both upper lung fields along with enlarged hilar and mediastinal lymph nodes. A biopsy of one of these lymph nodes reveals granulomatous inflammation. Multiple small yeasts surrounded by clear zones are seen within macrophages. Which one of the following organisms is most likely responsible for this individual's disease?
a) Aspergillus species
b) Blastomyces dermatitidis
c) C. albicans
d) Histoplasma capsulatum
e) Mucor

Q.62) The use of broad-spectrum antibiotics can produce a bleeding diathesis characterized by hematomas, hematuria, melena, and bleeding from the gums by decreasing the normal gut flora and inducing a deficiency of
a) Vitamin A
b) Vitamin B1
c) Vitamin B6
d) Vitamin C
e) Vitamin K

Q.63) A 54-year-old male develops a thrombus in his left anterior descending coronary artery. The area of myocardium supplied by this vessel is irreversibly injured. The thrombus is destroyed by the infusion of streptokinase, which is a plasminogen activator, and the injured area is reperfused. The patient, however, develops an arrhythmia and dies. An electron microscopic (EM) picture taken of the irreversibly injured myocardium reveals the presence of large, dark, irregular amorphic densities within mitochondria, which are referred to as
a) Apoptotic bodies
b) Flocculent densities
c) Myelin figures
d) Psammoma bodies
e) Russell bodies

Q.64) Which one of the following microscopic associations concerning hepatocytes is correct?
a) Clear cytoplasmic material that is oil red O–negative but PAS-positive is most likely to be cholesterol
b) Clear cytoplasmic material that is oil red O–positive but PAS-negative is most likely to be lipofuscin
c) Clear nuclear material that is Prussian blue–positive is most likely to be hemosiderin
d) Yellow-brown granular cytoplasmic material that is Prussian blue–negative is most likely to be bile
e) Yellow-brown granular cytoplasmic material that is Prussian blue–positive is most likely to be melanin

Q.65) A 48-year-old male who has a long history of excessive drinking presents with signs of alcoholic hepatitis. Microscopic examination of a biopsy of this patient's liver reveals irregular eosinophilic hyaline inclusions within the cytoplasm of the hepatocytes. These eosinophilic inclusions are composed of
a) Immunoglobulin

b) Excess plasma proteins
c) Prekeratin intermediate filaments
d) Basement membrane material
e) Lipofuscin

Q.66) A 38-year-old female presents with intermittent pelvic pain. Physical examination reveals a 3-cm mass in the area of her right ovary. Histologic sections from this ovarian mass reveal a papillary tumor with multiple, scattered small, round, laminated calcifications. These structures are most likely the result of
a) Apoptosis
b) Dystrophic calcification
c) Enzymatic necrosis
d) Hyperparathyroidism
e) Metastatic calcification

Q.67) After binding to Fas ligand (CD95L), Fas (CD95) self-associates and activates Fas-associated death domain protein (FADD), which in turn induces apoptosis by stimulating
a) bcl-2
b) Caspase 8
c) Cytochrome a3
d) Cytochrome p450
e) Elastase 6

Q.68) A 49-year-old man develops an acute myocardial infarction because of the sudden occlusion of the left anterior descending coronary artery. The areas of myocardial necrosis within the ventricle can best be described as
a) Coagulative necrosis
b) Liquefactive necrosis
c) Fat necrosis
d) Caseous necrosis
e) Fibrinoid necrosis

Q.69) The degradation of intracellular organelles through the process in which autosomes combine with primary lysosomes to form autophagolysosomes is called
a) Autophagy
b) Heterophagy
c) Heteroplasmy
d) Homophagy
e) Endocytosis

Q.70) Histologic sections of an enlarged tonsil from a 9-year-old female reveal an increased number of reactive follicles containing germinal centers with proliferating B lymphocytes. Which one of the listed terms best describes this pathologic process?
a) B lymphocyte hypertrophy
b) Follicular dysplasia
c) Follicular hyperplasia
d) Germinal center atrophy
e) Germinal center metaplasia

Q.71) A patient presents with a large wound to his right forearm that is the result of a chain saw accident. You treat his wound appropriately and follow him in your surgery clinic at routine intervals. Initially his wound is filled with granulation tissue, which is composed of proliferating fibroblasts and proliferating new blood vessels (angiogenesis). A growth factor that is capable of inducing all the steps necessary for angiogenesis is
a) Epidermal growth factor (EGF)
b) Transforming growth factor α (TGF-α)
c) Platelet-derived growth factor (PDGF)
d) Basic fibroblast growth factor (FGF)
e) Transforming growth factor β (TGF-β)

Q.72) The cardinal sign of inflammation called rubor is mainly the result of
a) Decreased interstitial hydrostatic pressure
b) Decreased vascular permeability of capillaries
c) Increased vascular permeability of venules
d) Vasoconstriction of muscular arteries
e) Vasodilation of arterioles

Q.73) During the early stages of the inflammatory response, histamineinduced increased vascular permeability is most likely to occur in
a) Arteries
b) Precapillary arterioles
c) Capillaries
d) Postcapillary venules
e) Veins

Q.74) Which one of the listed statements best describes the process called chemotaxis?
a) Abnormal fusion of phagosomes to primary lysosomes
b) Attachment of chemicals to extracellular material to increase phagocytosis
c) Dilation of blood vessels by chemotherapeutic drugs
d) Movement of cells toward a certain site or source
e) Transmigration of cells from blood vessels into tissue

Q.75) A 3-year-old boy presents with recurrent bacterial and fungal infections primarily involving his skin and respiratory tract. Physical examination reveals the presence of oculocutaneous albinism. Examination of a peripheral blood smear reveals large granules within neutrophils, lymphocytes, and monocytes. The total neutrophil count is found to be decreased. Further workup reveals ineffective bactericidal capabilities of neutrophils due to defective fusion of phagosomes with lysosomes. What is the correct diagnosis?

a) Ataxia-telangiectasia
b) Chédiak-Higashi syndrome
c) Chronic granulomatous disease
d) Ehlers-Danlos syndrome
e) Sturge-Weber syndrome

Q.76) A 19-year-old female is being evaluated for recurrent facial edema, especially around her lips. She also has recurrent bouts of intense abdominal ain and cramps, sometimes associated with vomiting. Laboratory examination finds decreased C4, while levels of C3, decay-accelerating factor, and IgE are within normal limits. These findings are most likely to be associated with a deficiency of

a) β2-integrins
b) C1 esterase inhibitor
c) Decay-accelerating factor
d) Complement components C3 and C5
e) NADPH oxidase

Q.77) Which one of the listed substances is produced by the action of lipoxygenase on arachidonic acid, is a potent chemotactic factor for neutrophils, and causes aggregation and adhesion of leukocytes?

a) C5a
b) Prostacyclin
c) IL-8
d) Thromboxane A2
e) Leukotriene B4

Q.78) During acute inflammation, istaine-induced increased vascular permeability causes the formation of exudates (inflammatory edema). Which one of the listed cell types is the most likely source of the histamine that causes the increased vascular permeability?

a) Endothelial cells
b) Fibroblasts
c) Lymphocytes
d) Mast cells
e) Neutrophils

Q.79) What type of leukocyte actively participates in acute inflammatory processes and contains myeloperoxidase within its primary (azurophilic) granules and alkaline phosphatase in its secondary (specific) granules?

a) Neutrophils
b) Eosinophils
c) Monocytes
d) Lymphocytes
e) Plasma cells

Q.80) Histologic sections of lung tissue from a 68-year-old female with congestive heart failure and progressive breathing problems reveal numerous hemosiderin-laden cells within the alveoli. Theses "heart failure cells" originate from alveolar

a) Endothelial cells
b) Eosinophils
c) Lymphocytes
d) Macrophages
e) Pneumocytes

Q.81) By definition, granulomas are composed of

a) Cholesterol clefts
b) Collagen
c) Endothelial cells and fibroblasts
d) Epithelioid cells
e) Hemosiderin-laden macrophages

Q.82) A 47-year-old male presents with pain in the midportion of his chest. The pain is associated with eating and swallowing food. Endoscopic examination reveals an ulcerated area in the lower portion of his esophagus. Histologic sections of tissue taken from this area reveal an ulceration of the esophageal mucosa that is filled with blood, fibrin, proliferating blood vessels, and proliferating fibroblasts. Mitoses are easily found, and most of the cells have prominent nucleoli. Which one of the following correctly describes this ulcerated area?

a) Caseating granulomatous inflammation
b) Dysplastic epithelium
c) Granulation tissue
d) Squamous cell carcinoma
e) Noncaseating granulomatous inflammation

Q.83) A routine H&E histologic section from an irregular white area within the anterior wall of

the heart of a 71-year-old male who died secondary to ischemic heart disease reveals the myocytes to be replaced by diffuse red material. This material stains blue with a trichrome stain. Which one of the listed statements correctly describes this material?

a) It is secreted by endothelial cells and links macromolecules to integrins
b) It is secreted by fibroblasts and has a high content of glycine and hydroxyproline
c) It is secreted by hepatocytes and is mainly responsible for intravascular oncotic pressure
d) It is secreted by monocytes and contains a core protein that is linked to mucopolysaccharides
e) It is secreted by plasma cells and is important in mediating humoral immunity

Q.84) A 27-year-old female presents because of trouble with her vision. Physical examination reveals a very tall, thin female with long, thin fingers. Examining her eyes reveals the lens of her left eye to be in the anterior chamber. Her blood levels of methionine and cystathionine are within normal levels. This patient's signs and symptoms are primarily due to

a) Abnormal copper metabolism
b) Decreased levels of vitamin D
c) Decreased lysyl hydroxylation of collagen
d) Defective synthesis of fibrillin
e) Defective synthesis of type I collagen

Q.85) Which one of the listed changes correctly describes the pathophysiology involved in the production of pulmonary edema in patients with congestive heart failure?

a) Decreased plasma oncotic pressure
b) Endothelial damage
c) Increased hydrostatic pressure
d) Increased vascular permeability
e) Lymphatic obstruction

Q.86) Which one of the listed clinical scenarios best illustrates the concept of active hyperemia?

a) A 22-year-old second-year medical student who develops a red face after being asked a question during a lecture
b) A 37-year-old male who develops massive swelling of the scrotum due to infection with *Wucheria bancrofti*
c) A 69-year-old male who dies secondary to progressive heart failure and at autopsy is found to have a "nutmeg" liver
d) A 6-year-old boy who develops the sudden onset of intense scrotal pain due to testicular torsion
e) A 71-year-old female who develops perifollicular hemorrhages due to a deficiency of vitamin C

Q.87) Procoagulant factors produced by endothelial cells include

a) Thrombomodulin
b) Prostacyclin
c) von Willebrand factor
d) Thromboxane A2
e) Fibrinogen

Q.88) A postmortem clot is most likely to

a) Grossly display features of recanalization
b) Grossly have lines of Zahn
c) Grossly have the appearance of "chicken fat" overlying "currant jelly"
d) Microscopically appear attached to the wall of the blood vessel
e) Microscopically have alternating layers of cells and platelets

Q.89) What is the most common site of origin of thrombotic pulmonary emboli?

a) Deep leg veins
b) Lumen of left ventricle
c) Lumen of right ventricle
d) Mesenteric veins
e) Superficial leg veins

Q.90) A 9-year-old boy suddenly develops severe testicular pain. He is taken to the emergency room, where he is evaluated and immediately taken to surgery. There his left testis is found to be markedly hemorrhagic due to testicular torsion. This abnormality caused a hemorrhagic testicular infarction because of

a) Arterial occlusion
b) Septic infarction
c) The collateral blood supply of the testis
d) The dual blood supply of the testis
e) Venous occlusion

Q.91) A young child who presents with megaloblastic anemia is found to have increased orotate in the urine due to a deficiency of orotate phosphoribosyl transferase. This enzyme deficiency decreases the synthesis of

a) Glycogen
b) Purines
c) Pyrimidines
d) Sphingomyelin
e) Tyrosine

Q.92) The combination of a primary defect, such as bilateral renal agenesis, along with its secondary structural change is best referred to by which one of the listed terms?
a) Association
b) Deformation
c) Disruption
d) Sequence
e) Syndrome

Q.93) As a general rule, familial disorders that involve abnormalities of structural proteins (rather than deficiencies of enzymes) and present during adulthood (rather than childhood) have what type of inheritance pattern?
a) Autosomal dominant
b) Autosomal recessive
c) Mitochondrial
d) X-linked dominant
e) X-linked recessive

Q.94) A sex-linked recessive mode of inheritance exists in
a) Myotonic dystrophy
b) Limb-girdle dystrophy
c) Facioscapulohumeral dystrophy
d) Duchenne muscular dystrophy
e) Polymyositis

Q.95) In tissues affected by the predominant form of Niemann-Pick disease, which one of the following is found at abnormally high levels?
a) Sphingomyelin
b) Sphingomyelinase
c) Kerasin
d) Acetyl coenzyme A
e) Ganglioside

Q.96) A 9-year-old boy is being evaluated for deafness. Physical examination reveals a child with short stature, coarse facial features (low, flat nose, thick lips, widely spaced teeth, facial fullness), a large tongue, and clear corneas. Laboratory examination reveals increased urinary levels of heparan sulphate and dermatan sulfate. Metachromatic granules (Reilly bodies) are found in leukocytes from a bone marrow biopsy. These leukocytes are also found to be deficient in iduronosulfate sulfatase. What is the correct diagnosis?
a) Hunter's disease
b) Hurler's disease
c) I cell disease
d) Metachromatic leukodystrophy
e) Wolman's disease

Q.97) A 45-year-old male presents with severe pain in both knee joints. At the time of surgery, his cartilage is found to have a dark blue-black color. Further evaluation reveals that the patient's urine has darkened rapidly with time. The most likely diagnosis for this abnormality is
a) Hyperphenylalaninemia
b) Tyrosinemia
c) Tyrosinase-positive oculocutaneous albinism
d) Alkaptonuria
e) Maple syrup urine disease

Q.98) Which one of the listed processes is the most likely cause of an aneuploidy karyotype?
a) A reciprocal translocation between two acrocentric chromosomes
b) Deletion of both ends of a chromosome with fusion of the damaged ends
c) Division of the centromere along a transverse plane
d) Failure of homologous chromosomes or paired chromatids to separate
e) Two breaks within a single chromosome with reincorporating of the inverted segment

Q.99) The first child of a couple has trisomy 21 (not the result of mosaicism), and they come to you wanting to know the risk of having another child with Down's syndrome. The mother's age is 23, and the father's age is 25. Both appear normal and neither have had any unusual diseases. You analyse their karyotypes and find that the father's karyotype is normal, but the mother has a Robertsonian translocation involving chromosome 21 (21q21q). Which one of the listed percentages is the best estimate of the chance that the next living child of this couple will have Down's syndrome?
a) 0%
b) 15%
c) 33%
d) 50%
e) 100%

Q.100) A male infant dies 1 day after birth. Gross examination at the time of autopsy reveals polydactyly, a cleft lip and palate, and a single, central eye ("cyclops"). Further examination reveals holoprosencephaly, consisting of fused frontal lobes with a single ventricle. Which of the listed chromosomal bnormalities is most consistent with these findings?

a) Deletion 21
b) Deletion 22
c) Trisomy 13
d) Trisomy 18
e) Trisomy 21

Q.101) A 30-year-old male presents with multiple soft, raised, beefy-red superficial ulcers in his left groin. Physical examination reveals several enlarged left inguinal lymph nodes. A histologic section from an enlarged lymph node that is stained with a silver stain reveals characteristic Donovan bodies within macrophages. What is the most likely diagnosis?

a) Chancroid
b) Gonorrhea
c) Granuloma inguinale
d) Lymphogranuloma venereum
e) Syphilis

Q.102) A 44-year-old female diabetic living on Martha's Vineyard develops the sudden onset of chills and fever. Her symptoms result from destruction of erythrocytes by a particular organism, which was transmitted by the hard-shell tick (ixodid). What is this organism?

a) Plasmodia vivax
b) Plasmodia ovale
c) Leishmania donovani
d) Leishmania chagasi
e) Babesia microti

Q.103) A 32-year-old male presents with arthritis and conjunctivitis. No rheumatoid factor is found in his serum (i.e., seronegative spondyloarthropathy). A detailed history reveals that he also has severe pain with urination (nongonococcal urethritis). The combination in this patient of arthritis, urethritis, and conjunctivitis is consistent with a diagnosis of Reiter's syndrome, a disorder that is associated with HLA-B27 and infection of the genitourinary tract with

a) Shigella
b) Salmonella
c) Yersinia
d) Campylobacter
e) Chlamydia

Q.104) A 35-year-old female who lives in the southeastern portion of the United States and likes to hike in the Great Smoky Mountains presents with a spotted rash that started on her extremities and spread to her trunk and face. A biopsy of one of these lesions reveals necrosis and reactive hyperplasia of blood vessels. What is the most likely causative agent of her disease?

a) Bartonella henselae
b) Bartonella quintana
c) Coxiella burnetii
d) Rickettsia prowazekii
e) Rickettsia rickettsia

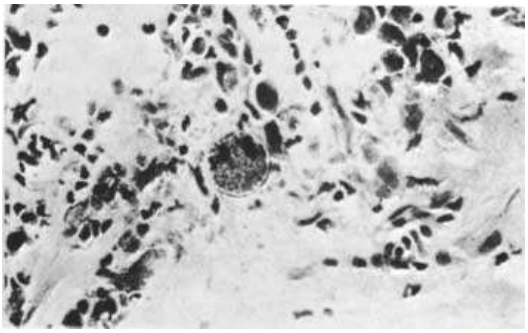
Q.105) Finding acid-fast bacilli within peripheral nerves is most suggestive of

a) Relapsing fever
b) Syphilis
c) Leprosy
d) Tuberculosis
e) Weil's disease

Q.106) A 21-year-old college athlete presents with a nagging cough and a 20-lb weight loss. In addition to the chronic cough and weight loss, his main symptoms consist of fever, night sweats, and chest pains. Examination of his sputum reveals the presence of rare acid-fast organisms. His symptoms are most likely due to an infection with

a) K. pneumoniae
b) L. pneumophila
c) Mycobacterium avium-intracellulare
d) Mycobacterium tuberculosis
e) Mycoplasma pneumonia

Q.107) An adult migrant farm worker in the San Joaquin Valley of California has been hospitalized for 2 weeks with progressive lassitude, fever of unknown origin, and skin nodules on the lower extremities. A biopsy of one of the deep dermal nodules shown in the photomicrograph below reveals the presence of



a) Russell bodies
b) Malignant lymphoma
c) *Coccidioides* spherule
d) Lymphomatoid granulomatosis
e) Erythema nodosum

Q.108) Sections of tissue infected with *Blastomyces* would be expected to show organisms with

a) Nonbranching pseudohyphae and blastocysts
b) Acute angle–branching, septate hyphae
c) Wide angle–branching, nonseptate hyphae
d) Broad-based budding
e) Large spheres with external budding

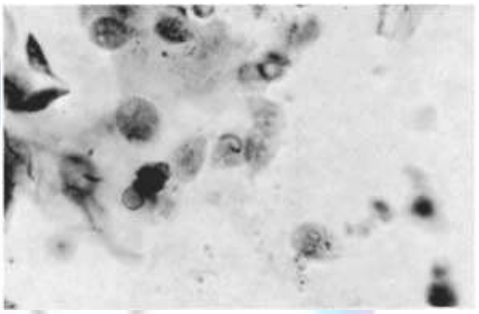
Q.109) A 38-year-old male with AIDS presents with decreasing mental status. The workup at this time includes a spinal tap. Cerebrospinal fluid (CSF) is stained with a mucicarmine stain and india ink. The mucicarmine stain reveals numerous yeasts that stain bright red. The india ink prep reveals through negative staining that these yeasts have a capsule. What is your diagnosis

a) Chromomycosis
b) Coccidioidomycosis
c) Cryptococcosis
d) Cryptosporidiosis
e) Paracoccidioidomycosis

Q.110) A patient who presents to the hospital with severe headaches develops convulsions and dies. At autopsy the brain grossly has a "Swiss cheese" appearance due to the presence of numerous small cysts containing milky fluid. Microscopically, a scolex with hooklets is found within one of these cysts. What is the causative agent for this disease?

a) Taenia saginata
b) Taenia solium
c) Diphyllobothrium latum
d) Echinococcus granulosa
e) Toxocara canis

Q.111) A 27-year-old male develops acute diarrhea consisting of foulsmelling, watery stools, along with severe abdominal cramps and flatulence, after returning from a trip to the Caribbean. The associated photomicrograph is from a duodenal aspiration smear. These signs and symptoms are caused by infection with



a) Acanthamoeba
b) Entamoeba histolytica
c) E. vermicularis
d) Giardia lamblia
e) Sporothrix

Q.112) The presence of lipoprotein(a) is associated with an increased risk for the development of coronary and cerebral vascular disease. One possible reason for this relates to the fact that lipoprotein(a) has kringle regions, which are regions that have structural homology with

a) Cardiolipin, and this homology increases the formation of clots on cardiac valves
b) Fibrinogen, and this homology increases the formation of fibrin thrombi
c) Hepatic lipase, and this homology decreases the formation of low-density lipoproteins
d) Lipoprotein lipase, and this homology decreases the ability to metabolize chylomicrons
e) Plasminogen, and this homology decreases the ability to clear thrombi

Q.113) A factor that stimulates the proliferation of smooth-muscle cells and also relates to the pathogenesis of atherosclerosis is

a) Platelet-derived growth factor
b) Transforming growth factor β
c) Interleukin 1
d) Interferon α
e) Tumor necrosis factor

Q.114) A 41-year-old female presents with recurrent severe headaches and increasing visual problems. Physical examination reveals her

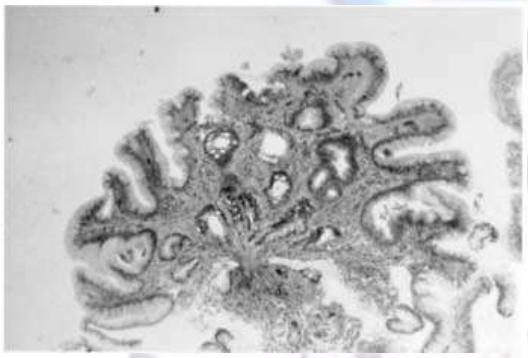
blood pressure o be 220/150. Her symptoms are most likely to be associated with

a) Medial calcific sclerosis
b) Arteriosclerosis obliterans
c) Hyperplastic arteriolosclerosis
d) Hyaline arteriolosclerosis
e) Thromboangiitis obliterans

Q.115) A 45-year-old male alcoholic with a history of portal hypertension presents with vomiting of blood (hematemesis) and hypotension. He denies any history of vomiting nonblood material or retching prior to vomiting blood. During workup he dies suddenly. Based on his history and physical findings, histologic sections from his esophagus would most likely reveal

a) Columnar epithelium in the distal esophagus
b) Decreased ganglion cells in the myenteric plexus
c) Dilated blood vessels in the submucosa d. Mucosal outpouchings (diverticula) in the distal esophagus
d) Numerous intraepithelial neutrophils with scattered eosinophils

Q.116) The photomicrograph below shows an esophageal biopsy taken 10 cm above the lower esophageal sphincter. This condition is most likely to occur as a result of



a) Destruction of the ganglion cells in Auerbach's plexus
b) Ingestion of lye
c) Long-term gastroesophageal reflux
d) Portal hypertension with portacaval shunting
e) Vomiting against a closed lower esophageal sphincter

Q.117) While recovering in bed 1 week after an abdominal hysterectomy, a 42-year-old female develops acute shortness of breath with hemoptysis. Physical examination finds the patient to be afebrile with moderate respiratory distress, calf tenderness, and a widely split S2. What is the correct diagnosis?

a) Atelectasis
b) Bacterial pneumonia
c) Pulmonary embolus
d) Pulmonary hypertension
e) Viral pneumonia

Q.118) A specimen from a lung biopsy reveals occasional plexiform lesions within pulmonary arterioles. This abnormality is most characteristic of

a) Churg-Strauss syndrome
b) Adult respiratory distress syndrome
c) Wegener's granulomatosis
d) Pulmonary hypertension
e) Lymphomatoid granulomatosis

Q.119) A 19-year-old female presents with urticaria that developed after she took aspirin for a headache. She has a history of chronic rhinitis, and physical examination reveals the presence of nasal polyps. This patient is at an increased risk of developing which one of the following pulmonary diseases following the ingestion of aspirin?

a) Asthma
b) Chronic bronchitis
c) Emphysema
d) Interstitial fibrosis
e) Pulmonary hypertension

Q.120) Which one of the following is a correct association concerning the pathogenesis of smoking-induced emphysema?

a) Destruction of distal acinus = centrilobular emphysema
b) Destruction of distal acinus = paraseptal emphysema
c) Destruction of entire acinus = panlobular emphysema
d) Destruction of proximal acinus = centrilobular emphysema
e) Destruction of proximal acinus = paraseptal emphysema

Q.121) An abnormality that inhibits the normal functioning of the ATPasecontaining dynein arms of cilia is most likely to produce

a) Asthma
b) Bronchiectasis
c) Cirrhosis
d) Emphysema
e) Steatosis

Q.122) Histologic examination of lung tissue reveals multiple suppurative, neutrophil-rich exudates that fill the bronchi and bronchioles and spill over into the adjacent alveolar spaces only. The majority of lung tissue is not involved in this inflammatory process. Hyaline membranes are not found. This histologic appearance best describes

a) Bronchiectasis
b) Bronchopneumonia
c) Lobar pneumonia
d) Interstitial pneumonitis
e) Pulmonary abscess

Q.123) A 44-year-old male alcoholic presents with fever and a productive cough with copious amounts of foul-smelling purulent sputum. Physical examination finds that changing the position of this individual produces paroxysms of coughing. Which one of the following is most likely responsible for this patient's signs and symptoms?

a) Esophageal cancer
b) Esophageal reflux
c) Myocardial infarction
d) Pulmonary abscess
e) Pulmonary infarction

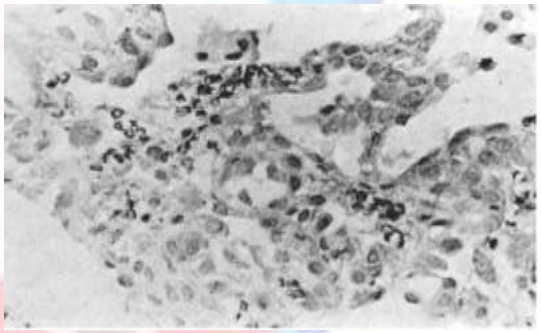
Q.124) A 25-year-old female presents with fever, malaise, headaches, and muscle pain (myalgia). A chest x-ray reveals bilateral infiltrates. You draw a tube of blood from the patient (the tube contains anticoagulant) and place the tube in a cup of ice. After the blood has cooled, you notice that the red cells have agglutinated (not clotted). This agglutination goes away after you warm up the tube of blood. This patient's illness is most likely due to infection with

a) Influenza A virus
b) Mycoplasma pneumoniae
c) Streptococcus pneumoniae
d) Pneumocystis pneumoniae
e) Mycobacterium tuberculosis

Q.125) A routine chest x-ray performed on an asymptomatic adult male patient who works at sandblasting reveals a fine nodularity in the upper zones of the lungs and "eggshell" calcification of the hilar lymph nodes. The patient's serum calcium level is 9.8 mg/dL, while his total protein is 7.2 g/dL. He denies any history of drug use or cigarette smoking. A biopsy from his lung reveals birefringent particles within macrophages. This material is most likely to be

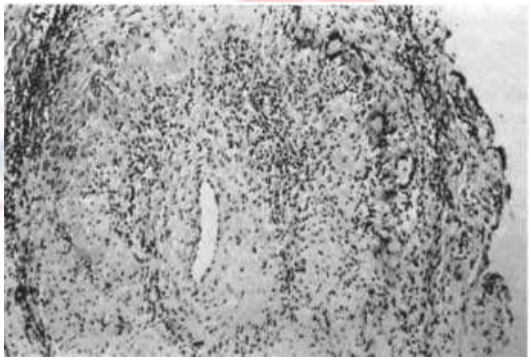
a) Asbestos
b) Beryllium
c) Carbon
d) Silica
e) Talc

Q.126) A 23-year-old HIV-positive male presents with a cough and increasing shortness of breath. A histologic section from a transbronchial biopsy stained with Gomori's methenamine-silver stain is shown in the photomicrograph below. What is the correct diagnosis?



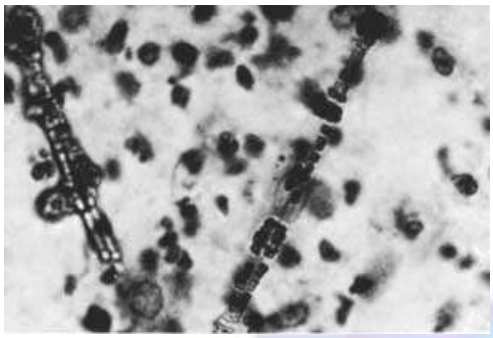
a) *Pseudomonas* pneumonia
b) *Aspergillus* pneumonia
c) *Pneumocystis carinii* pneumonia
d) Cytomegalovirus pneumonia
e) Influenza pneumonia

Q.127) An 82-year-old woman presents with headaches, visual disturbances, and muscle pain. A biopsy of the temporal artery is shown in the associated photomicrograph. The next course of action is to



a) Administer corticosteroids
b) Verify with a repeat biopsy
c) Administer anticoagulants
d) Perform angiography
e) Order a test of the erythrocyte sedimentation rate

Q.128) The photomicrograph of the bronchial washing specimen shown below depicts



a) Schaumann bodies
b) Ferruginous bodies
c) Cholesterol crystals
d) *Candida* species
e) Silica particles

Q.129) A 24-year-old African American female presents with nonspecific symptoms including fever and malaise. A chest x-ray reveals enlarged hilar lymph nodes ("potato nodes"), while her serum calcium level is found to be elevated. Biopsies of the enlarged hilar lymph nodes would most likely reveal

a) Caseating granulomas
b) Dense, granular, PAS-positive, eosinophilic material
c) Markedly enlarged epithelial cells with intranuclear inclusions
d) Noncaseating granulomas
e) Numerous neutrophils with fibrin deposition

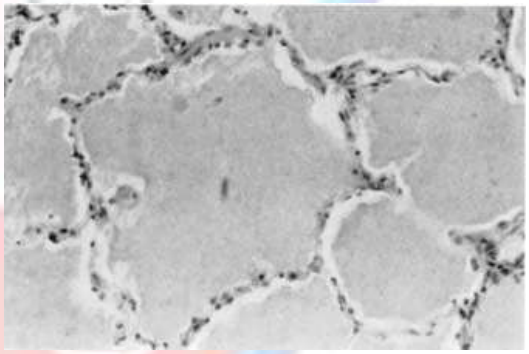
Q.130) A 61-year-old male presents with increasing shortness of breath. A chest x-ray reveals a diffuse pulmonary infiltrate, while a transbronchial biopsy reveals fibrosis of the walls of the alveoli, many of which contain sheets of "desquamated" cells. Which of the following would be the best therapy for this patient?

a) Theophylline
b) Steroids
c) Antibiotics
d) Isoniazid
e) Symptomatic treatment only

Q.131) Sections of the lung from a patient with Wegener's granulomatosis who presents clinically with hemoptysis are most likely to show

a) Atypical lymphocytes invading blood vessels
b) Granulomatous inflammation of blood vessels with numerous eosinophils
c) Granulomatous inflammation of bronchi with *Aspergillus*
d) Large, serpiginous necrosis with peripheral, palisading macrophages
e) Necrotizing hemorrhagic interstitial pneumonitis

Q.132) A 45-year-old man presents with shortness of breath, cough with mucoid sputum, and some weight loss, and has diffuse, bilateral alveolar infiltrates on chest x-ray. Pulmonary function tests reveal decreased diffusing capacity and hypoxia. The patient had worked for several years at grinding aluminum. The photomicrograph below is from a lung biopsy. Your diagnosis is



a) Pneumocystis carinii pneumonia
b) Diffuse alveolar damage
c) Pulmonary edema
d) Pulmonary alveolar proteinosis
e) Lipid pneumonia

Q.133) Bronchiolitis obliterans with organizing pneumonia (BOOP) is characterized histologically in the lung by

a) Asteroid bodies in giant cells within bronchioles
b) Loose fibrous tissue within bronchioles and alveoli
c) Multiple rheumatoid nodules within the interstitial tissue
d) Numerous eosinophils within the walls of the alveoli
e) Numerous lymphocytes within the walls of the alveoli

Q.134) A 54-year-old male presents with several problems involving his face and pain in his shoulder. He states that he has smoked 2 packs of cigarettes a day for almost 40 years. Physical examination reveals ptosis of his left upper eyelid, constriction of his left pupil, and lack of sweating (anhidrosis) on the left side of his

face. No other neurologic abnormalities are found. This individual most likely has

a) A bronchioloalveolar carcinoma involving the left upper lobe
b) A small cell carcinoma involving the hilum of his left lung
c) A squamous cell carcinoma involving the left mainstem bronchus
d) An adenocarcinoma involving the apex of his left lung
e) An endobronchial carcinoid tumor involving the right mainstem bronchus

Q.135) During a routine physical examination, a 43-year-old male is found to have a 2.5-cm "coin" in the peripheral portion of his right upper lobe (RUL). Several sputum samples sent for cytology are unremarkable, and a bronchoscopic examination is also unremarkable. Surgery is performed and the mass is resected. Histologic examination reveals lobules of connective tissue that contain mature hyaline cartilage. These lobules are separated by clefts that are lined by respiratory epithelium. What is the correct diagnosis?

a) Adenocarcinoma
b) Bronchioloalveolar carcinoma
c) Carcinoid
d) Fibroma
e) Hamartoma

Q.136) A 67-year-old male long-term smoker presents with weight loss, a persistent cough, fever, chest pain, and hemoptysis. Physical examination reveals a cachectic male with clubbing of his fingers and dullness to percussion over his right lower lobe. A chest x-ray reveals a 3.5-cm hilar mass on the right and postobstructive pneumonia of the right lower lobe. Sputum cytology is suspicious for malignant cells. Histologic examination of a transbronchial biopsy specimen reveals infiltrating groups of cells with scant cytoplasm. No glandular structures or keratin production are seen. The nuclei of these cells are about twice the size of normal lymphocytes and do not appear to have nucleoli. What is the correct diagnosis of the lung lesion in this individual?

a) Adenocarcinoma
b) Hamartoma
c) Large cell undifferentiated carcinoma
d) Small cell undifferentiated carcinoma
e) Squamous cell carcinoma

Q.137) A 39-year-old female presents with a cough and increasing shortness of breath. A chest x-ray is interpreted by the radiologist as showing a right lower lobe (RLL) pneumonia. No mass lesions are seen. The woman is treated with antibiotics, but her symptoms do not improve. On her return visit, the area of consolidation appears to be increased. Bronchoscopy is performed. No bronchial masses are seen, but a transbronchial biopsy is obtained in an area of mucosal erythema in the RLL. After the diagnosis is made, the RLL is removed and a section from this specimen reveals welldifferentiated mucus-secreting columnar epithelial cells that infiltrate from alveolus to alveolus. What is the correct diagnosis?

a) Bronchioloalveolar carcinoma
b) Carcinoid
c) Large cell carcinoma
d) Small cell carcinoma
e) Squamous cell carcinoma

Q.138) Which one of the listed abnormalities is an example of a type of pleural effusion that is better classified as an exudate (inflammatory edema) rather than a transudate?

a) Chylothorax
b) Empyema
c) Hemothorax
d) Hydrothorax
e) Pneumothorax

Q.139) A 19-year-old female presents with sudden, severe right-sided chest pain that developed shortly after she had been placing heavy boxes on shelves in her garage. Physical examination reveals an afebrile female in mild respiratory distress. Breath sounds are markedly decreased on the right, and the right lung is hyperresonant to percussion. Which one of the following is most likely present in this individual?

a) Pneumoconiosis
b) Pneumocystis infection
c) Bacterial pneumonia
d) Viral pneumonia
e) Pneumothorax

Q.140) A 71-year-old female presents with the sudden onset of severe lower back pain. Physical examination reveals severe kyphosis, while an x-ray of her back reveals a compression fracture of a vertebral body in the lumbar area along with marked thinning of the bones. Se-

rum calcium, phosphorus, alkaline phosphatase, and parathyroid hormone levels are all within ormal limits. This woman's bone changes are most likely due to

a) Osteopetrosis
b) Osteoporosis
c) Osteomalacia
d) Osteitis fibrosa cystica
e) Osteitis deformans

Q.141) Sections of bone showing normal-sized trabeculae that are only partially calcified with enlarged seams of uncalcified osteoid are most likely the result of

a) Failure of bone remodeling
b) Failure of bone mineralization
c) Failure of osteoid formation
d) Reactive bone formation
e) Reduction in the amount of normally mineralized bone

Q.142) A section of bone shows prominent osteoid seams, very large osteoclasts with more than 12 hyperchromatic nuclei, and viral-type inclusion particles. This is most characteristic of

a) Paget's disease
b) Gaucher's disease
c) Fibrous dysplasia
d) Giant cell tumors of bone
e) Brown tumor of bone

Q.143) The part of a long bone initially involved in hematogenous osteomyelitis is the

a) Metaphyseal region
b) Diaphysis
c) Epiphysis
d) Area around the entrance of the nutrient artery
e) Medullary cavity

Q.144) Which one of the listed abnormalities is most likely to produce a spinal cord lesion that destroys both bone and the disk space (cartilage)?

a) Metastatic carcinoma
b) Multiple myeloma
c) Non-Hodgkin's lymphoma
d) Syringomyelia
e) Tuberculosis

Q.145) Bilateral segmental osteonecrosis or avascular necrosis (AVN) of the femoral head is most often associated with

a) Systemic steroid therapy
b) Irradiation therapy
c) Sickle cell disease
d) Alcoholism
e) Fracture of the femoral neck

Q.146) Histologic sections from a mass diagnosed as being an osteosarcoma would reveal

a) Endothelial-lined spaces surrounded by multinucleated giant cells
b) Haphazard arrangement of immature bony trabeculae forming "Chinese letters"
c) Lobules of hyaline cartilage with few cells
d) Malignant anaplastic cells secreting osteoid
e) Thick bone trabeculae with osteoclasts that lack a normal ruffled border

Q.147) An 11-year-old boy presents with an enlarging, painful lesion that involves the medullary cavity of his left femur. X-rays reveal an irregular, destructive lesion that produces an "onion-skin" periosteal reaction. The lesion is resected surgically, and histologic sections reveal sheets of uniform small, round, "blue" cells. What is the correct diagnosis?

a) Chondroblastoma
b) Ewing's sarcoma
c) Fibrosarcoma
d) Osteoblastoma
e) Osteogenic sarcoma

Q.148) A 65-year-old female presents with pain, stiffness, and swelling of her knees. Physical examination of her knees reveals marked crepitus. Reconstructive surgery is performed on her knees. The resected bone reveals destruction of the articular cartilage and eburnation of the underlying exposed bone. Which one of the following best describes the etiology of this woman's disease?

a) "Wear and tear" destruction of articular cartilage
b) Anti-IgG autoantibodies
c) Deficient enzyme in the metabolic pathway involving tyrosine
d) Deposition of needle-shaped negatively birefringent crystals
e) Deposition of short, stubby, rhomboid-shaped positively birefringent crystals

Q.149) A 17-year-old male presents with nocturnal pain in the bone of his left leg. He relates that the pain is quickly relieved by taking aspi-

rin. X-rays reveal a round, radiolucent area with central mineralization that is surrounded by thickened bone. The lesion measures approximately 1.2 cm in diameter. What is the correct diagnosis?

a) Chondroma
b) Chondrosarcoma
c) Osteoblastoma
d) Osteoma
e) Osteoid osteoma

Q.150) A 28-year-old male presents with vague muscle pain involving his right arm that developed several weeks after eating undercooked pork. Examination of his peripheral blood reveals an increased number of eosinophils, and laboratory examination reveals increased serum activity of CPK. A biopsy from the affected muscle reveals rare encysted organisms. What organism is most likely to cause these signs and symptoms?

a) Echinococcus granulosa
b) Taenia saginata
c) Taenia solium
d) Toxocara canis
e) Trichinella spiralis

Q.151) A 34-year-old female runner presents with pain in the plantar portion of her foot between the third and fourth metatarsal bones. Based on her symptoms, the most likely cause of her pain is which one of the listed abnormalities?

a) Ganglion
b) Ganglioneuroma
c) Traumatic neuroma
d) Morton's neuroma
e) Schwannoma

Q.152) A 5-year-old boy presents with clumsiness, a waddling gait, and difficulty climbing steps. Physical examination reveals that this boy uses his arms and shoulder muscles to rise from the floor or a chair. Additionally, his calves appear to be somewhat larger than normal. This boy's physical findings are most consistent with a diagnosis of

a) Inclusion body myositis
b) Werdnig-Hoffmann disease
c) Dermatomyositis
d) Duchenne's muscular dystrophy
e) Myotonic dystrophy

Q.153) A 22-year-old African American male wants to know if he has sickle cell trait. He has no previous history of the signs or symptoms of sickle cell anemia. What laboratory method or test can be used to detect the presence of hemoglobin S?

a) Coombs' test
b) Metabisulfite test
c) Osmotic fragility test
d) Schilling test
e) Sucrose hemolysis test

Q.154) Deletion of all four normal α-globin genes will most likely produce

a) α thalassemia minor
b) β thalassemia minor
c) Cooley's anemia
d) Hemoglobin H disease
e) Hydrops fetalis

Q.155) A 49-year-old female presents with signs of anemia and states that every morning her urine is dark. Workup reveals that her red blood cells lyse in vitro with acid (positive Ham's test). What is the best diagnosis for this patient?

a) Warm autoimmune hemolytic anemia
b) Paroxysmal nocturnal hemoglobinuria
c) Paroxysmal cold hemoglobinuria
d) Isoimmune hemolytic anemia
e) Cold-agglutinin autoimmune hemolytic anemia

Q.156) Which one of the listed types of antibodies is the best example of a cold agglutinin that is associated with cold autoimmune hemolytic anemia?

a) An anti-AB IgM antibody associated with isoimmune blood transfusion reaction
b) An anti-i IgM antibody associated with infectious mononucleosis
c) An anti-IgG IgG antibody associated with rheumatoid arthritis
d) An anti-P IgG antibody associated with paroxysmal cold hemoglobinuria
e) An anti-Rh IgG antibody associated with hemolytic disease of the newborn

Q.157) A 67-year-old male presents with increasing fatigue and is found to be anemic. Physical examination reveals a hard 1-cm nodule in the left lobe of the prostate. The prostatic-specific antigen (PSA) level is found to be elevated. Examination of the peripheral blood reveals an occasional myelocyte. The erythro-

cytes are mainly normochromic and normocytic, and teardrop RBCs are not found. There are however, about two nucleated red blood cells per 100 white cells. What is the best diagnosis for this patient's anemia?

a) Fanconi's anemia
b) Microangiopathic hemolytic anemia
c) Myelophthisic anemia
d) Autoimmune hemolytic anemia
e) Aplastic anemia

Q.158) Megaloblasts result from the impaired synthesis of

a) DNA
b) RNA
c) Glutathione
d) β-globin chains
e) Decay-accelerating factor

Q.159) The serum total iron-binding capacity (TIBC) is inversely proportional to serum levels of

a) Bilirubin
b) Ferritin
c) Haptoglobin
d) Hemopexin
e) Iron

Q.160) An anemic patient has the following red cell indexes: mean corpuscular volume, 70 mm3; mean corpuscular hemoglobin, 22 pg; and mean corpuscular hemoglobin concentration, 34%. These values are most consistent with a diagnosis of

a) Folic acid–deficiency anemia
b) Iron-deficiency anemia
c) Pernicious anemia
d) Sideroblastic anemia
e) Thalassemia minor

Q.161) An anemic patient is found to have hypochromic, microcytic red cells. Additional tests reveal the serum iron levels, the total iron-binding capacity, and the transferrin saturation to be reduced. A bone marrow biopsy reveals the iron to be present mainly within macrophages. The correct diagnosis is

a) Iron deficiency
b) Thalassemia trait
c) Anemia of chronic disease
d) Sideroblastic anemia
e) Pernicious anemia

Q.162) Porphyrias result from the abnormal synthesis of

a) α-globin
b) β-globin
c) Heme
d) Spectrin
e) Transferrin

Q.163) Physical examination that finds multiple palpable purpuric lesions on the legs of a 7-year-old boy is most suggestive of

a) Bleeding secondary to excess corticosteroids
b) Erythema secondary to active hyperemia
c) Hemorrhage secondary to hypersensitivity vasculitis
d) Telangiectasis secondary to a congenital malformation
e) Thrombosis secondary to viral infection

Q.164) Antibodies made in the spleen that are directed against the cell surface antigens GpIIb/IIIa or GpIb/IX are characteristically seen in individuals with

a) Cold autoimmune hemolytic anemia
b) Felty's syndrome
c) Hashimoto's thyroiditis
d) Immune thrombocytopenic purpura
e) Warm autoimmune hemolytic anemia

Q.165) A 37-year-old woman who has a clinical picture of fever, splenomegaly, varying neurologic manifestations, and purplish ecchymoses of the skin is found to have a hemoglobin level of 10.0 g/dL, a mean corpuscular hemoglobin concentration (MCHC) of 48, peripheral blood polychromasia with stippled macrocytes, and spherocytes, with a blood urea nitrogen level of 68 mg/dL. The findings of coagulation studies and the patient's fibrindegraded products are not overtly abnormal. Which of the following is most closely identified with these findings?

a) Idiopathic thrombocytopenic purpura
b) Thrombotic thrombocytopenic purpura
c) Disseminated intravascular coagulopathy
d) Submassive hepatic necrosis
e) Waterhouse-Friderichsen syndrome

Q.166) A 5-year-old child develops the sudden onset of bloody diarrhea, vomiting of blood, hematuria, and renal failure following a flulike gastrointestinal illness. The blood urea nitrogen (BUN) level is markedly increased, but fibrin degradation products and blood clotting times

are within normal limits. A peripheral blood smear reveals poikilocytes, schistocytes, and a decrease in the number of platelets. No fever or neurologic symptoms are present. What is the best diagnosis for this patient?

a) Autoimmune thrombocytopenic purpura (autoimmune ITP)
b) Disseminated intravascular coagulopathy (DIC)
c) Hemolytic-uremic syndrome (HUS)
d) Isoimmune thrombocytopenic purpura (isoimmune ITP)
e) Thrombotic thrombocytopenic purpura (TTP)

Q.167) von Willebrand's disease is characterized by abnormal platelet aggregation when platelets are exposed to

a) Aspirin
b) Collagen
c) Fibrinogen
d) Ristocetin
e) Streptomycin

Q.168) Administration of which one of the following substances would theoretically correct the abnormal bleeding laboratory tests in an individual who is deficient in coagulation factor V?

a) Activated factor VIII
b) Activated factor X
c) Fibrinogen
d) Plasmin
e) Thrombin

Q.169) A 5-year-old boy presents with recurrent hemarthroses and intramuscular hematomas. Laboratory tests reveal normal bleeding time, platelet count, and PT, but the PTT is prolonged. This boy's condition most likely results from an abnormality involving

a) Chromosome 5
b) Chromosome 14
c) Chromosome 21
d) X chromosome
e) Y chromosome

Q.170) A 27-year-old female in the last trimester of her first pregnancy presents with the sudden onset of multiple skin hemorrhages. She states that for the past several days she has not felt the baby move. Workup reveals an increase in PT and PTT, while fibrin degradation products (FDPs) are increased in the patient's blood. Her platelet count is found to be 43,000/µL. What is the most likely diagnosis for this patient?

a) Autoimmune thrombocytopenic purpura (autoimmune ITP)
b) Isoimmune thrombocytopenic purpura (isoimmune ITP)
c) Thrombotic thrombocytopenic purpura (TTP)
d) Hemolytic-uremic syndrome (HUS)
e) Disseminated intravascular coagulopathy (DIC)

Q.171) A 71-year-old male presents with dysphagia and is found to have a 5-cm mass that is located in the middle third of the esophagus and extends into adjacent lung tissue. A biopsy from this mass would most likely reveal

a) A mass composed of benign cartilage
b) A mass composed of benign smooth-muscle cells
c) Infiltrating groups of cells forming glandular structures
d) Infiltrating sheets of cells forming keratin
e) Infiltrating single cells having intracellular mucin

Q.172) A 2-week-old neonate presents with regurgitation and persistent, severe projectile vomiting. An olive-like epigastric mass is felt during physical examination. A chest x-ray does not reveal the presence of bowel gas in the chest cavity. This infant's mother did not have polyhydramnios during this pregnancy. What is the best treatment for this infant's condition?

a) Oral medication with omeprazole and clarithromycin
b) Oral medication with vancomycin or metronidazole
c) Surgery to cut a hypertrophied stenotic band at the pylorus
d) Surgery to remove a mass of the adrenal gland
e) Surgery to resect an aganglionic section of the intestines

Q.173) A 49-year-old female taking ibuprofen for increasing joint pain in her hands presents with increasing pain in her midsternal area. Gastroscopy reveals multiple, scattered, punctate hemorrhagic areas in her gastric mucosa. Biopsies from one of these hemorrhagic lesions reveal mucosal erosions with edema and hem-

orrhage. No mucosal ulceration is seen. What is the best diagnosis?
a) Active chronic gastritis
b) Acute gastritis
c) Autoimmune gastritis
d) Chronic gastritis
e) Peptic ulcer disease

Q.174) A 32-year-old male presents with scrotal enlargement. Physical examination, including scrotal transillumination, reveals the presence of a testicular cyst containing clear fluid. This abnormality most likely results from fluid accumulating within the
a) Ampulla of the ductus deferens
b) Appendix testis
c) Epididymis
d) Seminal vesicles
e) Tunica vaginalis

Q.175) Which of the following testicular tumors is most radiosensitive?
a) Seminoma
b) Embryonal carcinoma
c) Choriocarcinoma
d) Yolk sac tumor
e) Immature teratoma

Q.176) A 27-year-old male presents with a testicular mass, which is resected and diagnosed as being a yolk sac tumor. Which one of the listed substances is most likely to be increased in this patient's serum as a result of being secreted from the cells of this tumor?
a) Acid phosphatase
b) α fetoprotein (AFP)
c) Alkaline phosphatase
d) β-human chorionic gonadotropin (β-hCG)
e) Prostate-specific antigen (PSA)

Q.177) A 47-year-old male presents with the sudden onset of fever, chills, and dysuria. During the review of symptoms you discover that he has no history of recurrent urinary tract infections. Rectal examination finds that the prostate gland is very sensitive and examination is painful. What is the most likely diagnosis for this patient?
a) Acute prostatitis
b) Chronic bacterial prostatitis
c) Chronic abacterial prostatitis
d) Granulomatous prostatitis
e) Benign prostatic hyperplasia

Q.178) A 69-year-old male presents with urinary frequency, nocturia, dribbling, and difficulty in starting and stopping urination. Rectal examination reveals the prostate to be enlarged, firm, and rubbery. A needle biopsy reveals increased numbers of glandular elements and stromal tissue. The glands are found to have a double layer of epithelial cells. Prominent nuclei or back-to-back glands are not seen. What is the correct diagnosis?
a) Acute prostatitis
b) Chronic bacterial prostatitis
c) Granulomatous prostatitis
d) Benign prostatic hyperplasia
e) Prostatic adenocarcinoma

Q.179) A 67-year-old male is found on rectal examination to have a single, hard, irregular nodule within his prostate. A biopsy of this lesion reveals the presence of small glands lined by a single layer of cells with enlarged, prominent nucleoli. From what portion of the prostate did this lesion most likely originate?
a) Anterior zone
b) Central zone
c) Peripheral zone
d) Periurethral glands
e) Transition zone

Q.180) A newborn female is being worked up clinically for several congenital abnormalities. During this workup, it is discovered that normal development of the vagina and uterus in this female infant has not occurred. Failure of the uterus to develop (agenesis) is directly related to the failure of what embryonic structure to develop?
a) Urogenital ridge
b) Mesonephric duct
c) Paramesonephric duct
d) Metanephric duct
e) Epoophoron

Q.181) What is the classic visual disturbance produced early by a large pituitary adenoma (>1 cm) that compresses the central portion of the optic chiasm?
a) Bitemporal hemianopsia
b) Homonymous hemianopsia
c) Homonymous inferior field defect
d) Homonymous superior field defect
e) Mononuclear anopsia

Q.182) Which one of the listed individuals is most likely to have a prolactinsecreting tumor of the anterior pituitary?

a) A 25-year-old female with amenorrhea, galactorrhea, and a negative pregnancy test
b) A 27-year-old female with polyuria, polydipsia, and hypernatremia
c) A 45-year-old female with coarse facial features, large hands and feet, and headaches
d) A 49-year-old male with psychosis, ophthalmoplegia, and ataxia
e) A 54-year-old male with central obesity, purple abdominal stria, and mental hanges

Q.183) A 49-year-old man who smokes two packs of cigarettes a day presents with a lung mass on x-ray and recent weight gain. Laboratory examination shows hyponatremia with hyperosmolar urine. The patient probably has

a) Renal failure
b) Pituitary failure
c) Conn's syndrome
d) Cardiac failure
e) Inappropriate ADH

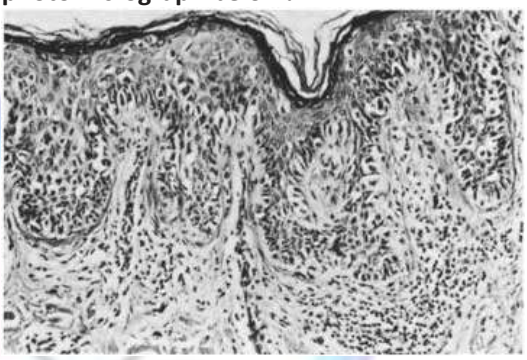
Q.184) A 23-year-old female presents with a 0.4-cm nodule within the skin of the left side of her neck. The clinician removes the lesion and sends it to the pathology lab, calling it a "sebaceous cyst." Histologic sections reveal a cystic structure in the dermis that is filled with keratin and lined by a stratified squamous epithelium, which has a granular cell layer. This cyst is not ruptured, no adnexal structures are seen within the wall of the cyst, and no atypia is present. What is the correct diagnosis?

a) Acrochordon
b) Cystic hygroma
c) Epithelial inclusion cyst
d) Intradermal nevus
e) Pilar cyst

Q.185) A 65-year-old male farmer presents with a small, scaly erythematous lesion on the helix of his left ear. A biopsy from this lesion reveals marked degeneration of the dermal collagen (solar elastosis) along with atypia of the squamous epidermal cells. The atypia, however, does not involve the full thickness of the epidermis, and no invasion into the underlying tissue s seen. What is the correct diagnosis for this skin lesion?

a) Actinic keratosis
b) Bowen's disease
c) Keratoacanthoma
d) Seborrheic keratosis
e) Squamous cell carcinoma

Q.186) Which of the following pairs of disorders would most appropriately be considered in the differential diagnosis for the lesion seen in the photomicrograph below?



a) Superficial spreading malignant melanoma in situ and Paget's disease
b) Mycosis fungoides and metastatic carcinoma
c) Psoriasis and lichen planus
d) Lupus erythematosus and lupus vulgaris
e) Leukemia and lymphoma

Q.187) Where are acral lentiginous malignant melanomas most commonly located?

a) Groin and upper thighs
b) Head and neck
c) Mucosal membranes, especially the oral cavity
d) Palms, soles, and subungual areas
e) Trunk and proximal extremities

Q.188) A 72-year-old male presents with a slowly growing, ulcerated lesion located on the pinna of his right ear. The lesion is excised, and histologic sections reveal infiltrating groups of cells in the dermis. These cells have eosinophilic cytoplasm, intercellular bridges, and intracellular keratin formation. What is the correct diagnosis for this lesion?

a) Basal cell carcinoma
b) Dermatofibrosarcoma protuberans
c) Merkel cell carcinoma
d) Poorly differentiated adenocarcinoma
e) Squamous cell carcinoma

Q.189) A 67-year-old male presents with a slowly growing lesion that involves the lower portion of his left lower eyelid. You examine the lesion and find it to be a pearly papule with raised margins and a central ulcer (rodent ul-

cer). Histologic sections from this lesion would most likely reveal

a) Reactive epidermal cells surrounding a central superficial ulcer
b) Infiltrating groups of basaloid cells with peritumoral clefting
c) Infiltrating groups of eosinophilic cells with keratin formation
d) Dermal aggregates of small cells histologically similar to oat cell carcinoma
e) An in situ lesion with full-thickness epidermal atypia

Q.190) A 65-year-old man presents with multiple plaquelike pruritic lesions scattered over his body. These lesions do not respond to topical steroid therapy. A biopsy of one of the lesions reveals a dermal infiltrate of atypicalappearing mononuclear cells, some of which occupy spaces within the epidermis. A periodic acid–Schiff (PAS) stain demonstrates areas of PASpositive material in the cytoplasm of these cells. The peripheral smear exhibits similar atypical mononuclear cells, many of which have a prominent nuclear cleft. These malignant cells originated from

a) CD4-positive T cells
b) CD5-positive B cells
c) CD8-positive T cells
d) CD16-positive natural killer cells
e) CD21-positive B cells

Q.191) A 23-year-old female presents with a 0.4-cm firm brown lesion on her upper right thigh. Histologic sections from this lesion reveal an irregular area in the upper dermis that is composed of a mixture of fibroblasts, histiocytes, stromal cells, and capillaries. The majority of cells in this mixture are fibroblasts. The overlying epidermis reveals hyperplasia of the basal layers. What is the correct diagnosis?

a) Dermatofibroma
b) Dermatofibrosarcoma protuberans
c) Fibroxanthoma
d) Pyogenic granuloma
e) Sclerosing hemangioma

Q.192) A 26-year-old female presents with multiple red-brown macules and papules, pruritus (itching), and flushing. Physical examination reveals that skin lesions can be produced by firm rubbing. A biopsy of one of these skin lesions reveals perivascular collections of mononuclear cells that stain positively with toluidine blue. What is the correct diagnosis?

a) Mycosis fungoides
b) Merkel cell carcinoma
c) Weber-Christian disease
d) Letterer-Siwe disease
e) Urticaria pigmentosa

Q.193) Histologic examination of a skin biopsy from an adult male reveals hyperkeratosis without parakeratosis, an increase in the granular cell layer, acanthosis, and a bandlike lymphocytic infiltrate in the upper dermis involving the dermal-epidermal junction. Which one of the following describes the most likely clinical appearance of this patient's lesions?

a) Generalized skin eruptions with oval salmon-colored papules along flexure lines
b) Macules, papules, and vesicles on the trunk along with several target lesions
c) Pruritic purple papules and plaques on the flexor surfaces of the extremities
d) Red plaques covered by silver scales on the extensor surfaces of the elbows and knees
e) Soft yellow-orange plaques along the neck, axilla, and groin

Q.194) A 34-year-old male presents with multiple large, sharply defined, silver-white scaly plaques on the extensor surfaces of his elbows and knees and on his scalp. Physical examination reveals discoloration and pitting of his fingernails. Lifting of one of the scales on his elbows produces multiple minute areas of bleeding (positive Auspitz sign). Histologic sections from one of the scaly plaques would most likely reveal

a) Subepithelial bullae
b) Regular elongation of the rete ridges
c) Liquefactive degeneration of the basal layer of the epidermis
d) Increased granular cell layer
e) Chronic inflammation below a zone of degenerated collagen

Q.195) Histologic sections from a 3-cm mass found in the mandible of a 55- year-old female reveal a tumor consisting of nests of tumor cells that appear dark and crowded at the periphery of the nests and loose in the center (similar to the stellate reticulum of a developing tooth). Grossly, the lesions consist of multiple cysts

filled with a thick, "motor oil"–like fluid. What is the correct diagnosis for this tumor?

a) Pleomorphic adenoma
b) Ameloblastoma
c) Mucoepidermoid carcinoma
d) Adenoid cystic carcinoma
e) Acinic cell carcinoma

Q.196) A 24-year-old female presents after having several "attacks" that last for about 24 h. She states that during these attacks she develops nausea, vomiting, vertigo, and ringing in her ears. Physical examination reveals a sensorineural hearing loss. The pathology of her condition involves

a) Acute suppurative inflammation
b) Dilation of the cochlear duct and saccule
c) A cyst of the middle ear filled with keratin
d) A tumor of the middle ear composed of lobules of cells in a highly vascular stroma
e) New bone formation around the stapes and the oval window

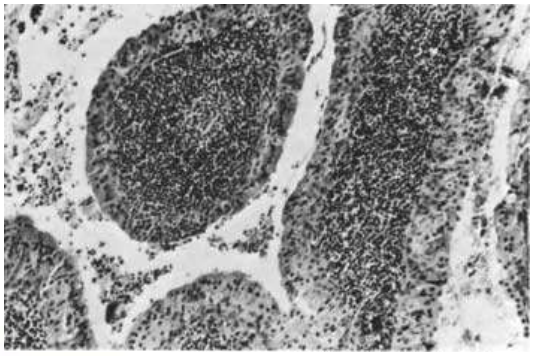
Q.197) Deletion of both Rb (retinoblastoma) genes in the same developing cell is most characteristically associated with the development of

a) Blue sclera
b) No iris
c) Subluxed lens
d) White pupil
e) Yellow sclera

Q.198) What type of cyst is characteristically located in the lateral (or anterolateral) portion of the neck, is derived from remnants of the pharyngeal apparatus, and does not move with swallowing?

a) Branchial cleft cyst
b) Dentigerous cyst
c) Odontogenic keratocyst
d) Radicular cyst
e) Thyroglossal duct cyst

Q.199) The papillary lesion lined by oncocytic cells seen in the photomicrograph below is referred to as



a) Adenoid cystic carcinoma
b) Lymphoepithelioma
c) Thyroglossal duct neoplasm
d) Warthin's tumor
e) Sebaceous lymphadenoma

Q.200) Histologic sections of a parotid gland tumor that is found to be infiltrating along the facial nerve are most likely to reveal

a) A typical cells forming tubular and cribriform patterns
b) Infiltrating groups of vacuolated epithelial cells
c) A mixture of epithelial structures and mesenchyme-like stroma
d) A mixture of squamous epithelial cells and mucus-secreting cells
e) Papillary folds composed of a double layer of oncocytic cells