

Bio 121 *ty*

SAULT COLLEGE - DIPLOMA NURSING

CLINICAL NURSING THEORY

1981/82

NURSING

YEAR I, SEMESTER II

UNIT: BIOLOGY

OBJECTIVES

LEARNING RESOURCES

B. Circulatory & Lymphatic Systems

1. Blood

- a) define the words associated with the Circulatory System
- b) describe the constituents of blood
- c) state the normal values in the human body of the following:
 - i) erythrocytes
 - ii) leukocytes
 - iii) thrombocytes
 - iv) hemoglobin
 - v) hematocrit
- d) describe the adaptive mechanisms of hemostasis
- e) discuss clotting time, bleeding time & prothrombin time.
- f) describe the ABO blood group system on the basis of their antigen-antibody components.
- g) describe the Rh factor
- h) explain the significance of cross-matching on the basis of agglutination.

Read Chapter 10

2. Heart & Blood Vessels

- a) describe the structure and function of the heart.
- b) trace the flow of blood through the heart & lungs from Superior & Inferior vena cavae to the aorta.
- c) describe the conduction system of the heart.
- d) describe the nervous control of the heart.
- e) describe the blood supply of the heart.

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<ul style="list-style-type: none"> f) explain the structural characteristics & the functions of arteries, capillaries and veins. g) identify major arteries and veins in the human body. h) describe portal circulation. i) describe pulmonary circulation j) describe systemic circulation by tracing the flow of blood from the heart to different areas of the body & back again. 	
<p>3. <u>Lymphatic System</u></p> <ul style="list-style-type: none"> a) define the words associated with the Lymphatic System. b) describe the structure, location & function of parts of the lymphatic system. <ul style="list-style-type: none"> i) capillaries ii) vessels iii) ducts iv) nodes c) describe lymphatic circulation d) describe the structure, location & function of the spleen, tonsils & thymus. 	<p>Read Chapter 11</p>
<p>4. <u>Development of the Circulatory & Lymphatic Systems</u></p> <ul style="list-style-type: none"> a) describe the embryonic development. b) describe the effects of aging c) discuss ways to improve life during the aging process. 	

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<p>C. <u>Respiratory System</u></p> <ol style="list-style-type: none"> 1. Define the words associated with the respiratory system. 2. Describe the structure, location & function of the organs of the respiratory system. <ol style="list-style-type: none"> a) nose b) pharynx c) larynx d) trachea e) bronchi f) lungs 3. Discuss the function of the diaphragm, intercostal muscles, ribs & sternum in the act of ventilation (breathing) 4. Describe the mechanisms involved in inspiration and expiration 5. Explain the process of gas exchange: <ol style="list-style-type: none"> a) external respiration b) internal respiration 6. Explain the transportation of O₂ & CO₂ 7. Describe the control of respirations: <ol style="list-style-type: none"> a) nervous stimuli b) chemical & pressure stimuli 8. Explain the importance of cardio-pulmonary resuscitation. 9. Development of the respiratory System: <ol style="list-style-type: none"> a) describe the embryonic development b) describe the effects of aging c) discuss ways to improve life during the aging process 	<p>Read Chapter 12</p> <p>Review Pulmonary circulation</p>

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D. The Urinary System

Read Chapter 14

1. Define the words associated with the urinary system.
2. Describe the structure, location & function of the organs of the urinary system.
 - a) kidneys
 - b) ureters
 - c) urinary bladder
 - d) urethra
3. Describe the blood and nerve supply.
4. Describe the structure & function of the nephron.
5. Describe the process of urine formation.
 - a) glomerular filtration
 - b) tubular reabsorption
 - c) tubular secretion
6. Explain aldosterone and A.D.H. influence on the kidneys.
7. Describe the physical characteristics of normal urine.
8. Discuss the normal & abnormal constiuence of urine.
9. Describe the process of micturition
10. Development of the Urinary System
 - a) describe the embryonic development
 - b) describe the effects of aging
 - c) discuss ways to improve life during the aging process.

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<p>E. <u>Fluid, Electrolytes & Acid-Base Balance</u></p> <ol style="list-style-type: none"> 1. Define the words associated with Fluid, Electrolytes & Acid-Base Balance. 2. Describe the body fluid compartments. 3. Describe water percentage according to age & amount of fat present. 4. Describe fluid intake & output. 5. Differentiate between electrolytes and nonelectrolytes. 6. Describe electrolyte concentration and distribution in the fluid compartments. 7. Explain the functions & regulations of the major electrolytes. 8. Describe the movement of fluid between the three body fluid compartments. 9. Describe the mechanisms which regulate body fluids. 10. Explain the buffer systems in maintaining the acid-base balance of the body. 11. Explain the roles of the respiratory & urinary systems in maintaining a normal acid-base balance. 12. Describe briefly respiratory acidosis and alkalosis. 13. Describe briefly metabolic acidosis and alkalosis. 	<p>Read Chapter 16</p>

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<p>F. <u>The Gastrointestinal (Digestive) System</u></p> <ol style="list-style-type: none"> 1. Define the words associated with the gastrointestinal system. 2. Describe the location, structure & functions of the organs of the digestive system. <ol style="list-style-type: none"> a) mouth (oral cavity) b) pharynx c) esophagus d) stomach e) small intestine f) large intestine (colon) 3. Discuss the structural layers of the gastrointestinal tract. 4. Describe the location, structure & functions of the accessory organs of the gastrointestinal system. <ol style="list-style-type: none"> a) teeth & tongue b) salivary glands c) liver d) gall bladder e) pancreas f) vermiform appendix 5. Describe the digestive processes as they relate to the organs and accessory organs of the gastrointestinal system. <ol style="list-style-type: none"> a) mechanical digestion b) chemical digestion c) absorption d) defecation 	<p>Read Chapter 13</p>

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<ol style="list-style-type: none"> 6. Describe the absorption from the stomach, small intestine and large intestine. 7. Describe the circulation of absorbed food stuffs in blood & lymphatics. 8. Describe the normal composition & characteristics of feces. 9. Describe the metabolic processes of fats, carbohydrates and proteins. <ol style="list-style-type: none"> a) anabolism of each b) catabolism of each 10. Describe the relationship of foods to body heat. 11. Describe the mechanisms of heat gain and loss. 12. Development of the Gastrointestinal System. <ol style="list-style-type: none"> a) describe the embryonic development b) describe the effects of aging c) discuss ways to improve life during the aging process. 	<p>Relate to Metabolic rate at various ages.</p>
<p>G. <u>The Reproductive System</u></p> <ol style="list-style-type: none"> 1. Define the words associated with the reproductive system. 2. Describe the location, structure & function of the male organs of reproduction. <ol style="list-style-type: none"> a) scrotum b) testes c) epididymis d) vas deferens e) seminal vesicle f) ejaculatory duct 	<p>Read Chapter 17</p>

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<ul style="list-style-type: none"> g) prostate h) bulbourethral glands i) penis j) urethra <ol style="list-style-type: none"> 3. Describe the components and production of seminal fluid. 4. Describe the structure of the spermatozoa. 5. Explain the hormonal control of the male sex characteristics & the reproductive functions. 6. Describe the nervous control of the male reproductive organs. 7. Describe the location, structure & function of the female organs of reproduction. <ul style="list-style-type: none"> a) vagina b) Bartholin's glands c) uterus d) fallopian tubes e) ovaries f) vulva and perineum g) mammary glands 8. Describe how the uterus and ovaries are supported in the pelvic cavity. 9. Identify the major muscles of the perineum and discuss their function. 10. Describe the structure of the ova. 11. Explain the hormonal control of the female sex characteristics and the reproductive functions. 	<p>1. Describe the structure and function of the male reproductive system.</p> <p>2. Describe the structure and function of the female reproductive system.</p> <p>3. Describe the hormonal control of the male and female reproductive systems.</p> <p>4. Describe the nervous control of the male and female reproductive systems.</p> <p>5. Describe the support of the uterus and ovaries in the pelvic cavity.</p> <p>6. Describe the major muscles of the perineum and their function.</p> <p>7. Describe the structure and function of the ova.</p> <p>8. Describe the hormonal control of the female sex characteristics and the reproductive functions.</p>

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<p>12. Explain the menstrual cycle when:</p> <ol style="list-style-type: none"> fertilization does not occur fertilization does occur <p>13. Describe the nervous control of the female reproductive organs.</p> <p>14. Development of the Reproductive System.</p> <ol style="list-style-type: none"> describe the embryonic development describe the effects of aging discuss ways to improve life during the aging process. <p><u>H. Development and Inheritance</u></p> <ol style="list-style-type: none"> Describe the process of gamete formation. <ol style="list-style-type: none"> chromosome number spermatogenesis oogenesis Discuss the process of sexual intercourse. Identify the bones, landmarks and measurements of the pelvis. Discuss the changes that occur to the articulations and ligaments of the pelvis during pregnancy. Describe the 4 types of female pelvis: <ol style="list-style-type: none"> gynecoid anthropoid android platypelloid 	

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<p>6. Discuss the implications of the pelvis in the mechanism of delivery.</p> <p>7. Discuss the sequence of events involved in pregnancy.</p> <p> a) fertilization</p> <p> b) implantation</p> <p> c) embryonic growth</p> <p> d) fetal growth</p> <p>8. Describe the development of the placenta.</p> <p>9. Describe movement across the placenta.</p> <p>10. Describe & state the function of the amnion and chorion.</p> <p>11. Describe fetal circulation</p> <p>12. Discuss the hormones of pregnancy</p> <p>13. Describe the signs of pregnancy.</p> <p> a) presumptive</p> <p> b) probable</p> <p> c) positive</p> <p>14. Discuss the physiological changes of the body during pregnancy.</p> <p>15. Determine the significance of the following essential factors in the process of labour (4 P's - Psych, power, passenger, passageway)</p> <p>16. Define, describe & explain the 4 stages of labour.</p> <p>17. Describe the respiratory and cardiovascular adjustments of the newborn.</p>	<p>1. Explain the general cycle of life</p> <p>2. Describe the process of fertilization</p> <p>3. Describe the development of the embryo</p> <p>4. Describe the development of the fetus</p> <p>5. Describe the development of the placenta</p> <p>6. Describe the development of the amnion and chorion</p> <p>7. Describe fetal circulation</p> <p>8. Describe the hormones of pregnancy</p> <p>9. Describe the signs of pregnancy</p> <p>10. Describe the physiological changes of the body during pregnancy</p> <p>11. Determine the significance of the following essential factors in the process of labour (4 P's - Psych, power, passenger, passageway)</p> <p>12. Define, describe & explain the 4 stages of labour</p> <p>13. Describe the respiratory and cardiovascular adjustments of the newborn</p>

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18. Discuss the potential hazards to the developing embryo & fetus.
 - a) chemicals & drugs (include caffeine, alcohol)
 - b) irradiation
 - c) cigarette smoking
 - d) poor nutrition
19. Explain the physiology of lactation.
20. Discuss basic concepts of the passage of hereditary traits.
21. Discuss the inheritance of sex and X-linked inheritance.
22. Describe the common methods of birth control.

LEARNING RESOURCES

END OF SEMESTER 2.

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