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**Physiology**  
Third Edition  
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# **Pathology:**

## **PreTest® Self-Assessment and Review**

**Third Edition**

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# Preface

The study of pathology permits a "hand-in-glove" link between the sciences and the fields of clinical medicine, and the better prepared students of pathology will, by virtue of this linkage process, become more knowledgeable, efficient, and caring physicians. This study manual will tempt the undergraduate medical student who is advised to strengthen this desired link both in preparation for writing board examinations and for entering the wards and clinics. In addition, many questions and photomicrographs will also challenge graduate physicians in their own assessment of development prior to licensure and board certifying examinations. The third edition has been revised and expanded to fulfill these expectations.

Paul Harrison Duray

# Introduction

*Pathology: PreTest® Self-Assessment and Review* provides medical students, as well as physicians, with a comprehensive and convenient instrument for self-assessment and review within the field of pathology. The 500 questions parallel the format and degree of difficulty of the questions contained in Part I of the National Board of Medical Examiners examinations, the Federation Licensing Examination (FLEX), the Visa Qualifying Examination, and the ECFMG examination.

Each question in the book is accompanied by an answer, an explanation, and specific page references to current textbooks, journal articles, or both. A bibliography, listing all the sources used, follows the last chapter.

Perhaps the most effective way to use this book is to allow yourself one minute to answer each question in a given chapter; as you proceed, indicate your answer beside each question. By following this suggestion, you will be approximating the time limits imposed by the board examinations previously mentioned.

When you finish answering the questions in a chapter, you should then spend as much time as you need verifying your answers and carefully reading the explanations. Although you should pay special attention to the explanations for the questions you answered incorrectly, you should read **every** explanation. The author of this book has designed the explanations to reinforce and supplement the information tested by the questions. If, after reading the explanations for a given chapter, you feel you need still more information about the material covered, you should consult and study the references indicated.

This book meets the criteria established by the AMA's Department of Continuing Medical Education for up to 22 hours of credit in category 5D for the Physician's Recognition Award. It should provide an experience that is instructive as well as evaluative; we also hope that you enjoy it. We would be very happy to receive your comments.

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# General Pathology

**DIRECTIONS:** Each question below contains five suggested answers. Choose the one best response to each question.

1. Which of the following provides an example of concomitant hyperplasia and hypertrophy?

- (A) Uterine growth during pregnancy
- (B) Left ventricular cardiac hypertrophy
- (C) Athletic skeletal muscle enlargement
- (D) Breast enlargement at puberty
- (E) Cystic hyperplasia of the endometrium

2. All the following are examples of cellular adaptation EXCEPT

- (A) atrophy
- (B) hypertrophy
- (C) hyperplasia
- (D) dysplasia
- (E) metaplasia

3. Which of the following has the greatest regenerative capacity?

- (A) Myocardium
- (B) Cartilage
- (C) Connective tissue
- (D) Voluntary muscle
- (E) Central neurons

4. The type of cell that is first to migrate into the site of acute inflammation is the

- (A) plasma cell
- (B) neutrophil
- (C) lymphocyte
- (D) monocyte
- (E) fibroblast

5. Antibacterial activity occurs within the phagolysosome of the cell in association with

- (A) neutral protease
- (B) serotonin
- (C) prostaglandin E
- (D) myeloperoxidase
- (E) bradykinin

6. Defects in chemotaxis resulting in increased susceptibility to infection can be demonstrated in all the following EXCEPT

- (A) diabetes mellitus, juvenile type
- (B) chronic granulomatous disease of childhood
- (C) chronic renal failure of any cause
- (D) Chédiak-Higashi syndrome
- (E) newborn infants of normal gestation



7. The cluster of cells in the photomicrograph below appeared in a cytologic specimen of sputum for a 57-year-old man with chest pain, hemoptysis, and a nonproductive cough of many years' duration. Which of the following is the most likely diagnosis?



- (A) Squamous cell metaplasia of ciliated, bronchial epithelium
- (B) Oat cell (small cell undifferentiated) carcinoma
- (C) Adenocarcinoma
- (D) Cytomegalic inclusion virus pneumonia
- (E) Normal bronchial epithelium

8. A key feature in catarrhal inflammation is

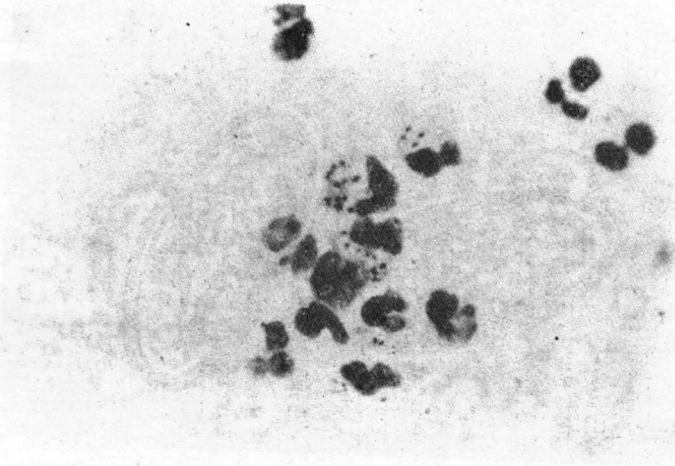
- (A) copious secretions from superficial mucosal surfaces
- (B) the formation of deep ulcers
- (C) the formation of abscesses
- (D) cellulitis
- (E) a granulomatous reaction

9. In hypovolemic shock, which of the following organs is most severely affected?

- (A) Liver
- (B) Lung
- (C) Heart
- (D) Kidney
- (E) Adrenal gland

10. The cells in the photomicrograph shown below are from a drop of cerebrospinal fluid. The most likely diagnosis is

- (A) subarachnoid hemorrhage
- (B) viral meningitis
- (C) tuberculous meningitis
- (D) bacterial meningitis
- (E) leukemic meningitis



11. Which of the following types of tumors is the most sensitive to radiation?

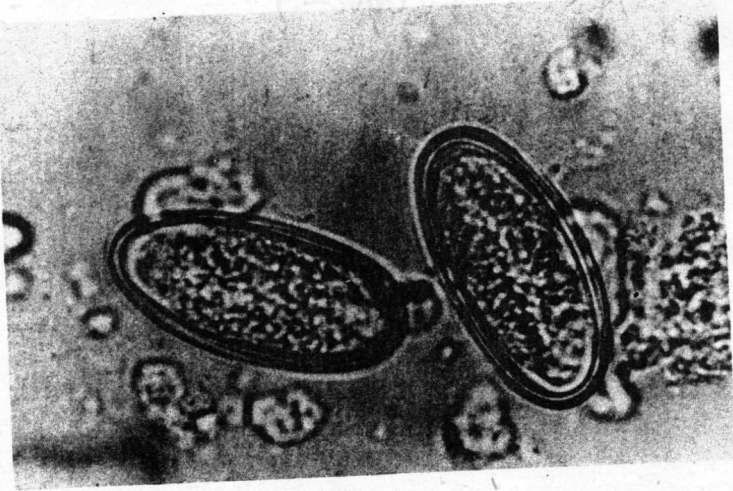
- (A) Malignant lymphoma
- (B) Basal cell carcinoma
- (C) Cervical carcinoma
- (D) Osteogenic sarcoma
- (E) Malignant melanoma

12. A middle-aged alcoholic woman with a history of heavy cigarette smoking is at risk of developing which of the following in the oral cavity?

- (A) Adenocarcinoma
- (B) Squamous cell carcinoma
- (C) Malignant melanoma
- (D) Necrotizing sialometaplasia
- (E) Malignant lymphoma

13. The eggs shown in the photomicrograph below were obtained from the perianal region of a child by means of a technique using transparent adhesive tape. The infecting organism is

- (A) *Enterobius vermicularis*
- (B) *Trichuris trichiura*
- (C) *Ancylostoma duodenale*
- (D) *Taenia saginata*
- (E) *Schistosoma haematobium*



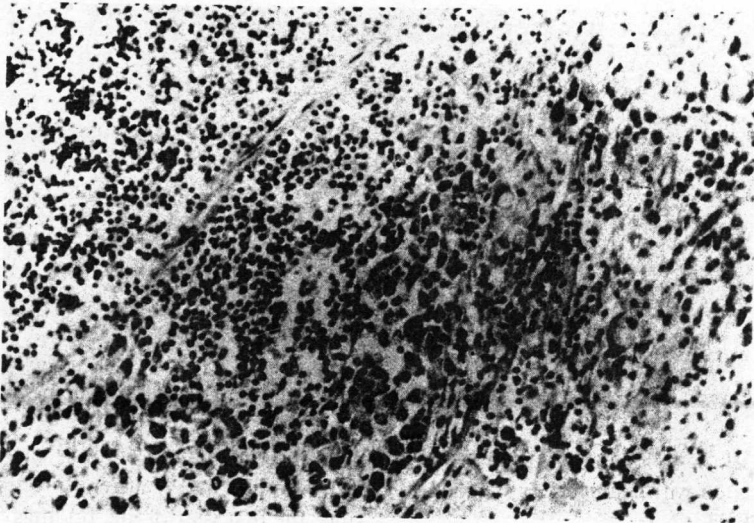
14. Sarcomas often metastasize by
- (A) embolization in the lymphatic system
  - (B) embolization in blood vessels
  - (C) direct growth along lymphatic channels
  - (D) direct growth along blood vessels
  - (E) detachment and reimplantation in body cavities

15. Carcinomas commonly metastasize to all the following sites EXCEPT

- (A) lung
- (B) liver
- (C) kidney
- (D) skeletal muscle
- (E) lymph nodes

16. The histologic pattern of the lymph node section shown below is likely to support a diagnosis of

- (A) sickle cell anemia
- (B) carcinoma
- (C) leukemia
- (D) infectious mononucleosis
- (E) rheumatoid arthritis



17. In tissues affected by the predominant form of Niemann-Pick disease, which of the following is found at abnormally high levels?

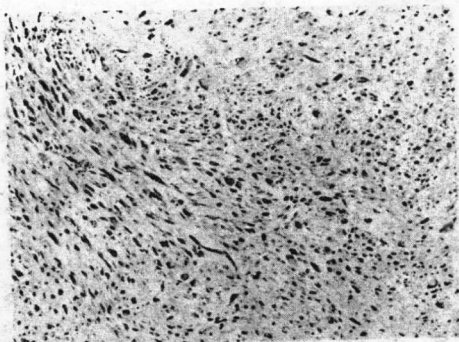
- (A) Sphingomyelin
- (B) Sphingomyelinase
- (C) Kerasin
- (D) Acetyl coenzyme A
- (E) Ganglioside

18. The diseases of the Hand-Schüller-Christian complex all involve the

- (A) skeleton
- (B) reticuloendothelial system
- (C) heart
- (D) lungs
- (E) teeth and nails

19. The lesion in the photomicrograph shown below was removed from a discrete mass in the retroperitoneum. It is a

- (A) lymphoma
- (B) neuroma
- (C) fibroma
- (D) fibrosarcoma
- (E) carcinoma



20. All the following symptoms are associated with Klinefelter's syndrome EXCEPT

- (A) large, soft testes
- (B) gynecomastia
- (C) eunuchoidism
- (D) azospermia
- (E) elevated urinary gonadotropins

21. The biologic behavior of many types of malignant tumors can be generally predicted on the basis of

- (A) nuclear chromatin
- (B) cytoplasmic volume
- (C) differentiation
- (D) proximity to arteries
- (E) in vitro growth rate

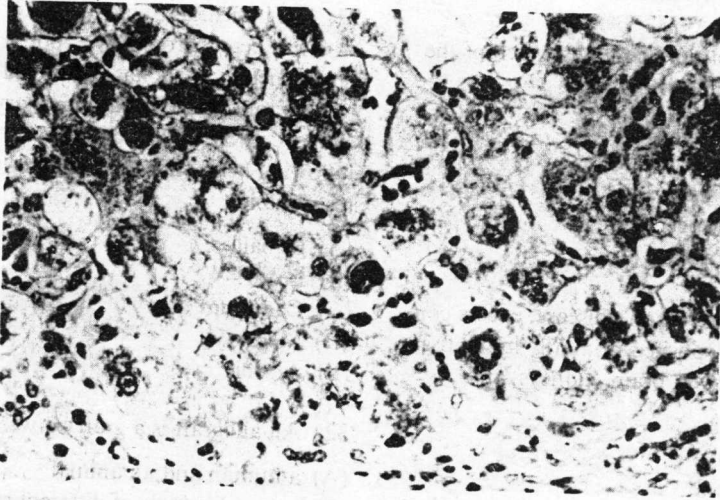
22. In an evaluation of an 8-year-old boy who had had recurrent infections since the first year of life, findings included enlargement of the liver and spleen, lymph node inflammation, and a superficial dermatitis resembling eczema. Microscopic examination of a series of peripheral blood smears taken during the course of a staphylococcal infection indicated that the bactericidal capacity of the boy's neutrophils was impaired or absent. Which of the following is the most probable diagnosis?

- (A) Chronic granulomatous disease
- (B) Congenital agammaglobulinemia
- (C) Hereditary thymic dysplasia
- (D) Chédiak-Higashi syndrome
- (E) Wiskott-Aldrich syndrome



23. The irregular eosinophilic hyaline inclusions within the hepatocyte cytoplasm shown below are

- (A) Russell bodies
- (B) parasites
- (C) characteristic of chronic alcoholism
- (D) characteristic of viral hepatitis
- (E) characteristic of carbon tetrachloride poisoning



24. Pellagra results from a deficiency of

- (A) pantothenic acid
- (B) cyanocobalamine
- (C) riboflavin
- (D) nicotinamide
- (E) pyridoxine

25. The autosomal recessive genetic disorders known as Fanconi's anemia, ataxia telangiectasia, and Bloom's syndrome are sometimes referred to as "chromosome-breakage syndromes."

The reason for this is

- (A) that they are associated with leukemia
- (B) that they are autosomal recessive disorders
- (C) excess chromosomal vulnerability to osmotic changes
- (D) increased susceptibility to cell mutations
- (E) lack of DNA repair systems

26. Blindness and metabolic acidosis are common findings in poisoning caused by

- (A) carbon monoxide
- (B) benzene
- (C) phenol
- (D) chloroform
- (E) methyl alcohol

27. Fibrinoid contains which of the following substances?

- (A) Immunoglobulins
- (B) Fat
- (C) Hemosiderin
- (D) Glycogen
- (E) Amyloid

28. In Wilson's disease, excess copper is deposited primarily in the tissues of the liver, brain, kidneys, and

- (A) skin
- (B) hair
- (C) bone
- (D) tooth enamel
- (E) cornea

29. Ochronosis, a congenital metabolic disorder, is associated with an excessive accumulation of homogentisic acid in the

- (A) cartilage
- (B) dermis of the skin
- (C) large bowel mucosa
- (D) medullary cavities of long bones
- (E) white matter of the brain

30. Gout is thought to result from a disturbance in the metabolism of

- (A) pyrimidine
- (B) folate
- (C) histone
- (D) purine
- (E) lipid

31. An industrial foundry worker who has been chronically exposed to heavy metal vapors has developed a radiographic pattern of pulmonary "honeycombing." Which of the following heavy metals is most likely responsible?

- (A) Cobalt
- (B) Lead
- (C) Cadmium
- (D) Mercury
- (E) Arsenic

32. An allograft is a graft between

- (A) a human and an animal
- (B) two individuals of different species
- (C) two individuals of the same species
- (D) two individuals of the same inbred strain
- (E) identical twins

33. Which of the following conditions is most likely to be associated with cancer?

- (A) Systemic lupus erythematosus
- (B) Hypertension
- (C) Polymyositis
- (D) Autoimmune thyroiditis
- (E) Arteriosclerosis

34. A 19-year-old female college student with a history of arthropathy and a facial rash is found to have leukopenia. Which of the following types of antinuclear antigens should be assessed?

- (A) SS-A
- (B) SNP
- (C) RNP
- (D) RAP
- (E) Scl-I

35. In systemic lupus erythematosus, which of the following findings has the highest correlation with morbidity and mortality?

- (A) LE cells
- (B) Lupus nephritis
- (C) Lupus endocarditis
- (D) Thrombocytopenia
- (E) Skin lesions

36. In which of the following disorders is the incidence of positive tests for antinuclear antibody the highest?

- (A) Systemic lupus erythematosus
- (B) Chronic lymphatic leukemia
- (C) Polyarteritis nodosa
- (D) Rheumatic fever
- (E) Cirrhosis of the liver

37. Tangier disease is a rare disorder characterized by almost complete absence of plasma

- (A) glyceride
- (B) cholesterol
- (C) high-density lipoprotein
- (D) low-density lipoprotein
- (E) sphingosine

38. Which one of the following substances can be expected to be present in abnormally low levels in the urine of xanthinuric patients?

- (A) 7-Methyl-8-hydroxguanine
- (B) Hypoxanthine
- (C) Uric acid
- (D) Guanine
- (E) Orotic acid

39. One of the most important factors determining the growth of a malignant tumor is its

- (A) parenchyma
- (B) stroma
- (C) periphery
- (D) cell type
- (E) center

40. In which of the following diseases or conditions would a negative immunofluorescent procedure for detection of serum antibodies to mitochondria be expected?

- (A) Primary biliary cirrhosis
- (B) Chlorpromazine-induced jaundice
- (C) Acute viral hepatitis
- (D) Chronic active hepatitis
- (E) Systemic lupus erythematosus

41. A young woman of average intelligence and short stature who has never menstruated is under clinical investigation for Turner's syndrome. However, a buccal smear shows some cells having one Barr body. Which of the following best explains this finding?

- (A) Laboratory error
- (B) The patient is a male
- (C) Classic XO
- (D) Turner mosaicism
- (E) Klinefelter's syndrome



42. Normal levels of C-reactive protein (CRP) are most often observed in
- (A) acute viral illness
  - (B) pneumococcal pneumonia
  - (C) active rheumatoid arthritis
  - (D) active pulmonary tuberculosis
  - (E) acute myocardial infarction
43. The most sensitive of the commonly used tests for diagnosing active syphilis is the
- (A) rapid plasma reagin (RPR) test
  - (B) *Treponema pallidum* immobilization (TPI) test
  - (C) fluorescent treponemal antibody-absorption (FTA-ABS) test
  - (D) Venereal Disease Research Laboratory (VDRL) test
  - (E) Kolmer test
44. Features commonly seen in tuberculoid leprosy include all the following EXCEPT
- (A) presence of large numbers of bacilli in involved tissues
  - (B) extension of epithelioid cell and lymphocyte infiltrates into the papillary dermis
  - (C) severe infiltration of small nerves by chronic inflammatory cells
  - (D) destruction of nerves early in the course of the disease
  - (E) proliferation of epithelioid cells arranged in clusters and cords
45. As visualized by the electron microscope, all the following are cell organelles EXCEPT
- (A) lysosomes
  - (B) the Golgi complex
  - (C) the endoplasmic reticulum
  - (D) desmosomes
  - (E) microbodies
46. Spirochetal infections include all the following EXCEPT
- (A) bejel
  - (B) yaws
  - (C) pinta
  - (D) Weil's disease
  - (E) lymphogranuloma venereum
47. An elevated IgG level in cerebrospinal fluid and an abnormal band on agar gel electrophoresis of cerebrospinal fluid are findings consistent with the diagnosis of
- (A) secondary stage of syphilis
  - (B) muscular dystrophy
  - (C) tumor involvement of the spinal cord
  - (D) meningeal involvement by leukemia
  - (E) multiple sclerosis
48. Which of the following conditions is most likely to be associated with a negative result on routine pregnancy tests?
- (A) Ectopic pregnancy
  - (B) Hydatidiform mole
  - (C) Polyhydramnios
  - (D) Eclampsia
  - (E) Choriocarcinoma