

Coffeyville Community College

**BIOL-210-OL
COURSE SYLLABUS
FOR
PATHOPHYSIOLOGY**

**Pam Oliver
Instructor**

COURSE NUMBER: BIOL-210-OL **COURSE TITLE:**
Pathophysiology

CREDIT HOURS: 3

INSTRUCTOR: Pam Oliver

OFFICE LOCATION: Math/Science Area, Arts and Sciences Building

OFFICE PHONE: 620-251-7700 ext. 2070

OFFICE HOURS: See scheduled posted on office door

PREREQUISITE(S): None

REQUIRED TEXT AND MATERIALS: Gould's Pathophysiology for the Health Professions, 5th edition

COURSE DESCRIPTION:

Pathophysiology 210 is a course designed for the study of the human body. A background in general biology is highly recommended for this course. Aspects specifically covered in this course will include the body functions and abnormalities resulting from various human diseases.

EXPECTED LEARNER OUTCOMES:

Upon completion of this course, the student will be able to:

1. Understand body fluids
2. Possess knowledge of bacterial, viral, fungal, and parasitic infections.
3. Possess knowledge of neoplasias, inherited diseases, the heart, blood vessels, and the lungs.
4. Understand the upper and lower digestive tract, along with the liver, gall bladder, and pancreas/diabetes.
5. Understand the kidney, male/female reproductive systems, and the endocrine system.
6. Understand blood, lymph, and the nervous system.

LEARNING TASKS AND ACTIVITIES:

Power-point presentations will be available to facilitate student learning. One or two chapters will be covered each week. There will be a case study evaluation and quiz over each topic.

ASSESSMENT OF

OUTCOMES:

Cognitive: Knowledge and understanding of the material will be assessed through multiple choice quizzes and case study evaluations.

GRADING POLICY:

Grades of A (100-91%), B (90-81%), C (80-71%), D (70-61%), and F (60-0%) are given for this course. Incompletes given at the semester end will only be given if previously agreed upon by the student and instructor, with the specific time designated for the completion of the incomplete work. Please note the college's policy on incompletes as stated in the college catalog.

It will be assumed that you entered college to better your life through lifelong learning opportunities. The work that you produce in this class must be original and authentic. Should dishonesty or misconduct be discovered, the student will receive a grade of "F" for the course, as well as action taken against the student at the administrative level.

Requirements and final evaluation: A student's final grade will be based on the following.

16 quizzes @ 40 points each.....	640
16 case studies @ 10 points each.....	160
TOTAL.....	800

ATTENDANCE POLICY:

Although this is an online class, students are expected to "attend class" each day by working to complete the assignments in a timely manner. Late assignments will not be accepted.

LECTURE

SCHEDULE:

- WK 1: Chapter 2: Inflammation and Healing
- WK 2: Chapter 3: Immunity
- WK 3: Chapter 4: Infection
- WK 4: Chapter 5: Neoplasms
- WK 5: Chapter 17: Blood and Lymphatic Disorders
- WK 6: Chapter 18: Cardiovascular Disorders
- WK 7: Chapter 19: Respiratory Disorders
- WK 8: Chapter 20: Digestive System Disorders
- WK 9: Chapter 21: Urinary System Disorders
- WK 10: Chapter 22 and 23: Nervous
- WK 11: Chapter 24: Disorders of Eye and Ear
- WK 12: Chapter 25: Endocrine Disorders
- WK 13: Chapter 26: Musculoskeletal Disorders
- WK 14: Chapter 27: Skin Disorders

COMPETENCIES:

BLOOD FLOW, BODY FLUIDS, INFLAMMATION/REPAIR, AND IMMUNITY

1. Identify the four causes of edema and explain the physiologic cause of each.
2. Tell why hemorrhage occurs and the roll of vitamin K, heparin, fibrin, and platelets.
3. List the three causes of thrombosis and the three possible outcomes of a thrombus.
4. Define the process of fibrinolysis.
5. Tell the significance and effects of embolism.
6. Tell the difference between an arterial and venous infarct.
7. Describe the process of arteriosclerosis and atherosclerosis. Be able to differentiate between the two.
8. Tell the factors involved in essential hypertension.
9. Tell why water balance is important in the body.
10. Define osmosis, cations, and anions. Tell which is the chief constituent of cellular and which of extra-cellular compartments.
11. Tell the importance of hydrogen ions in the body, and normal limits of acid-base balance. Identify the three buffer systems of the body and tell how each one operates.
12. Define shock and tell the three causes of it. Describe a person in shock.
13. Know the definitions of the following terms:
 - Hematoma
 - Petechiae
 - Atherosclerosis
 - Aneurysm
 - Hemophilia
 - Thrombus
 - Embolism
 - Vegetation
 - Collateral Circulation
 - Infarct
 - Coarctation
 - Gangrene
 - Ischemic
 - Essential Hypertension
 - Malignant
 - Stenosis
 - Sclerosis
 - Acidosis (metabolic and respiratory)
 - Alkalosis (metabolic and respiratory)
 - Electrolyte
 - Dehydration
 - Necrosis
14. Define inflammation and tell what purpose it attempts to serve.
15. List five symptoms of inflammation and tell why each occurs.

16. Tell the role in the inflammatory process of:
 - Polymorphonucleated Cells
 - Macrophages
 - Lymphocytes and Plasma Cells (producers of antibodies)
 - Fibrin
 - Granuloma
 - Hyluronic Acid
17. Tell the two things necessary before healing can occur.
18. Tell how a scar is formed. Tell its advantages and disadvantages.
19. Tell the two aspects of healing.
20. List five factors affecting wound healing and four principles of treatment.

21. Know the definitions of the following terms:
 - PMN Cells
 - Macrophages
 - Phagocytosis
 - Diapedesis
 - Pyrogen
 - Septicemia
 - Pus
 - Abscess
 - Cellulitis
 - Carbuncle
 - Contact Inhibition
 - Fibroblast
 - Plasma Cell
22. Describe the antigen-antibody response.
23. Define gamma globulins.
24. Define IgG and tell what it is directed against.
25. Tell the role of the thymus gland in immunity.
26. Define anaphylaxis.
27. Define delayed sensitivity.
28. Tell why agammaglobulinemia is dangerous.
29. Tell why organ transplants do not always “take.”
30. Explain the principle of autoimmune diseases.
31. Know the definitions of the following terms:
 - Serum
 - Specificity
 - Immunity
 - Complement
 - Mast cell
 - Histamine
 - Antihistamine
 - Arthus reaction
 - Autogenous Transplants
 - Heterologous Transplants
 - Anergic

BACTERIAL INFECTIONS, VIRUS AND RICKETTSIAE, FUNGAL INFECTIONS, AND ANIMAL PARASITES

1. Distinguish between saprophytes and parasites, and tell how this relates to bacterial infections.
2. Tell the three possible outcomes when microorganisms invade a host.
3. Tell the three ways infection is spread.
4. What four things are necessary for bacterial growth?
5. Explain why “The more an antibiotic is used, the less value it has.”
6. Tell about the habitat, mode of entry, and lesions of staphylococcal bacteria.
7. Tell the habitat and method of spread of streptococcal bacteria.

8. Be able to identify by its symptoms and course, the following infections:
 - Scarlet Fever
 - Rheumatic Fever
 - Erysipelas
 - Meningococcal Infection
 - Gonococcal Infection
 - Diphtheria
 - Whooping Cough
 - Tuberculosis
 - Syphilis
 - Typhoid
 - Shigella Dysentery
 - Cholera
 - Plague
 - Tularemia
 - Undulant Fever
 - Anthrax
 - The 3 Anerobic Diseases
9. Describe what a virus is, where it lives, and tell why antibiotics are ineffective against it.
10. Tell why a person may have a viral infection and no viral disease.
11. Why is immunity to viruses variable?
12. What are the chief characteristics of small pox and its present status?
13. What is the relationship of Herpes zoster (Shingles) and Varicella virus (Chicken Pox)?
14. Describe the current status of, incubation period of, three symptoms and complications of measles (Rubeola).
15. Tell three symptoms and the dangers of Rubella (German Measles).
16. What is the principle cause of death from flu?
17. Tell what body system is attacked by polio, its present status, and the difference between the Salk and Sabin virus.
18. How is rabies transmitted? What are the three main symptoms of rabies? What is the incubation period for rabies? What are Negri bodies?
19. What is the target organ of yellow fever? What is one chief symptom of yellow fever and how it is transmitted?
20. Tell the difference between the spread of infectious and serum hepatitis and the target organ.
21. Name the target organ of mumps.
22. Typhus: a rickettsia. Know what they are, their target organ and how they are spread.
23. Recognize by name only, the five other rickettsial diseases.
24. Know the definitions of the following terms
 - Host specificity
 - Tissue specificity
 - Bacteriophage
 - Cytopathic Effect
 - Inclusion Bodies
 - Interferon
 - Koplik's Spots
 - Superinfection

Herpes simplex

Psittacosis

Neurotropic

Zoonoses

25. Enumerate the conditions necessary for fungal growth, and tell what food supply a fungus uses.
26. Tell why the use of antibiotics has made mycotic diseases more prevalent.
27. Differentiate between the sources of superficial fungal infections.
28. Describe actinomycetes. Tell who get it and why.
29. Tell how histoplasmosis occurs geographically, how it is contracted, and what organ is affected. Differentiate between the two forms.
30. Moniliasis (Candidiasis, Thrush). Tell the organism that causes it, who it attacks, where it attacks, and what it looks like in the patient.
31. Be able to identify the following types of Tinea: corporis, capitis, cruris, pedis, and manus. Be able to tell which body part each affects, how they are spread, and their appearance.
32. Know the definitions of the following terms:
 - Mycoses
 - Mycotic
 - Blastomycosis
 - Coccidioidomycosis
 - Epidermophyton
 - Griseofulvin
 - Paronychomycosis
33. Tell the typical life cycle of most animal parasites, and what is meant by “definitive host” and “intermediate host.”
34. Recognize the name of the protozoan which causes amebic dysentery and tell how this dysentery is spread.
35. Tell the world wide significance of malaria. Tell what causes a rigor. Tell the life cycle of the plasmodium and the double role of the anopheles mosquito. What is the main symptom of the patient?
36. List the three groupings of the parasitic helminthes (worms).
37. Tell the importance of hookworm, how it is spread, and why it is so hazardous to your health.
38. Tell how these parasites are found, how they are spread, and where they live within their host: roundworm, pin worm, muscle worm.
39. Tell how tapeworms get from their intermediate to definitive host.
40. Tell how scabies and pediculi spread.
41. Know the definitions of the following terms:
 - Rigor
 - Anopheles
 - Tsetse fly
 - asis (suffix)
 - elephantiasis
 - anthelmintic

NEOPIASIA, INHERITED DISEASES, HEART, BLOOD VESSELS, AND LUNGS

1. Be able to define: hyperplasia, hypertrophy, atrophy, dysplasia, hypoplasia, aplasia, and neoplasm.
2. Explain why cancer is a disorder of cell growth. Tell what the “nitrogen trap” is.
3. Tell why there will never be one “cause for cancer.”
4. What are the factors involved in “getting” cancer?
5. Explain what is meant by “Throughout life we seem to swim in a sea of carcinogens.”
6. List five characteristics of malignancy.
7. Malignant tumors—What are carcinoma and sarcoma? Characterize: malignant, melanoma, glioma.
8. Explain four ways of laboratory diagnosis of cancer.
9. What is spontaneous regression?
10. Name two ways of treating cancer.
11. Put into one sentence the concept of Beadle and Tatum.
12. Tell how mutations occur.
13. Tell about modes of inheritance. Identify: dominant, recessive, sex-linked, and reduction division.
14. Tell characteristics of: Klinefelter’s syndrome, Turner’s syndrome, Marfan’s syndrome, and Trisomy-21.
15. Explain the concept of multiple-gene dosage and tell why gout fits this concept.
16. Tell how a genetic disorder can be treated.
17. Know the definitions of the following terms:
 - Penetrance
 - Autosomal recessive
 - Autosomal dominant
 - Allelomorphs
 - somy (suffix)
18. Review anatomy of the heart, giving function of mitral valve, tricuspid valve, aortic and pulmonary valves, pericardium, SA node, bundle of His, vagus nerve, sympathetic nerves, ventricular rhythm.
19. Be able to define and give the danger (if any) auricular fibrillation, ventricular fibrillation and Stokes-Adams heart block.
20. Tell role of peripheral resistance; compensation mechanism.
21. Tell in general why enzyme tests are useful diagnostic tests.
22. Of the five listed reasons (risk factors) predisposing to coronary artery disease, tell why each one is a factor.
23. Of the eight listed complications of infarct, tell why each should be treated.
24. Tell why it should be the left ventricle that suffers as a result of hypertension. (Skip congenital heart disease.)
25. Under valvular disease: Review stenosis and sclerosis. Explain why the left atrium and right side of the heart should enlarge in mitral stenosis.
26. Tell what would be the resulting problem of mitral insufficiency.
27. What is the usual lesion in aortic stenosis and what is its result? Explain why the left ventricle is hypertrophied in aortic insufficiency.
28. In rheumatic heart disease, why is it said that it “bites the heart?” Be able to identify six or seven factors involved.
29. What is the most striking feature of bacterial endocarditis and what causes it?

30. Of the twelve symptoms of heart disease, explain the significance of each.
31. Know the definitions of the following terms:
 - Panocarditis
 - Pericarditis
 - Vegetations (clumps of bacterial growth)
 - Petechiae
 - Syncope
 - Thrombosis
 - Infarct
 - Embolism
 - Atherosclerosis
32. Discuss the physiology of the blood vessels (arteries and veins).
33. Tell the process of arteriosclerosis and what its predisposing factors are.
34. Tell the effect of salt on hypertension.
35. Tell the underlying lesion of aneurysm and what a dissecting aneurysm is.
36. Discuss the factors which cause varicose veins.
37. Know the definitions of the following terms:
 - Atheroma
 - Arteriosclerosis
 - Intima
 - Adventitia
 - Media
 - Thromboangitis obliterans
 - Buerger's Disease
 - Raynaud's Disease
 - Claudication
 - Phlebitis
 - Thrombosis
 - Varicosity
 - Hemorrhoids
 - Thrombophlebitis
38. Review the physiology of the lungs, including the two pulmonary circulations.
39. Review the compensatory mechanism of acidosis by the lungs.
40. Tell the mechanism of each of the five protective barriers to the lungs and where the mechanisms are ineffective.
41. Give three differences between bacterial pneumonia and bronchopneumonia.
42. Account for six symptoms for any type of pneumonia.
43. Explain why viral influenza leads to super-infection.
44. Explain symptoms of aspiration and embolic type of lung abscess.
45. Explain the four possible outcomes from re-infection of tuberculosis.
46. Explain the obstructive element of chronic bronchitis.
47. What is the main problem in emphysema and in what way does this make it such an agonizing disease?
48. Explain the present importance of lung cancer, and the main diagnostic method. Give the chief feature of lung cancer and explain the four given symptoms.
49. Explain the psychosomatic facet of asthma.

50. Know the definitions of the following terms:

Pulmonary Hypertension
Respiratory Center
Surfactant
Coryza
Leucocytosis
Caseation
Miliary Tuberculosis
Galloping Consumption
Ghon Complex
Hemostasis
Pneumoconiosis
Silicosis
Anthracosis
Asbestosis
Pneumothorax

UPPER DIGESTIVE TRACT, LOWER GASTROINTESTINAL TRACT, LIVER/GALLBLADDER, AND PANCREAS/DIABETES
--

1. What seems to be the common factor in carcinoma of the lip, tongue, and mouth?
2. What is a crypt? Name the usual organism causing tonsillitis.
3. Be able to tell the cause of mumps, the target organ, how it is transmitted, its incubation period, and its three main symptoms. What is orchitis?
4. Identify four main parts of a tooth.
5. Why are caries a disease of civilization?
6. What is the lesion of caries?
7. What causes hiatal hernia? What do its symptoms mask as?
8. What is the connection between stress and the stomach? Why would vagotomy relieve an ulcer?
9. What is the result of too little hydrochloric acid in the stomach? What is the condition called?
10. What is the cause of acute gastritis?
11. What is the chief lesion of peptic ulcer?
12. What is the relation of food to peptic ulcer?
13. What three things can be learned by gastric analysis?
14. How can you tell by gastric analysis whether a person has gastric ulcer, cancer, or pernicious anemia?

15. Know the definitions of the following terms:
 - Acinar (acina)
 - Parenchyma
 - Peridontitis
 - Gingivitis
 - Melena
 - Achalasia
 - Strangulation of bowel
 - Hematemesis
 - “coffee grounds emesis”
 - occult blood
16. Identify eleven parts of the lower GI tract and name the four layers of the intestine.
17. Name the common causes of dysentery and tell what accounts for the main symptom.
18. What are four symptoms of ulcerative colitis, its pattern of occurrence, and its psychic (psychosomatic) component?
19. Tell how regional enteritis (Crohn’s disease) derives its name, and the basis of its symptoms.
20. What is the leading cause of appendicitis and the usual course of the disease? What is the main complication?
21. Account for the five symptoms of appendicitis.
22. Define diverticulum, diverticulosis, and diverticulitis.
23. What symptoms do the malabsorption syndromes have in common? What is the cause of spruce?
24. Describe hernia, its cause and its danger. Where are the five common locations of hernia?
25. Be able to explain the following bowel conditions? (Not simply define the word, but account for the symptoms)
 - Constipation
 - Diarrhea
 - Scybala
 - Mucus
 - Pus
 - Blood
 - Paleness of Stool
 - Fat in feces
26. Review the anatomy of the liver, its circulation (two sources of blood supply) and four of its functions. Know the products that it secretes.
27. What causes the symptoms of jaundice and what causes the three types of jaundice?
28. Tell the three causes of necrosis of the liver. How does regenerative capacity enter the picture?
29. What organisms cause liver infections and abscesses?
30. What are the causes of viral hepatitis? What is its importance to the health picture in the United States?
31. Tell the cause, complications, and course of cirrhosis.
32. What causes most diseases of the gallbladder and bile ducts?
33. Know the definitions of the following terms:

Portal circulation
Bilirubin
Jaundice
Hepatomegaly
Hepatitis
Circulation
Hepatic coma
Hepatocarcinoma
Cholecystitis
Cholelithiasis

34. Review the function of the pancreas, naming its three digestive enzymes and two hormones.
35. Tell what four things may destroy the endocrine function of the pancreas.
36. What are the three kinds of pancreatitis and its symptoms?
37. Where do tumors of the pancreas occur?
38. What accounts for the three symptoms of diabetes? Tell about the general syndrome and the course of the disease.
39. Describe the main problems about cystic fibrosis.
40. Know the definitions of the following terms:
 - Trypsin
 - Amylase
 - Lipase
 - Insulin
 - Glucagon
 - Diabetes insipidus
 - Ketone bodies
 - x
 - Sweat test

KIDNEY, MALE GENITAL TRACT, FEMALE REPRODUCTIVE TRACT, AND ENDOCRINE SYSTEM
--

1. What are two functions of the kidneys?
2. How does the urinary bladder form the gallbladder?
3. What takes place in the glomerulus?
4. What takes place in the convoluted tubule?
5. What takes place in the collecting tubules?
6. How are blood pressure and passage of urine connected?
7. What does the presence of albumin in the urine indicate and why?
8. About how much urine is passed per day (24 hours) and why would this vary?
9. How do the kidneys help maintain acid-base balance?
10. What determines the specific gravity of urine?
11. What are normal values of specific gravity of urine and why would they vary?
12. In pyelonephritis, where is the inflammation located?
13. What are the causes of pyelonephritis and what are predisposing reasons?
14. What is the most common symptom of pyelonephritis and why is this true?

15. What would be the cause of death in pyelonephritis?
16. How does chronic pyelonephritis differ from acute?
17. Explain why "obstruction leads to stasis and stasis predisposes to infection" is true in the kidney.
18. What would be the best method of diagnosing pyelonephritis?
19. Why is tuberculosis of the kidney so difficult to diagnose?
20. What would nephrosclerosis mean and at what age of life would this be apt to happen?
21. How much kidney can be tolerated before symptoms are noticed and why is this fact true?
22. How does malignant hypertension affect the kidney?
23. Why does occlusion of a renal artery lead to hypertension?
24. What is rennin? Where is it produced? What is the effect of its release?
25. What organ, at the microscopic level, is affected by acute glomerulonephritis? What is the current belief of its origin?
26. What are the four main symptoms of glomerulonephritis and what causes them?
27. What symptom is significantly absent in glomerulonephritis?
28. What are the two usual outcomes of glomerulonephritis?
29. What part of the nephron is affected in acute trauma to the kidney? (Kidney shock)
30. What happens in tubular necrosis and is this process reversible?
31. Why would dialysis be life-saving in renal failure?
32. Why would mismatched transfusions and jaundice cause kidney failure?
33. What three symptoms characterize the nephrotic syndrome?
34. Define: Anasarca, Proteinuria, and Hypoalbuminemia
35. When the kidney is unable to excrete nitrogen compounds in uremia, what four products remain in the blood and how do these affect the central nervous system?
36. Failure of the kidney to excrete potassium in uremia results in what problem?
37. Failure of the kidney to excrete sodium and phosphates in uremia, results in what two problems?
38. Why does anemia occur in uremia?
39. List four possible causes of kidney stones?
40. What is the chief symptom of a kidney stone.
41. What is the most common indication of a tumor of a kidney?
42. Characterize Wilms' Tumor.
43. What are possible causes of carcinoma of the urinary bladder?
44. What is the main problem of polycystic kidney?
45. There are ten listed tests for urine. Know in a general way, what these tests show.
46. Be able to tell five predisposing causes of prostatitis.
47. Why would prostatitis symptoms be reflected by urinary problems?
48. What is the relation of bone pain to prostatic cancer?
49. What does acid phosphatase present in blood indicate?
50. Why would sterility often be a result of epididymitis?
51. What is teratoma?
52. Review structure and function of the organs of the female reproductive system.
53. Characterize a leiomyoma as to type of tissue, size, time of appearance, and three possible consequences.

54. Characterize carcinoma of the cervix as to presenting symptoms, possible etiology and rate of growth.
55. Characterize endometrial adenocarcinoma for age of occurrence, presenting symptom, possible cause, presence or absence of pain.
56. Where does chorioepithelioma arise? How does it spread and what must precede it? Why would an HCG test be positive?
57. What does a hydatidiform mole look like? From what is it formed and what is the test that it had become malignant?
58. What is the usual cause of endometritis?
59. What is the cause of endometriosis.
60. What is the usual present day cause of puerperal sepsis?
61. What are the two characteristics of the cervix that predispose to endocervicitis?
62. Name the two organisms causing salpingitis. What is the result of salpingitis?
63. What is retained in a "retention cyst" of the ovary? How is a cystadenoma different from a retention cyst?
64. What is the connection between vaginal adenocarcinoma and diethylstilbestrol?
65. How are the breasts affected by cyclic hormone changes?
66. What is the cause of mammary dysplasia or cystic hyperplasia and what is its relation to mammary cancer? Is it painful?
67. Characterize fibroadenoma of a breast as to cause, prognosis, age of occurrence, and how it feels on palpation.
68. It is difficult to make any one general statement about breast cancer, except that "it is wise to regard every lump in the breast, to be malignant, until it has been proven to be _____."
69. Know the definitions of the following terms:
 Expoliative cytology
 Submucous fibroid
 Subserous fibroid
 Anaplasia
 Carcinoma in site
 Follicular cyst
 Prolactin
 Menorrhagia
 Metrorrhagia
 Cervical erosions
 Pyrosalpinx; Hydosalpinx
 Ectopic pregnancy
 Teratoma
 Scirrhoris
70. Be able to tell what a hormone is and what an endocrine gland is.
71. How big is the pituitary gland and where is it located? What is its role?
72. Be able to tell the use of each of the six hormones of the anterior lobe of the pituitary gland.
73. Tell the use of the two hormones of the posterior lobe of the pituitary gland.
74. Tell the cause of gigantism and acromegaly and recognize them by their symptoms.

75. Tell the cause of and appearance of a person with pituitary dwarfism and Simmond's disease.
76. What is the connection between a tumor of the pituitary gland and hemianopia?
77. What is the relation of the adrenal glands and stress?
78. What is the importance of aldosterone? What is the role of the corticoids in an inflammatory response?
79. Tell what effect is produced by the stimulation of the adrenal medulla. Remember this is the same as asking "What is the response of the sympathetic nervous system?"
80. What is the common name for Addison's disease? Since the person lacks aldosterone and glucocorticoids what two symptoms would you expect?
81. What are the three resulting disorders of hyperthyroidism?
82. Medullary hyperfunction is due to what?
83. What is the chief function of the thyroid gland?
84. What are the three causes of endemic or non-toxic goiter? What is the main symptom of each? What do the three causes have in common?
85. Be able to identify Grave's disease by its eight symptoms and its cause.
86. Tell what causes cretinism and be able to identify it by its description.
87. Tell what causes myxedema, at what age, and identify it by its characteristics.
88. What is the task of the parathyroid glands? Be able to identify hyperthyroidism from seeing a list of its consequences—"bones, stones, and intestinal moans."
89. A low content of calcium in the blood causes what condition?

BLOOD AND LYMPH AND THE NERVOUS SYSTEM

1. Tell the advantage of the shape of the red blood cell.
2. Tell where red blood cells are made, their life-span, and significance of their lack of a nucleus.
3. Tell what hemoglobin is and how it differs from hematocrit.
4. Tell the function of each type of leucocyte and what is meant by a differential count.
5. What is the purpose of the platelet?
6. Why is hemolysis the danger of blood transfusion? What are the symptoms of hemolysis?
7. What is the cause of erythroblastosis fetalis and what is its alternate name?
8. What is the cause of pernicious anemia, explained in terms of the extrinsic and intrinsic factors?
9. Why is pernicious anemia an example of a macrocytic anemia? What does the presence of reticulocytes mean?
10. How do you account for the following symptoms in pernicious anemia? Absence of HCl, Paleness, Dyspnea? What does vitamin B-12 do for the symptoms of the nervous system?
11. What is the clinical picture microcytic hypochromic anemia?
12. What is the basis of hemolytic anemia?
13. Why is jaundice a symptom of spherocytic anemia? Why is reticulocytosis a feature of sickle cell anemia?
14. How does thalassemia acquire its name?
15. What is the clinical and laboratory picture of polycythemia vera?

16. Differentiate between bleeding and clotting time and how they affect hemophilia and purpura.
17. How do myelogenous and lymphatic leukemia differ?
18. What is the condition of lack of granulocytes in the blood called and what is the result?
19. How does sarcoidosis involve the lymph system?
20. Why is infectious mononucleosis a disease of the lymphatics?
21. What is the relation of Hodgkin's disease to the reticuloendothelial system?
22. There are two unusual characteristics of nerve cells. What is the advantage or disadvantage of each?
23. What is the process of demyelination? What is chromatolysis?
24. What is the neuroglia?
25. What is the possible significance of chemical changes to brain function?
26. What is the connection between the cerebrospinal fluid and hydrocephalus?
27. Identify by location, the three layers of the meninges and also the subarachnoid space.
28. What are the three causes of "stroke" or CVA and what characterizes each cause?
29. Tell the results of each of the three types of intracranial hemorrhages.
30. Why would relieving pressure inside the skull be helpful in edema of the brain?
31. Discuss the clinical picture of: brain abscess, meningitis, and syphilis.