### <u>Essentials of Anatomy and Physiology for Nursing Practice –</u> <u>Testbank</u>

### **Using This Testbank** This testbank has been designed to be used in conjunction with *Essentials of Anatomy* and Physiology for Nursing Practice by Jennifer Boore, Neal Cook and Andrea Shepherd. Correct answers for multiple choice questions are indicated with asterisks. 1. Match the following 1. Substances entering the cell 2. Waste products leaving the cell 3. Conditions which allow life to continue a. Steady temperature; pH between 7.35 and 7.45; electrolyte balance b. Oxygen; substances for building complex molecules; substances which act as energy sources c. Ammonia; carbon dioxide Answers: [b] 1. [c] 2. [a] 3.

2. Which of the following terms is used to describe the breakdown of complex molecules into simpler ones?

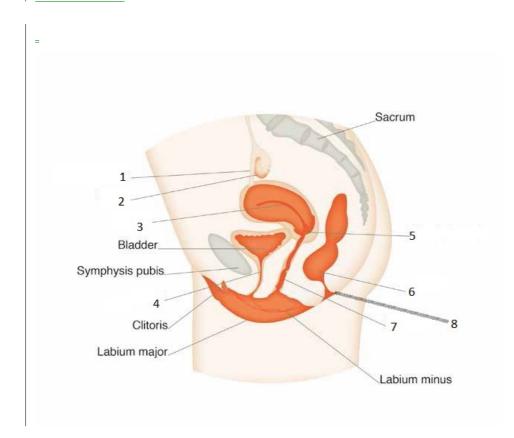
<u>a. Anabolism</u>
<u>b. Synthesis</u>
c. Homeostasis
*d. Catabolism
3. Is the following statement true or false? 'The basic building blocks of proteins are
phospholipids'
a. True
*b. False
4. What term is used to describe the metabolic mechanism whereby complex molecules
are manufactured from simpler molecules?
Answers:
<u>a. anabolism</u>
<u>b. anabolic</u>
5. Which of the following applies to a compound that is a sugar?
er men er me rene mig appries to a tempe and that is a sugar
*a. Because it is a sugar it can also be called a carbohydrate
b. It contains peptide bonds
c. It is a major component of the structural units of cells
d. All of the above are true
6. Which of the following molecules is the primary energy store in living cells?
a. DNA
<u>b. RNA</u>
c. Cyclic AMP
<u>*d. ATP</u>

*a. Homeostasis b. Equilibrium c. pH balance d. Oxidative phosphorylation  8. Which of the following pH ranges best matches the pH range found in the majority of body fluids?  a. 7.8–8.0 b. 7.15–7.65 c. 7.2–7.5 *d. 7.35–7.45  9. Which of the following lists the correct sequence of levels forming the structural hierarchy of the body?  a. Organ, organ system, cellular, tissue, organism b. Chemical, cellular, tissue, organ, organ system, organ system *c. Chemical, cellular, tissue, organ, organ system, organism
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<u>- c. chemical, contain, dissac, organ, organis jetem, organism</u>
d. Organism, organ system, organ, tissue, cellular, chemical
a. erganism, ergan system, ergan, ussae, eenaar, enemiear
10. Which of the following groups of organs are found in the abdominopelvic cavity?
a. Spinal cord, lungs, liver
b. Liver, stomach, heart
c. Brain, spinal cord, liver
*d. Gallbladder, stomach, small intestine

### 11. What does the term proximal mean when applied to an organ?

- a. The organ is nearer the front of the body
- \*b. The organ is nearer to the point of attachment of a limb, or origin of a body part
- c. The organ is further from the point of attachment of a limb, or origin of a body part
- d. The organ is nearer to the mid-line

### 12. Match the numbers on the diagram of the female pelvic region to the correct organs and structures

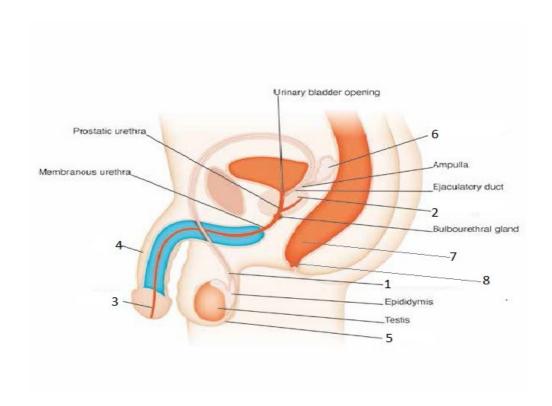


#### Answers:

### 1. Fallopian tube

- 2. Ovary
- 3. Uterus
- 4. Urethra
- 5. Cervix
- 6. Rectum
- 7. Vagina
- 8. Anal canal

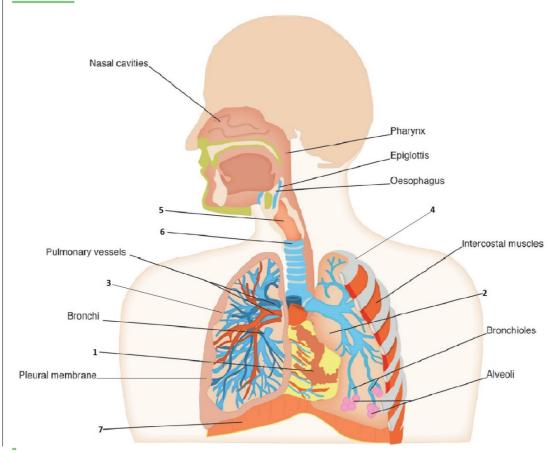
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- 1. Deferent duct
- 2. Prostate gland
- 3. Urethra

- 4. Penis
- 5. Scrotum
- 6. Seminal vesicles
- 7. Rectum
- 8. Anal canal

# <u>14. Match the numbers on the diagram of the respiratory system to the correct organs and structures</u>



- 1. Heart
- 2. Left lung
- 3. Right lung
- 4. Ribs
- 5. Larynx

6. Trachea 7. Diaphragm 15. Which of the following organelles of a cell increase the surface area to facilitate absorption of extracellular materials? a. Endoplasmic reticulum b. Cilia \*c. Microvilli d. Lysosomes Essentials of Anatomy and Physiology for Nursing Practice -**Testbank Using This Testbank** This testbank has been designed to be used in conjunction with Essentials of Anatomy and Physiology for Nursing Practice by Jennifer Boore, Neal Cook and Andrea-Shepherd. Correct answers for multiple choice questions are indicated with asterisks. 1. Match the following 1. Substances entering the cell 2. Waste products leaving the cell

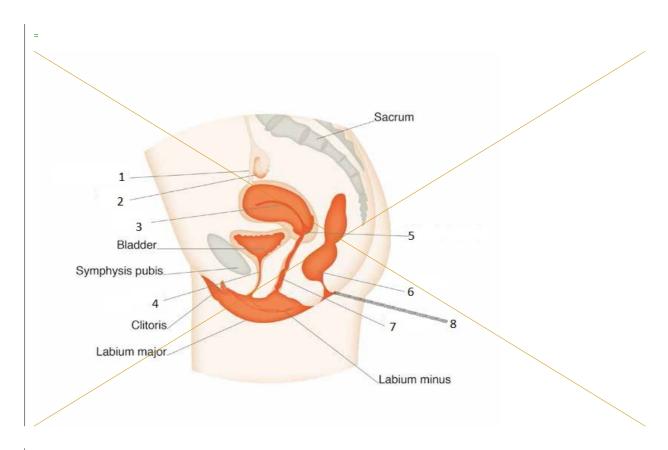
3. Conditions which allow life to continue

a. Steady temperature; pH between 7.35 and 7.45; electrolyte balance

b. Oxygen; substances for building complex molecules; substances which act
as energy sources
c. Ammonia; carbon dioxide
Answers:
<del>[b] 1.</del>
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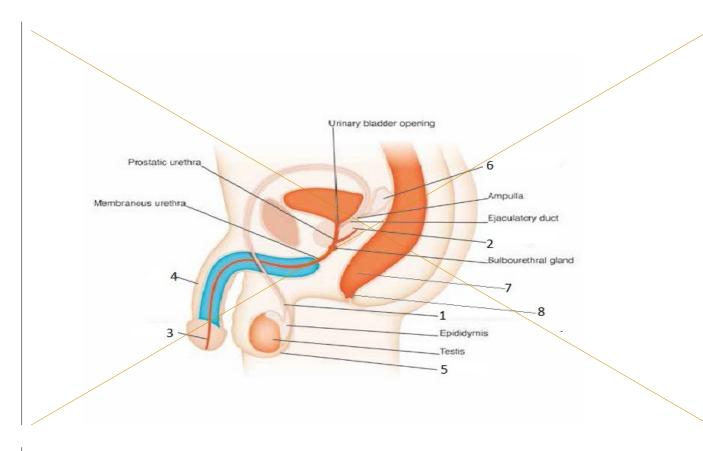
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b. RNA
e. Cyclic AMP
*d. ATP
7. What term is used to describe the maintenance of a constant internal environment in
the cell or body?
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b. Equilibrium
c. pH balance
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e. 7.2–7.5
*d. 7.35-7.45

	9. Which of the following lists the correct sequence of levels forming the structural
	hierarchy of the body?
	a. Organ, organ system, cellular, tissue, organism b. Chemical, cellular, tissue, organism, organ, organ system
	*c. Chemical, cellular, tissue, organ, organ system, organism-
	d. Organism, organ system, organ, tissue, cellular, chemical-
	10. Which of the following groups of organs are found in the abdominopelvic cavity?
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	b. Liver, stomach, heart
	c. Brain, spinal cord, liver
	*d. Gallbladder, stomach, small intestine
	11. What does the term proximal mean when applied to an organ?
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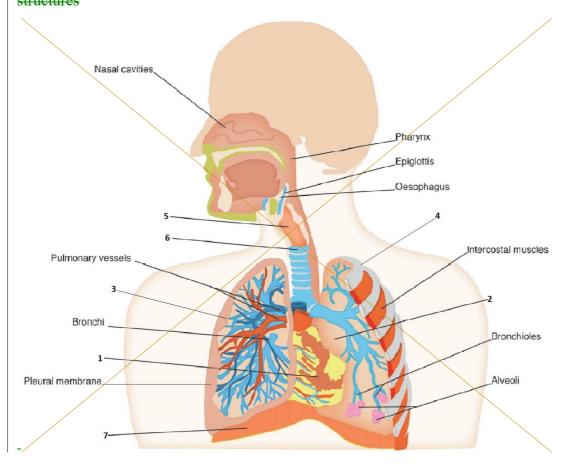
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- 1. Deferent duct
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### 14. Match the numbers on the diagram of the respiratory system to the correct organs and structures



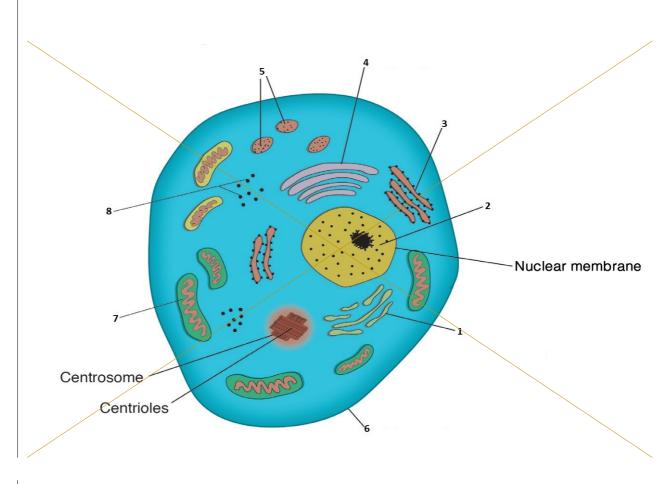
### Answers:

- 1. Heart
- 2. Left lung
- 3. Right lung
- 4. Ribs
- 5. Larynx
- 6. Trachea
- 7. Diaphragm

15. Which of the following organelles of a cell increase the surface area to facilitate absorption of extracellular materials?

a. Endoplasmic reticulum
b. Cilia
<u>*c. Microvilli</u>
d. Lysosomes
16. What would be the result if a cell lacked ribosomes?
a. It would be unable to move
*b. It would be unable to synthesise proteins
c. It would be unable to synthesise DNA
d. It would be unable to metabolise sugars
e. It would be unable to divide
17. Which compounds (1) form the inherited genetic material inside each cell and (2)
relay instructions from the genes to guide protein synthesis?
*a. DNA and RNA
b. DNA and ATP
c. RNA and ATP
d. ADP and ATP
18. Which cell organelle is the main location for the production of useable energy in the
form of ATP?
D'Il annual
a. Ribosome
b. Rough endoplasmic reticulum
c. Smooth endoplasmic reticulum
d. Golgi apparatus
*e. Mitochondrion

19. Which cell organelle contains enzymes that destroy invading microbes or other
harmful substances?
a. Mitochondrion b. Ribosome c. Centriole *d. Lysosome
20. Proteins are packaged for export in the secretory granules
a. True
*b. False  21. Match the names of each of the structures to the correct number on the diagram of the cell



- 1. Smooth endoplasmic reticulum
- 2. Nucleus
- 3. Rough endoplasmic reticulum
- 4. Golgi apparatus
- 5. Secretory granules
- 6. Plasma membrane

	7. Mitochondria
	8. Ribosomes
22. Consid	er a feedback loop where the stimulus is an increase in blood sugar. If the
feedback le	oop is a negative feedback loop, what would be the result of such a stimulus?
	a. Increase in blood sugar levels
	*b. Decrease in blood sugar levels
	e. Initial increase in blood sugar levels, followed by a decrease
	d. Initial decrease in blood sugar levels, followed by an increase
	s the term used to describe the maintenance of a constant internal
environme	nt?
Answers:	
	a. homeostasis
	b. homeostatic
24. What is	s result of the initial stimulus in a <i>positive</i> feedback loop?
	a. The stimulus is suppressed
	b. The stimulus is switched off
	c. There is no effect on the stimulus
	*d. The stimulus is amplified or exaggerated
25 In 2004	ome controlled by a costive feedback the effect or according to the first or according to the fi
	ems controlled by negative feedback, the effector response returns the level of
the stimulu	as towards its original level
	*a. True
	b. False

	26. Which of the following lists the correct sequence of messaging between the
	components of a control system?
	<ul> <li>a. Control centre, receptors, effectors</li> <li>*b. Receptors, control centre, effectors</li> <li>c. Receptors, effectors, control system</li> <li>d. Effectors, control system, receptors</li> </ul>
	27. Which of the following apply to the control centre?
	a. It sets the limits for a specific variable
	b. It integrates the information received with other information
	c. It sends instructions to change the action of the effector
	d. a. and c. above only
	*e. a., b. and c. above
	28. Receptors and communicate with the control centre to form a feedback system that regulates various internal conditions
	Answer:
	effectors
	29. Carbohydrates are broken down into their component parts by the process of anabolism
	a. True
	*b. False
	30. Match the following descriptions with the correct body system
	1. The system that processes sensory information

	2. The system that delivers nutrients to body tissues
	3. The system that breaks down and absorbs food
	4. The system that includes the fingernails
	5. The system that includes the bladder
	a. Urinary/renal
	b. Integumentary
	c. Digestive
	d. Cardiovascular
	e. Nervous
Answers:	
	<del>[e] 1.</del>
	<del>[d] 2.</del>
	[e] 3.
	<del>[b] 4.</del>
	<del>[a] 5.</del>
31. Which	two body systems function to regulate and control body activities?
	a. Cardiovascular and urinary
	b. Lymphatic and respiratory
	c. Reproductive and gastrointestinal
	*d. Nervous and endocrine
32. What t	term refers to study of the general structure of an organism?
Answers:	
	Anatomy

	Answer:
	Physiology
	34. Which of the following functions are carried out by the renal system in order to
	maintain a state of homeostasis within the body?
	*a. Maintenance of fluid and electrolyte balance
	*b. Maintenance of pH
	c. Supply of nutrients to the body
	*d. Excretion of nitrogenous waste products
	e. Fighting infection
	35. Which organ (the largest in the body) plays a major role in the regulation of body
	temperature?
	Answers:
	<del>a. Skin</del>
	b. The skin
	36. The cardiovascular system supplies oxygen and removes electrolytes from the body
	a. True
	*b. False
	37. The endocrine system provides information about the environment-
	a. True
	*b. False
	38. What is the term used to describe fluids located outside the cell membrane?

*a. Extracellular
b. Extranuclear
c. Intracellular
d. Cytoplasmic
39. Which of the following terms is used to describe the movement of oxygen from an
area of high concentration to an area of low concentration?
a. Osmosis
b. Active transport
*c. Diffusion
d. Passive transport
e. Filtration
40. Which compound acts as an energy source for active transport across the cell-
membrane?
A
Answers:
a. ATP
b. Adenosine tri-phosphate
c. Adenosine triphosphate
41. Glucose is moved into a cell, down a concentration gradient, using a carrier protein.
Therefore transport of glucose into the cell is an example of active transport
*a. True
b. False
42. What is the most abundant inorganic substance in the human body?
<del>a. Glucose</del>

<del>b. Fat</del>
*c. Water
<del>d. ATP</del>
e. Iron
43. Which of the following would best describe what is meant by 'diffusion'?
*a. The movement of a substance down a concentration gradient until
equilibrium is reached
b. The movement of a substance across the cell membrane against a
concentration gradient
c. The movement of a substance across the cell membrane by a carrier protein
d. The packaging of proteins for export out of the cell-
44. The term 'osmosis' refers to the movement of water across a semi-permeable
membrane which solute molecules cannot cross
*a. True
*a. True
*a. True
*a. True b. False
*a. True b. False  45. Which of the following are features of active transport?
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<del>a. liver</del>
b. gall bladder
47. Bile pigments arise from
a. The breakdown of platelets
*b. The breakdown of haemoglobin
c. The breakdown of proteins
d. The breakdown of liver cells
48. Bile salts fats and therefore promote digestion and absorption of fats
Answer:
1.0
<del>emulsify</del>
49. Complete the following statement
The acid chyme that enters the small intestine is neutralised by the
secretions from the pancreas
secretions from the panereas
Answer:
<del>alkaline</del>
<del>arkame</del>
50. Complete the following statement
The endocrine secretions of the pancreas regulate the metabolism of
Answer:
<del>glucose</del>
Gracosc

51. Identify from the following those statements that apply to the pancreas-
*a. Secretions are alkaline
*b. Secretions contain enzymes that digest fat
c. Secretions are acidic
*d. Secretions contain precursors of protein-digesting enzymes
e. Secretions enter the intestine through the pyloric sphincter
*f. Release of secretions is stimulated by the acid content of chyme
52. Nutrients other than fats are carried to the liver in the
a. Intestinal vein
b. Hepatic artery
c. Gastric artery
*d. Hepatic portal vein
53. The proteolytic enzymes arising from the pancreas
a. Are activated by intestinal secretions
b. Are secreted in precursor form
c. Digest carbohydrates in the intestine
d. b. and c. above
*e. a. and b. above
54. Complete the following statement
In the intestinal phase of the regulation of gastric secretion, the chyme
entering the intestine stimulates secretion of a hormone which
gastric activity
Answers:
a. decreases

	b. slows down
	c. inhibits
	<del>d. stops</del>
	e. slows
	f. reduces
<del>55. Сот</del>	plete the following statement
	The acid content of chyme entering the intestine stimulates hormone release
	which initiates secretion of
Answers:	<del>;</del>
	a. pancreatic juices
	b. pancreatic secretions
56 Comr	plete the following statement
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<del>56. Сот</del>	Sympathetic nervous activity gastric activity
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Answer:	
	intestinal
58. Comple	ete the following statement
	The plexus is within the submucosa and regulates the
	secretory activity of the endothelium
Answers:	
	a. submucosal
	b. Meissner's
	c. Meissners
59. Food e	ntering the stomach can initiate the gastro-colic reflex, where
	a. the contents of the colon are rapidly moved towards the rectum-
	b. the person feels the need to defecate
	c. it is strongest after breakfast
	d. a. and d. above
	*e. all of these
60. The ga	stric phase of gastric secretion is triggered by
	a. the sight, smell or thought of food
	*b. the entry of food into the stomach
	c. the entry of chyme into the small intestine
	d. the entry of chyme into the large intestine
	e. the release of cholecystokinin

61. Which of the following statements about the parasympathetic nervous system is not
true?
*a. It is active when the person is prepared for fight or flight
b. It enhances the motility of the gastrointestinal tract
c. It increases digestion and absorption
d. It includes the vagus nerve
62. Carbohydrate digestion begins in the
*a. Mouth
b. Oesophagus
e. Stomach
d. Duodenum
e. Ileum
63. Glycerol and fatty acids (recombined as triglycerides) take which of the following-
pathways into the blood?
a. Lacteals in villi, hepatic portal vein, liver
*b. Lacteals in villi, lymphatics, subclavian vein
e. Capillaries, lymphatics, hepatic portal vein
d. Lymphatics, lacteals in villi, subclavian vein
64. Match the nutrients with the products of digestion
1. Proteins
2. Carbohydrates
2. Carbohydrates 3. Fats

c. Glycerol and fatty acids
Answers:
[ <del>b] 1.</del>
<del>[a] 2.</del>
[c] 3.
65. Most products of fat digestion are absorbed into
a. Capillaries
b. Veins
*c. Lacteals
d. Arterioles
e. Interstitial fluid
66. Protein breakdown begins in the
Answer:
<del>stomach</del>
Stomach
67. When glucose levels are low, new glucose is made from
Answer:
<del>protein</del>
<del>protein</del> 
68. Which of the following organs is usually dependent on glucose as an energy source?
a. Heart
b. Stomach
*c. Brain

	d. Liver
69. Compl	ete the following statement
	The controls the movement of chyme into the small intestine
Answer:	
	pyloric sphineter
70. Compl	ete the following statement
	Contents of the gut are continually re-exposed to the intestinal wall by  movements
Answers:	
	a. segmentation
	b. segmenting
71. Lactea	<del>ls</del>
	a. Increase the surface area of the mucosa of the small intestine
	*b. Transport products of fat digestion from the small intestine to the blood
	c. Produce new cells for the mucosa of the small intestine
	d. Produce digestive enzymes
72. The lan	rge intestine carries out which of the following?
	a. Absorbs water, digests and absorbs proteins, synthesises vitamin K
	b. Absorbs mineral salts and vitamins, absorbs digested fats, moves contents
	into rectum by mass movement

e. Synthesises vitamin K, absorbs water, absorbs minerals and vitamins
\*d. Moves contents into rectum by mass movements, absorbs water and electrolytes, synthesises vitamin K

### 73. The small intestine carries out which of the following?

- a. Movement of intestinal contents towards the large intestine, protectionagainst infection by lymphoid tissue, eliminates waste products
- \*b. Absorption of nutrients, movement of intestinal contents towards the large intestine, protection against infection by lymphoid tissue
- c. Absorption of nutrients, completion of digestion of nutrients, absorbs water from chyme
- d. Protection against infection by lymphoid tissue, completion of digestion of nutrients, absorbs water from chyme

#### 74. The stomach

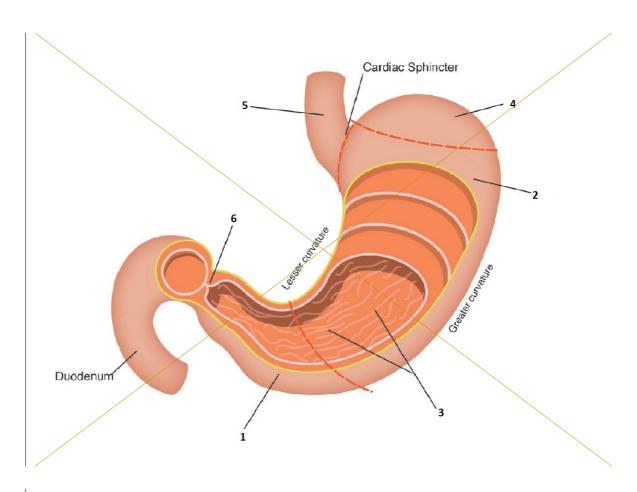
- a. Begins digestion and absorption of glucose
- b. Kills micro-organisms which enter the stomach
- c. Absorbs water and alcohol
- d. a. and c. above
- \*e. b. and c. above

### 75. Which type of meal stays in the stomach the longest?

- a. A high protein meal
- b. A liquidised meal
- \*c. A fatty meal
- d. A carbohydrate meal

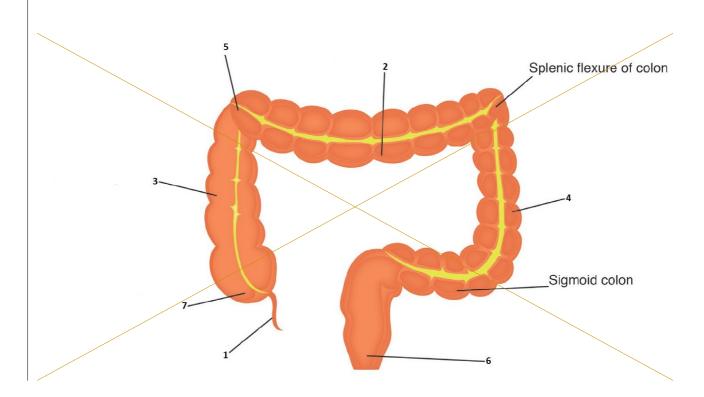
### 76. A sphincter is

\*a. A ring of muscle around a tubular organ which controls passage of b. A flap of tissue which prevents food entering the nasal cavity c. A structure which prevents fluid entering the lungs d. A tissue which secretes enzymes into the stomach 77. Digestion includes the following processes \*a. Conversion of large molecules in the diet to small molecules b. Churning of contents in the gut c. Nutrients pass across the walls of the gastrointestinal tract into the bodyd. Moving contents along the gut 78. The structure of the gut varies from other tubular organs in the following ways \*a. It has an outer layer of peritoneum \*b. The endothelium contains glands to secret mucus \*c. It has thicker muscle in different layers d. The middle layer is made of skeletal muscle 79. Match the missing labels to the numbers on the diagram



- 1. Pyloric antrum
- 2. Body
- 3. Rugae
- 4. Fundus
- 5. Oesophagus
- 6. Pyloric sphincter

### 80. Match the missing labels to the numbers on the diagram



- 1. Vermiform appendix
- 2. Transverse colon
- 3. Ascending colon
- 4. Descending colon
- 5. Hepatic flexure of colon
- 6. Rectum
- 7. Caecum

81. In aerobic metabolism 38 molecules of ATP per molecule of glucose are produced.
How many are produced in anaerobic metabolism?
Answers:
a. two
<del>b. 2</del>
82. Which of the following best describes an enzyme?
a. A substance that increases the rate of a chemical reaction
b. A protein that remains in position to function again-
c. A macromolecule that is formed from amino acids
*d. All of the above
e. a. and c. above
83. The three major nutrient sources contain the elements O (oxygen), C (carbon) and H
(hydrogen). Which additional element is found in all amino acids?
Answers:
a. N
<del>b. nitrogen</del>
84. Is the following statement true or false? 'Essential fatty acids cannot be formed in the
body'
<del>*a. True</del>
<del>b. False</del>
85. Which of the following are water-soluble vitamins?
*- 0
* <del>a. C</del>

<del>b. E</del>
<del>c. K</del>
*d. Folic acid
e. D
<del>f. A</del>
*g. Niacin
*h. B <sub>12</sub>
86. Which of the following criteria are met by essential amino acids?
a. There are eight of them
b. They can contribute as energy for the body by the loss of nitrogen
c. They can be formed in the body from glucose derivatives with the addition
of N in the body
*d. a. and b. above
e. b. and c. above
87. Which of the following foods are major dietary sources of iron?
*a. Wholemeal bread
<del>b. Cake</del>
*c. Omelette
d. Tomatoes
*e. Broccoli
*f. Beef steak
g. Carrots
88. What are the three layers of the skin?
Answers:
<del>Epidermis</del>

<del>Dermis</del>
Hypodermis
89. What makes the skin waterproof and tough?
Answer:
Keratin
90. Is the following statement true or false? 'The epidermis has no blood supply'
*True
False
91. What protects the skin from ultraviolet radiation?
Answer:
Melanin
92. Connective tissue
a. Connects the skin to nerve cells
b. Is tough and rigid to protect the body
c. Is elastic, containing blood and lymph vessels and nerves*
*d. Is rich in collagen and elastin
e. Is rich in keratin and melanin
93. Which cells of the dermis produce collagen?
73. Willen cens of the definis produce conagen:
Answer:
Fibroblasts

94. Which cells of the dermis protect it from pathogens?
Answer:
Macrophages
95. What are the three main groups of sensory receptors in the dermis?
Answers:
Mechanoceptors/mechanoreceptors
Nociceptors
Thermoceptors/thermoreceptors
96. What kind of tissue primarily makes up the hypodermis?
Answer:
Adipose
97. Eccrine/merocrine glands
a. Are rarely located within the skin
*b. Are widely distributed and most numerous, being found on the palms of
the hand, soles of the feet and dermis of the forehead
*c. Produce a clear, watery sweat
d. Produce an odorous, translucent, oily sweat
e. Are widely distributed throughout the skin but not found on the palms of
the hands or soles of the feet
98. Pathogens on the surface of the skin may be destroyed by what chemical?

	Answer:
	<del>Lysozyme</del>
	99. What hormone is created under the influence of ultraviolet light onto the skin?
	Answer:
	<del>Vitamin D</del>
	100. What are the two methods by which skin can heal?
	Answers:
	Regeneration
	Fibrosis
	101. Which of these are stages of wound healing?
	a. Apoptosis
	*b. Haemostasis
	c. Infiltration
	*d. Inflammation
	*e. Proliferation
	f. Modulation
	g. Segmentation
	h. Prothrombination
	*i. Maturation
	102. Which of these processes are involved in cooling the body?
	a. Thermogenesis
	b. Cutaneous vasoconstriction

- c. Piloerection
- \*d. Cutaneous vasodilation
- \*e. Increased respiration
- \*f. Anorexia
- g. Apoptosis