Exercise-1

Marked Questions are for Revision Questions.

ONLY ONE OPTION CORRECT TYPE

SECTION - A # NUTRITION

1. Digestion is the breaking down of large food molecules into smaller ones. The main purpose of this is to-

(1) Make the food insoluble

(2) Enable the digestive enzymes to be used up

(3) Provide smaller molecules for absorption

(4) Make the passage of food along the gut easier

SECTION - B # DIGESTIVE SYSTEM

1. Dental formula of adult human is

(1) $\frac{1023}{1023}$ (2) $\frac{3023}{3023}$ (3) $\frac{1023}{2023}$ (4) $\frac{2123}{2123}$

2. Match the two columns and select the right one among options given

Column I	**Column II**
A. Duodenum	i. A cartilagenous flap
B. Epiglottis	ii. Small blind sac
C. Glottis	iii. 'C' or 'U' shaped structure emerging from the stomach
D. Caecum	iv. Opening of wind pipe

Options:

(1) A-i, B-ii, C-iii, D-iv (2) A-iv, B-iii, C-ii, D-i

(3) A-iii, B-i, C-iv, D-ii (4) A-ii, B-iv, C-i, D-iii

3. Taste buds for bitter taste are found on tongue at

(1) Tip (2) On basal surface (3) Posterior part (4) Lateral sides

4. In rabbit, the digestion of cellulose takes place in

(1) Colon (2) Ileum (3) Caecum (4) Rectum

5. Pulp cavity of teeth is lined by

(1) Odontoblast (2) Chondroblast (3) Osteoblast (4) Amyloblast

6. Which one of the following is the correct pairing of the site of action and the substrate of rennin

(1) Stomach-Casein (2) Stomach-Fat

(3) Small intestine-Protein (4) Mouth-Starch

7. Narrower distal end of stomach is called

(1) Cardiac (2) Duodenum (3) Pharynx (4) Pylorus

8. Pylorus is situated at the junction of

(1) Oesophagus and stomach (2) Stomach and duodenum

(3) Duodenum and ileum (4) Ileum and rectum

9. Match the two columns and select the correct among options given

Column I	**Column II**
A. Biomacromolecules of food	i. Alimentary canal and associated gland
B. Human digestive system	ii. Embedded in jawbones.
C. Stomach	iii. Outer wall of visceral organs
D. Thecodont	iv. Converted into simple substances
E. Serosa	v. J-shaped bag like structure

Options:

(1) A-ii, B-i, C-v, D-iii, E-iv (2) A-iv, B-i, C-v, D-ii, E-iii

(3) A-i, B-ii, C-iii, D-iv, E-v (4) A-i, B-iii, C-ii, D-iv, E-v

10. Stomach in vertebrates is the main site for digestion of

(1) Proteins (2) Carbohydrates (3) Fats (4) Nucleic acids

11. Valve of kerkrings is another name for

(1) Plicae circulares (2) Plicae semilunares (3) Plicae valvulates (4) All of the these

12. Pepsinogen is secreted by

(1) Chief cells (2) Parietal cells (3) G-cells (4) Intestinal cells

13. Intestinal villi are mainly concerned with

(1) Assimilation (2) Secretion (3) Ultrafilteration (4) Absorption

14. Peyer's patches are found on the ileum in

(1) Fishes (2) Reptiles (3) Birds (4) Mammals

15. Peyer's patches contain

(1) Mucous (2) Sebum (3) Lymphocytes (4) Red blood cells

16. The muscular contraction in the alimentary canal is known as

(1) Systole (2) Diastole (3) Peristalsis (4) Metachronal

SECTION - C # DIGESTIVE GLANDS

1. Zymogen cells or chief cells secrete

(1) Hydrochloric acid (2) Mucous (3) Pepsinogen (4) Trypsinogen

2. Glucagon secreted by the alpha-cells of the islets of Langerhans does this function

(1) Glucagon converts glucose into glycogen and increases the concentration of blood sugar

(2) Glucagon converts glycogen into glucose and increases the concentration of blood sugar

(3) Glucagon converts glucose into glycogen

(4) Work similar to hormone secreted from β-cells

3. Which of the following digest proteins into peptides

(1) Erepsin (2) Rennin (3) Pepsin (4) Lipase

4. Brunner's glands secrete

(1) Alkaline mucus (2) Acidic mucus (3) Neutral mucus (4) Water

5. HCl is secreted by

(1) Zymogen cells (2) Oxyntic cells (3) Kupffer cells (4) Mucous cells

6. A good source of lipase is
(1) Saliva (2) Pancreatic juice (3) Bile (4) Gastric juice

7. In horses, rabbits hares, the cellulose gets digested in the
(1) Caecum (2) Stomach (3) Omasum (4) Rumen

8. Pancreatic juice contains
(1) Trypsinogen, lipase, maltase
(2) Pepsinogen, Trypsinogen, maltase
(3) Trypsinogen, chymotrypsinogen, amylase, lipase
(4) Trypsinogen, pepsinogen, amylase

9. Enzyme released from stomach is
(1) Rennin (2) Uricase (3) Pepton (4) Uridyl transferase

10. Liver in our body stores
(1) Vitamin A (2) Vitamin D (3) Vitamin B_{12} (4) All of these

11. pH of gastric juice is -
(1) 2 (2) 4 (3) 6 (4) 8

12. In pancreas, pancreatic juice and hormones are secreted by
(1) same cells (2) Different cells
(3) Same cells at different times (4) Pancrease does not secrete hormone

13. Which of the following is the chracteristic of mammalian liver is -
(1) Kupffer's cells and leucocytes (2) Leucocytes and canaliculae
(3) Glisson's capsules and kupffer cells (4) Glisson's capsules and leucocytes

14. Succus entericus is the name given to
(1) Junction between ileum and large intestine (2) Intestinal juice
(3) Swelling in the gut (4) Appendix

15. The number of salivary glands in man is -
(1) Two pairs (2) Three pairs (3) Four pairs (4) Five pairs

16. In man, the bile juice secreted on average per day is
(1) 700 ml (2) 1200 ml (3) 400 ml (4) 1500 ml

17. The functional unit for the absorption of digested food is
(1) Crypts of Lieberkuhn (2) Peyer's patches
(3) Villi (4) Brunner's gland

18. Which one of the following is the correct matching set of gland and its secretion?
(1) Pituitary gland - Thyroxin (2) Salivary gland - Amylase
(3) Adrenal cortex - Vasopressin (4) Islets of Langerhans - Secretin

19. Which word best describes the action of bile on fats
(1) Neutralisation (2) Digests (3) Emulsification (4) Absorbs

20. Surgical removal of gall bladder in human beings would lead to
(1) Impairment of the digestion of fat (2) Increased acidity in the intestine
(3) Jaundice (4) Stoppage of thyroxine secretion

21. Duct of Wirsung is a duct of
(1) Liver (2) Pancreas (3) Gall bladder (4) Duodenum

22. Match the type of cells listed under column-I with the secretions given under column-II. Choose the answer which gives the correct combination of the alphabets of the two columns

Column I	**Column II**
(Type of cells)	**(Secretions)**
(A) Beta cells	(p) Lysozyme
(B) Mast cells	(q) Histamine
(C) Paneth cells	(r) Insulin
(D) Acinar cells	(s) Pancreatic enzymes

(1) A = r ; B = s ; C = p ; D = q (2) A = s ; B = q ; C = p ; D = r
(3) A = r ; B = q ; C = p ; D = s (4) A = q ; B = r , C = p , D = s

23. Lysozymes are found in -
(1) Saliva (2) Tears
(3) Saliva and tears both (4) Mitochondria

24. The amount of gastric juice secreted per day from man's stomach is about
(1) 5000 ml to 10000 ml (2) 2000 ml to 3000 ml
(3) 100 ml to 500 ml (4) 10 ml to 15 ml

25. The largest gland in the human body is
(1) Liver (2) Brain (3) Pancreas (4) Thyroid

26. Lactase is found in
(1) Saliva (2) Bile (3) Pancreatic juice (4) Intestinal juice

27. Bilirubin and biliverdin are found in
(1) Blood (2) Bile (3) Pancreatic juice (4) Saliva

SECTION - D # PHYSIOLOGY OF DIGESTION

1. Match list I with list II and choose the correct option

List I	**List II**
(A) Salivary amylase	(p) Proteins
(B) Bile salts	(q) Milk proteins
(C) Rennin	(r) Starch
(D) Pepsin	(s) Lipids
(E) Steapsin	(t) Emulsification of fats

(1) A - (t) ; (B) - (s) ; (C) - (p) ; (D) - (q) ; (E) - (r)
(2) A - (q) ; (B) - (r) ; (C) - (s) ; (D) - (t) ; (E) - (p)
(3) A - (q) ; (B) - (s) ; (C) - (r) ; (D) - (p) ; (E) - (t)
(4) A - (r) ; (B) - (t) ; (C) - (q) ; (D) - (p) ; (E) - (s)

2. Rennin acts on milk proteins and converts
(1) Caseinogen into casein (2) Casein into paracasein
(3) Caseinogen into paracasein (4) Paracasein into caseinogen

3. If pancreas is removed, the compound which remain undigested is
(1) Carbohydrates (2) Fats (3) Proteins (4) All of these

4. Match the following

Column - A	**Column - B**
(a) Amylase	(i) Break down of sucrose
(b) Pepsin	(ii) Break down of lipid
(c) Lipase	(iii) Break down of protein
(d) Sucrase	(iv) Break down of starch
(e) Mouth	(v) Digestion of proteins
(f) Stomach	(vi) Egestion
(g) Intestine	(vii) Ingestion
(h) Anus	(viii) Digestion and absorption

The correct pairing sequence is -
(1) (a) - (iv) , (b) - (v) , (c) - (ii) ; (d) - (i) ; (e) - (iii) ; (f) - (vii) ; (g) - (vi) ; (h) - (viii)
(2) (a) - (iv) , (b) - (iii) , (c) - (ii) ; (d) - (i) ; (e) - (vii) ; (f) - (v) ; (g) - (viii) ; (h) - (vi)
(3) (a) - (v) , (b) - (iv) , (c) - (i) ; (d) - (ii) ; (e) - (vii) ; (f) - (iii) ; (g) - (viii) ; (h) - (vi)
(4) (a) - (v) , (b) - (iv) , (c) - (ii) ; (d) - (i) ; (e) - (iii) ; (f) - (vii) ; (g) - (vi) ; (h) - (viii)

5. Chylomicrons are -
(1) Undigested proteins
(2) Undigested carbohydrates
(3) Fat droplets coated with protein
(4) Fat droplets coated with phospholipids

6. The process by which digested food of the alimentary canal passes through its mucous membrane into circulatory system -
(1) Absorption (2) Assimilation (3) Hydrolysis (4) Defecation

7. Trypsin is a digestive enzyme which occurs in mammals and digests
(1) Starch in buccal cavity in an alkaline medium
(2) Protein in stomach in an acidic medium
(3) Protein in duodenum in an acidic medium
(4) Protein in duodenum in an alkaline medium

8. Emulsification of fats is brought about by -
(1) Bile pigments (2) bile salts (3) Pancreatic juice (4) HCl

9. The end product of fat digestion is
(1) Amino acids (2) Starch (3) Fatty acids (4) Glucose

10. Some proteolytic enzymes are
(1) Trypsin, peptidase, pepsin (2) Amylopsin, steapsin, ptyalin
(3) Amylopsin, lipase, zymase (4) Urease, zymase, dehydrogenase

11. Digestion of starch takes place in
(1) Stomach and duodenum (2) Buccal cavity and duodenum
(3) Buccal cavity and oesophagus (4) Duodenum only

12. The food that enters intestine from stomach is called -
(1) Chyle (2) Chyme (3) Fundus (4) Bolus

13. Bile salt are poured into the alimentary canal where they are necessary for the absorption of
(1) Na^+ and Ca^{++} (2) Fat soluble vitamin
(3) Amino acids and monosaccharides (4) All the nutrients contained in chyme

14. The amount of bile released in proportion to the amount of
(1) Fat in meal (2) Protein in meal
(3) Carbohydrate in meal (4) All of these

SECTION - E # GASTRO INTESTINAL HORMONES/DIGESTIVE ENZYMES

1. Acid secretion in stomach is stimulated by
(1) Gastrin (2) Histamine (3) Vagal discharge (4) All of these

2. Trypsinogen is an inactive enzyme secreted by the pancreas. It is activated by
(1) Pepsin of stomach (2) Chymotrypsin (3) Bile (4) Enterokinase

3. What will happen if the secretion of parietal cells of gastric glands is blocked with an inhibitor
(1) In the absence of HCl secretion, inactive pepsinogen is not converted into the active enzyme pepsin.
(2) Enterokinase will not be released from the duodenal mucosa and so trypsinogen is not converted to trypsin
(3) Gastric juice will be dificient in chymosin
(4) Gastric juice will be deficient in pepsinogen

4. Which of the following statement is correct
(1) Though secretin is an enzyme, it is not involved in digestion
(2) Secretin in an enzyme and so it helps digestion
(3) Secretin is a hormone but it plays a role in digestion
(4) Secretin is a hormone and hence it does not play any role in digestion

5. Which of the following hormone stimulates the secretion of gastric juice
(1) Secretin (2) Gastron (3) Cholecystokinin (4) Gastrin

6. Enterokinase is in
(1) Bile juice (2) Intestinal juice (3) Pancreatic juice (4) Pancreatic hormone

SECTION - F # NUTRITION AND NUTRITIONAL REQUIREMENT

1. Glucose, galactose and fructose all have the same molecular size and composition and their absorption through the mucosal cells takes place
(1) At the same rate (2) Glucose is absorbed most rapidly

(3) Fructose is absorbed most rapidly (4) Galactose is absorbed most rapidly

2. Vitamin D is synthesised by one of the following with the help of sunlight
(1) Skin (2) Gall bladder (3) Brain (4) Pancreas

3. Deficiency of vitamin C causes
(1) Anaemia (2) Rickets (3) Scurvy (4) Xerophthalmia

4. Which of the following vitamin is needed for the coagulation of blood
Or
Necessary vitamin for blood clotting is **-**
(1) B (2) C (3) K (4) E

5. Fat soluble vitamins are
(1) Vitamin A, B and C (2) Vitamin A, B and D
(3) Vitamin A,D ,E and K (4) Vitamin C and D

6. Vitamin C is
(1) Ascorbic acid (2) Nicotinic acid (3) Lipoic acid (4) Aspartic acid

7. Calciferol is
(1) Vitamin A (2) Vitamin B (3) Vitamin D (4) Vitamin E

8. The disease anaemia is caused by the deficiency of one of the following vitamin
(1) Biotin (2) Folic acid (3) Ascorbic acid (4) Niacin

9. Rickets in children and osteomalacia in adults is caused by the deficiency of
(1) Vitamin A (2) Vitamin B (3) Vitamin C (4) Vitamin D

10. Tonics made out of the liver are very effective in curing anaemia because
(1) They contain proteins (2) They contain RBCs
(3) They contain bile juice (4) They contain vitamin B_{12}

11. Which one of the following is the correct matching of a vitamin, its nature and its deficiency disease?
(1) Vitamin A - Fat-soluble - Beri-beri (2) Vitamin K - water-soluble - Pellagra
(3) Vitamin A - Fat-soluble - Night blindness (4) Vitamin K - Fat-soluble - Beri-beri

12. Vitamins, we must consume daily are
(1) Fat soluble (2) Water soluble (3) (1) and (2) both (4) Vitamin A only

13. Vitamin D is synthesized in skin, by the action of sunlight on
(1) Cholesterol (2) 7-hydroxy cholesterol
(3) Cephano-cholesterol (4) Orthophenoxy - cholesterol

14. One of the following is not a common disorder associated with digestive system
(1) Tetanus (2) Diarrhoea (3) Jaundice (4) Dysentery

MISCELLANEOUS QUESTIONS

1. A dental disease characterized by mottling of teeth is due to the excess of a certain chemical element in drinking water. Which of the following is that element

(1) Mercury (2) Chlorine (3) Fluorine (4) Boron

2. Enzyme Rennin is secreted by

(1) Cells of stomach

(2) Cells of intestine

(3) The cortical cells of kidney

(4) The cells of juxtaglomerular apparatus of kidney

3. Match the name of glands listed under column I with the location given under column II, choose the answer which gives correct combination of the alphabets of the two columns

Column I (glands)	**Column II (location)**
(A) Crypts of lieberkuhn	(p) Loop of duodenum
(B) Pancreas	(q) Stomach
(C) Adrenal gland	(r) Intestine
(D) Gastric Gland	(s) Kidney

(1) A = r , B = p , C = q , D = s (2) A = r , B = p , C = s , D = q

(3) A = q , B = s , C = r , D = p (4) A = p , B = r , C = s , D = q

4. Proteolytic enzymes do not corrode lining of alimentary canal, because

(1) They are secreted in inactive form

(2) Lining layer of alimentary canal does not contain protein

(3) The enzymes are not capable of digesting fat

(4) None of these

5. Inhibition of gastric secretion is brought about by

(1) Cholecystokinin (2) Pancreozymin (3) Gastrin (4) Enterogastron

6. Which one of the following is antioxidant vitamin?

(1) C, E, A (2) B_1, B_4 (3) A, D, E (4) B_3, B_5

7. Carboxypeptidase is an enzyme secreted by

(1) Salivary gland (2) Stomach (3) Gall bladder (4) Pancreas

8. The cells, which destroy worn out white and red blood cells, bacteria and microorganisms passing from the liver are

(1) β-cells (2) T-cells (3) Kupffer's cells (4) Oxyntic cell

9. Which of the following metals is present in vitamin B_{12}?

(1) Cobalt (2) Copper (3) Zinc (4) Magnesium

10. Match the item in Column I (vitamins) with those in Column II (deficiency diseases)

Column I (Vitamins)	**Column II (Diseases)**
I. K	A. Beri-beri
II. D	B Haemorrhagic disease in new born
III. B_1	C. Night blindness
IV. A	D. Rickets

Which one of the following is the correct matching of all the four vitamins?

(1) I-C, II-B, III-D, IV-A (2) I-A, II-B, III-D, IV-C

(3) I-C, II-A, III-D, IV-B (4) I-B, II-D, III-A, IV-C

11. The epithelial cells lining the stomach of vertebrates is protected from damage by HCl because
(1) Hydrochloric acid is too dilute
(2) The epithelial cells are resistant to the action of HCl
(3) HCl is neutralised by alkaline gastric juice
(4) The epithelial cells are covered with a mucous secretion

12. Find out the correctly matched pair
(1) Pepsinogen – Zymogenic cells (2) HCl – Globlet cells
(3) Mucous – Oxyntic cells (4) Pancreatic Juice – Salivary glands

13. Find out the correct match

Column - I	**Column - II**
(A) Hepatic lobule	(p) Sub mucosal glands
(B) Brunner's glands	(q) Base of villi
(C) Crypts of Lieberkuhn	(r) Glisson's capsule
(D) Sphincter of Oddi	(s) Gallbladder
(E) Cystic duct	(t) Hepato pancreatic duct
	(u) Serous glands

(1) A-r , B-u , C-q , D-t , E-s (2) A-t , B-q , C-s , D-u , E-p
(3) A-r , B-p, C-q , D-t , E-s (4) A-s , B-u , C-t , D-q , E-p

14. Which of the following is not a function of liver?
(1) Production of bile (2) Production of insulin (3) Glycogen storage (4) Detoxification

15. Pernicious anaemia is caused due to the deficiency of
(1) Folic acid (2) Vitamin B_6 (3) Vitamin B_{12} (4) Appendix

16. If for some reason our goblet cells are non-functional this will adversely affect
(1) Production of somatostatin (2) Secretion of sebum from the sebaceous glands
(3) Maturation of sperms (4) Smooth movement of food downwards the intestine

17. Bile salts act as activator of which enzyme?
(1) Pepsinogen (2) Trypsinogen (3) Lipase (4) Pancreatic amylase

Exercise-2

1. Which of the following substance is not a final product of digestion? **(5th NSO II L)**
(1) Fructose (2) Amino acids (3) Maltose (4) Galactose

2. If the inner surface of the ileum in the human small intestine were smooth, rather than being folded and subdivided into villi, which statement would be true ? **(7th CBO)**
(1) The rate of absorption of digested food molecules would be higher, because the digested food would pass more easily through the digestive tract
(2) Digestion would not be as effective because there would be fewer cells secreting trypsin (a protein-digesting enzyme)
(3) Human would have needed to evolve a much longer small intestine to absorb sufficient nutrients from their food

(4) Humans would not be able to survive, because the digestive tract would be more susceptible to damage

3. In which of the following digestive juice are DNase and RNase found? **(KVPY-2007-SB)**

(1) Gastric juice (2) Intestinal juice (3) Saliva (4) Pancreatic juice

4. Partial removal of liver is not harmful because: **(KVPY-2007-SA)**

(1) Liver being a large organ can suffice the functions even if a part is removed

(2) Liver is not a very essential organ of the body

(3) Liver has regenerative capacity and will grow after partial hepatectomy

(4) The function of liver can be taken over by kidneys

5. Fat absorption in the microvilli is by: **(KVPY-2008-SB)**

(1) Endocytosis (2) Simple diffusion through the plasma membrane

(3) Facilitated diffusion (4) Active transport

6. Ascorbic acid is a/an. **(KVPY-2009-SA)**

(1) Strong inorganic acid (2) Hormone

(3) Vitamin (4) Enzyme

7. Bile salts: **(KVPY-2009-SA)**

(1) break down polypeptide chains (2) emulsify fats and solubilize them

(3) digest fats (4) help breakdown of polysaccharides

8. Dietary fibers are composed of: **(KVPY-2009-SA)**

(1) Cellulose (2) Amylase (3) Proteins (4) Unsaturated fats

9. The gall bladder is involved in **(KVPY-2011-SA)**

(1) synthesizing bile (2) storing and secreting bile

(3) degrading bile (4) producing insulin

Exercise-3

PART - I: NEET / AIPMT QUESTION (PREVIOUS YEARS)

1. Which one of the following is a fat-soluble vitamin and its related deficiency disease? **(AIPMT Pre.-2007)**

(1) retinol - xerophthalmia (2) cobalamine - beri-beri

(3) calciferol - pellagra (4) ascorbic acid - scurvy

2. Lysozyme that is present in saliva and tears destroys **(AIPMT Pre.-2007)**

(1) certain types of bacteria (2) all viruses

(3) most virus-infected cells (4) certain fungi

3. Which one of the following is the correct matching of the site of action on the given substrate, the enzyme acting upon it and the end product? **(AIPMT Pre.-2008)**

(1) small intestine: proteins $\xrightarrow{\text{Pepsin}}$ amino acids

(2) colon : fats $\xrightarrow{\text{Lipase}}$ micelles

(3) duodenum : triglycerides $\xrightarrow{\text{Trypsin}}$ monoglycerides

(4) small intestine : starch $\xrightarrow{\alpha-\text{Amylase}}$ disaccharide (maltose)

4. A young infant may be feeding entirely on mother's milk which is white in colour but the stools which the infant passes out is quite yellowish. What is this yellow colour due to? **(AIPMT Pre.-2009)**

(1) bile pigments passed through bile juice

(2) undigested milk protein casein

(3) pancreatic juice poured into duodenum

(4) intestinal juice

5. Which one of the following pairs of food components in humans reaches the stomach totally undigested? **(AIPMT Pre.-2009)**

(1) starch and fat (2) fat and cellulose (3) starch and cellulose (4) protein and starch

6. Anxiety and eating spicy food together in an otherwise normal human, may lead to **(AIPMT Pre-2012)**

(1) Indigestion (2) Jaundice (3) Diarrhoea (4) Vomiting

7. Where do certain symbiotic microorganisms normally occur in human body? **(AIPMT Mains-2012)**

(1) Caecum (2) Oral cavity lining and tongue surface

(3) Vermiform appendix and rectum (4) Duodenum

8. Select the correct match of the digested products in humans given in column-I with their' absorption site and mechanism in column-II **(AIPMT-2013)**

Column I	**Column II**
(1) Fructose, Na^+	Small intestine, passive absorption
(2) Glycerol, fatty acids	Duodenum, move as chylomicrons
(3) Cholesterol, maltose	Large intestine, active absorption
(4) Glycine, glucose	Small intestine, active absorption

9. The initial step in the digestion of milk in human is carried out by? **(AIPMT-2014)**

(1) Lipase (2) Trypsin (3) Rennin (4) Pepsin

10. Fructose is absorbed into the blood through mucosa cells of intestine by the process called **(AIPMT-2014)**

(1) active transport (2) facilitated transport (3) simple diffusion (4) co-transport mechanism

11. Which of the following statement is not correct? **(AIPMT-2015)**

(1) Goblet cells are present in the mucosa of intestine and secrete mucus

(2) Oxyntic cells are present in the mucosa of stomach and secrete HCl

(3) Acini are present in the pancreas and secrete carboxypeptidase

(4) Brunner's glands are present in the submucosa of stomach and secrete pepsinogen

12. Gastric juice of infants contains: **(AIPMT-2015)**

(1) nuclease, pepsinogen, lipase (2) pepsinogen, lipase, rennin

(3) amylase, rennin, pepsinogen (4) maltase, pepsinogen, rannin

13. The primary dentition in human differs from permanent dentition in not having one of the following type of teeth : **(Re-AIPMT-2015)**

(1) Premolars (2) Molars (3) Incisors (4) Canine

14. The enzyme that is not present in succus entericus is: **(Re-AIPMT-2015)**

(1) nucleases (2) nucleosidase (3) lipase (4) maltase

15. Which of the following guards the opening of hepatopancreatic duct into the duodenum? **(NEET-1-2016)**

(1) Sphincter of Oddi (2) Semilunar valve (3) Ileocaecal valve (4) Pyloric sphincter**.**

16. In the stomach, gastric acid is secreted by the: **(NEET-1-2016)**

(1) acidic cells (2) gastrin secreting cells

(3) parietal cells (4) peptic cells

17. Which hormones do stimulate the production of pancreatic juice and bicarbonate? **(NEET-1-2016)**

(1) Insulin and glucagon (2) Angiotensin and epinephrine

(3) Gastrin and insulin (4) Cholecystokinin and secretin

18. Which cells of 'Crypts of Lieberkuhn' secrete antibacterial lysozyme? **(NEET-2017)**

(1) Argentaffin cells (2) Paneth cells (3) Zymogen cells (4) Kupffer cells

19. A baby boy aged two years is admitted to play school and passes through a dental check-up. The dentist observed that boy had twenty teeth. Which teeth were absent**?** **(NEET-2017)**

(1) Incisors (2) Canines (3) Pre-molars (4) Molars

20. Which of the following option best represents the enzyme composition of pancreatic juice?

(1) amylase, peptidase, trypsinogen, rennin **(NEET-2017)**

(2) amylase, pepsin, trypsinogen, maltase

(3) peptidase, amylase, pepsin, rennin

(4) lipase, amylase, trypsinogen, procarboxypeptidase

21._ Which of the following gastric cells indirectly help in erythropoiesis? **(NEET-2018)**

(1) Chief cells (2) Parietal cells (3) Goblet cells (4) Mucous cells

22._ Which of the following terms describe human dentition **(NEET-2018)**

(1) Thecodont, Diphyodont, Homodont (2) Pleurodont, Diphyodont, Heterodont

(3) Pleurodont, Monophyodont, Homodont (4) Thecodont, Diphyodont, Heterodont

23. Match the following structures with the their respective location in organs: **(NEET-2019, P-1)**

(a) Crypts of Lieberkuhn	(i) Pancreas
(b) Glisson's Capsule	(ii) Duodenum
(c) Islets of Langerhans	(iii) Small intestine
(d) Brunner's Glands	(iv) Liver

Select the correct option from the following:

	(a)	(b)	(c)	(d)
(1)	(iii)	(ii)	(i)	(iv)
(2)	(iii)	(i)	(ii)	(iv)
(3)	(ii)	(iv)	(i)	(iii)

(4) (iii) (iv) (i) (ii)

24. Identify the cells whose secretion protects the lining of gastro-intestinal tract from various enzymes **(NEET-2019, P-1)**

(1) Duodenal Cells (2) Chief Cells (3) Goblet Cells (4) Oxyntic Cells

25. **Match the items given in Column - I with those in Column - II and choose the correct option.** **(NEET-2019, P-2)**

	Column-I		**Column-II**
(a)	Rennin	(i)	Vitamin B_{12}
(b)	Enterokinase	(ii)	Facilitated transport
(c)	Oxyntic cells	(iii)	Milk proteins
(d)	Fructose	(iv)	Trypsinogen

(1) (a) - (iii), (b)- (iv), (c)- (ii), (d)-(i)

(2) (a) - (iv), (b)- (iii), (c)- (i), (d)-(ii)

(3) (a) - (iv), (b)- (iii), (c)- (ii), (d)-(i)

(4) (a) - (iii), (b)- (iv), (c)- (i), (d)-(ii)

26. Kwashiorkor disease is due to **(NEET-2019, P-2)**

(1) simultaneous deficiency of proteins and fats
(2) simultaneous deficiency of proteins and calories
(3) deficiency of carbohydrates
(4) protein deficiency not accompanied by calorie deficiency

PART - II : AIIMS QUESTION (PREVIOUS YEARS)

1. Which one of the following pairs of the kind of cells and their secretion is correctly matched?

(1) Oxyntic cells - a secretion with pH between 2.0 and 3.0
(2) alpha cells of islets of Langerhans - secretion that decreases blood sugar level.
(3) Kupffer cells - a digestive enzyme that hydrolyses nucleic acids.
(4) Sebaceous glands - a secretion that evaporates for cooling. **(AIIMS-2006)**

2. A child took sugar cane and sucked its juice. Regarding this which of the following match is correct **(AIIMS-2007)**

	Substrate	**Enzyme**	**Site of secrection of enzyme**	**Products formed**
(1)	Proteins	Pepsin	Duodenum	polypeoptides
(2)	Starch	Amylase	Salivary glands	Glucose
(3)	Lipids	Lipase	Pancreas	Fat globules
(4)	Sucrose	Invertase	Duodenum	Glucose + Fructose

3. FAD is a coenzyme derived from **(AIIMS-2009)**

(1) Riboflavin (2) Vitamin-B_{12} (3) Thiamine (4) Niacin

4. Which of the following is correct? **(AIIMS-2010)**

(1) paneth cells secrete pepsinogen (2) parietal cells secrete hydrochloric acid

(3) argentoffin cells secrete mucus (4) chief cells secrete gastrin

5. Vitamin B_6 is also called - **(AIIMS-2010)**

(1) thiamine (2) pantothenic acid (3) pyridoxine (4) retinol

6. The pH of stomach is 1.6, then which enzyme will digest protein? **(AIIMS-2011)**

(1) Trypsin (2) Pepsin (3) Amylase (4) Erypsin

7. Match the columns **(AIIMS-2011)**

Column-I (Vitamins)	**Column II(Deficiency disease)**
A. B_1	1. Infertility
B. D	2. Scurvy
C. E	3. Beri-beri
D. C	4. Bone deformity

Codes

	A	**B**	**C**	**D**
(1)	3	4	1	2
(2)	1	2	3	4
(3)	4	3	1	2
(4)	2	4	1	3

8. Parotid salivary glands are present **(AIIMS-2012)**

(1) Below the tongue (2) Below the ears

(3) In the angle between two jaws (4) Below the eye orbits

9. Brunner's gland are characteristic feature of **(AIIMS-2013)**

(1) jejunum of small intestine (2) ileum

(3) duodenum (4) fundic region of stomach

10. Which one of the following option is correct regarding digestion of food substrates? **(AIIMS-2017)**

	Substrate	**Enzyme**	**Site of action**	**Product**
(1)	Starch	Amylase	Stomach	Maltose
(2)	Protein	Pepsin	Duodenum	Peptones
(3)	Lipid	Lipase	Pancreas	Fat globules
(4)	Sucrose	Invertase	Duodenum	Glucose and Fructose

11. Which of the following has highest pH? **(AIIMS-2018-I)**

(1) Human saliva (2) Human blood (3) Gastric juice (4) Urine

12. Weakness of muscles & bones in elderly occurs due to deficiency of– **(AIIMS-2018-II)**

(1) Vitamin D (2) Vitamin C (3) Vitamin B complex (4) Vitamin A

13. Pancreatic amylase acts on – **(AIIMS-2018-III)**

(1) Starch (2) Protein (3) Lipid (4) Disaccharide

14. Optimum pH for activation of pepsinogen is– **(AIIMS-2018-IV)**
(1) 1.5 - 2 (2) 6 (3) 8 (4) 10

Answers

EXERCISE - 1

SECTION - A

1. (3)

SECTION - B

1.	(4)	**2.**	(3)	**3.**	(3)	**4.**	(3)	**5.**	(1)	**6.**	(1)	**7.**	(4)
8.	(2)	**9.**	(2)	**10.**	(1)	**11.**	(1)	**12.**	(1)	**13.**	(4)	**14.**	(4)
15.	(3)	**16.**	(3)										

SECTION - C

1.	(3)	**2.**	(2)	**3.**	(3)	**4.**	(1)	**5.**	(2)	**6.**	(2)	**7.**	(1)
8.	(3)	**9.**	(1)	**10.**	(4)	**11.**	(1)	**12.**	(2)	**13.**	(3)	**14.**	(2)
15.	(2)	**16.**	(1)	**17.**	(3)	**18.**	(2)	**19.**	(3)	**20.**	(1)	**21.**	(2)
22.	(3)	**23.**	(3)	**24.**	(2)	**25.**	(1)	**26.**	(4)	**27.**	(2)		

SECTION - D

1.	(4)	**2.**	(2)	**3.**	(4)	**4.**	(2)	**5.**	(3)	**6.**	(1)	**7.**	(4)
8.	(2)	**9.**	(3)	**10.**	(1)	**11.**	(2)	**12.**	(2)	**13.**	(2)	**14.**	(1)

SECTION - E

1.	(4)	**2.**	(4)	**3.**	(1)	**4.**	(3)	**5.**	(4)	**6.**	(2)		

SECTION - F

1.	(4)	**2.**	(1)	**3.**	(3)	**4.**	(3)	**5.**	(3)	**6.**	(1)	**7.**	(3)
8.	(2)	**9.**	(4)	**10.**	(4)	**11.**	(3)	**12.**	(2)	**13.**	(2)	**14.**	(1)

MISCELLANEOUS QUESTIONS

1.	(3)	**2.**	(1)	**3.**	(2)	**4.**	(1)	**5.**	(4)	**6.**	(1)	**7.**	(4)
8.	(3)	**9.**	(1)	**10.**	(4)	**11.**	(4)	**12.**	(1)	**13.**	(3)	**14.**	(2)
15.	(3)	**16.**	(4)	**17.**	(3)								

EXERCISE - 2

1.	(3)	**2.**	(3)	**3.**	(4)	**4.**	(3)	**5.**	(2)	**6.**	(3)	**7.**	(2)
8.	(1)	**9.**	(2)										

EXERCISE - 3

PART- I

1.	(1)	**2.**	(1)	**3.**	(4)	**4.**	(1)	**5.**	(2)	**6.**	(1)	**7.**	(1)
8.	(4)	**9.**	(3)	**10.**	(2)	**11.**	(4)	**12.**	(2)	**13.**	(1)	**14.**	(1)
15.	(1)	**16.**	(3)	**17.**	(4)	**18.**	(2)	**19.**	(3)	**20.**	(4)	**21.**	(2)
22.	(4)	**23.**	(4)	**24.**	(3)	**25.**	(4)	**26.**	(2)				

PART- II

1.	(1)	**2.**	(4)	**3.**	(1)	**4.**	(2)	**5.**	(3)	**6.**	(2)	**7.**	(1)
8.	(2)	**9.**	(3)	**10.**	(4)	**11.**	(2)	**12.**	(1)	**13.**	(1)	**14.**	(1)

Self Practice Paper (SPP)

1. The function of tongue is to
(1) Help in the act of swallowing (2) Help in mixing saliva with the food
(3) Help in speaking (4) All the above

2. **"Bile also activates lipase".**
The actual meaning of the above statement is
(1) Lipase enzyme is secreted in inactive form and is activated by bile salts.
(2) Lipase enzyme is secreted in inactive form and is activated by bile pigments.
(3) Lipase enzyme is secreted in active form but will get more action surface area due to the formation of micelles by bile salts.
(4) None

3. Longest part of alimentary canal is –
(1) Small inestine (2) Large intestine (3) stomach and colon (4) Rectum and colon

4. The prosess of digestion is –
(1) physical only (2) chemical only
(3) Physical and mechanical (4) mechanical and chemical both

5. Histogical property of epiglottis is –
(1) Dense connective tissue (2) Loose connective tissue
(3) Epithelial tissue (4) Elastic cartiagenous

6. The proximal part of stomach in which oesophagus opens is called-
(1) Cardiac (2) Pyloric (3) Fundus (4) None

7. Choose the correct statement/s regarding human teeth–
(1) Thecodont, heterodont, diphyodont
(2) Enamel is the outer covering except last molar teeth
(3) Incisor and canine teeth are vestigeal
(4) All

8. Select the true statement–
(1) Stomach is J- shape
(2) Oesophagus and Stomach together appear J-Shape.
(3) Epiglottis is muscular flap that prevent the entry of food into wind pipe.
(4) Process of swallowing is called gluttition.

9. What is true for human teeth?
(1) Thecodont– fitted in bony socket of jaw bone
(2) Heterodont– different types of teeth for different purposes.
(3) Diphyodont– teeth arise twice in life
(4) All

10. Digestive enzymes are
(1) Hydrolase (2) Oxido-reductase (3) Transferase (4) None of these

11. Intestinal villi are more numerous and larger in posterior part of small intestine than in anterior part because-

(1) Digestion is faster in posterior part

(2) Blood supply is poor in posterior part

(3) There is more digested food in posterior part

(4) Blood supply is rich in posterior part

12. The enzymes responsible for the digestiion of starch in food of man is present in

(1) The salivary and gastric secretions (2) The salivary and pancreatic secretions

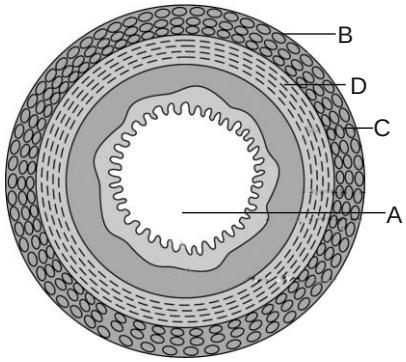
(3) The gastric and pancreatic secretions (4) The gastric and duodenal secretions

13. Wisdom teeth in human is-

(1) 3rd molar and 4 in number (2) 3rd molar and 2 in number

(3) 2nd molar and 4 in number (4) 2nd molar and 2 in number

14.#



Label the diagram.

(1) A → Lumen, B → Serosa, C → Longitudinal Muscle, D → Circular Muscle

(2) A → Longitudinal Muscle, B → Lumen, C → Serosa, D → Circular Muscle

(3) A → Lumen, B → Longitudinal Muscle, C → Serosa, D → Circular Muscle

(4) A → Longitudinal Muscle, B → Lumen, C → Circular Muscle, D → Serosa

15. Gastric juice contains–

(1) trypsin, pepsin and renin (2) lipase and rennin, trypsin

(3) pepsin, trypsin and lipase (4) pepsin, lipase and rennin

16. Match the enzyme with their respective substrate and choose the right one among options given

Column I	**Column II**
A. Lipase	i. Dipeptides
B. Nuclease	ii. Fats
C. Carboxypeptidase	iii. Nucleic acids
D. Dipeptidases	iv. Proteins, peptones and proteoses.

Options :

(1) A-ii, B-iii, C-i, D-iv (2) A-iii, B-iv, C-ii, D-i (3) A-iii, B-i, C-iv, D-ii (4) A-ii, B-iii, C-iv, D-i

17. Dental formula of 14 year old boy is–-

(1) 2102 (2) 2123 (3) 2122 (4) 2132

18. Lacteals take part in the

(1) Digestion of milk (2) Absorption of fat

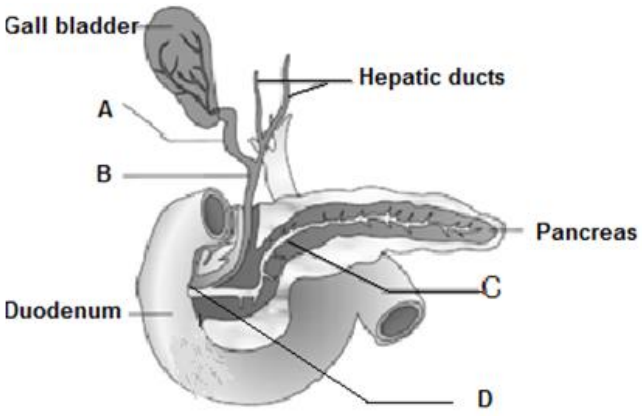
(3) Digestion of lactic acid (4) None of the above

19. Where do certains symbiotic microorganisms normally occur in human body?

(1) Caecum (2) Oral lining and tongue surface

(3) Vermiform appendix and rectum (4) Duodenum

20.# Study the diagram given below and select the option having correct matching of A, B, C and D.



	A	B	C	D
(1)	Ductus cholidocus	Cystic duct	Ampulla of Vater	Duct of Santorini
(2)	Cystic duct	Ductus cholidocus	Pancreatic Duct	Ampulla of Vater
(3)	Duct of Santorini	Bile duct	Cystic duct	Ampulla of Vater
(4)	Bile duct	Cystic duct	Ampulla of Vater	Duct of Santorini

21. Lacteals are central lymph vessels which are found in

(1) Liver (2) Pancreas (3) Villi (4) Spleen

22. Dental formula shows

(1) Structure of teeth

(2) Monophyodont or diphyodont condition

(3) Total number and types of teeth in both jaws

(4) Number and type of teeth in one half of jaw

23. Which of the following process will be affected by the absence of enterokinase

(1) Lipid $\rightarrow$ Fatty acid + glycerol (2) Dipeptides $\rightarrow$ Amino acid

(3) Proteoses $\rightarrow$ Dipeptide (4) Amylase $\rightarrow$ Maltose

24. Digestion of starch takes place in

(1) Stomach and duodenum (2) Buccal cavity and duodenum

(3) Buccal cavity and oesophagus (4) Duodenum only

25. Pancreatic juice helps in digestion of

(1) Proteins and fats (2) Proteins and carbohydrates

(3) Fats and carbohydrates (4) Proteins, fats and carbohydrates.

26. Hormonal control of the secretion of digestive juice is carried out by local ----(i)---- produced by----(ii)----- and -----(iii)----- mucosa. Here (i), (ii) and (iii) are respectively

(1) neurotransmitters, liver, pancreas (2) hormones, liver, pancreas

(3) hormones, gastric, intestinal (4) neurotransmitters, gastric, intestinal

27. A vital ingredient of food which does not provide energy and is required in minute quantities

(1) Carbohydrate (2) Protein (3) Vitamin (4) Fat

28. The major function of the large intestine (colon) is -

(1) digestive breakdown of food (2) nutrient absorption of food

(3) reabsorption of water (4) housing parasitic bacteria

29. Symbiotic bacteria present in intestine of most primates, which synthesize certain vitamins are

(1) *Entamoeba histolytica* (2) *Escherichia coli*

(3) *Entamoeba gingivalis* (4) None of these

30. Which of the following metals is present in vitamin B_{12}?

(1) Cobalt (2) Copper (3) Zinc (4) Magnesium

31. Select the right option regarding an organ and information about it–

(1) Proximal part of small intestine -C- shaped and most of the digestion complete here

(2) Parotid gland - largest salivary gland and also called cheek gland

(3) Crypts of leiberkuhn- formed by mucosa towards the basal portion of villi and seretes hydrolytic enzyme

(4) All

32. Stool of a person contains whitish grey colour due to the malfunctioning of which one of the following organs?

(1) liver (2) spleen (3) kidney (4) pancreas

33. The pH of stomach is 1.6, then which enzyme will digest protein?

(1) Trypsin (2) Pepsin (3) Amylase (4) Erypsin

34. Digestion of proteins begins in the ___(i)___ and digestion of polysaccharides begins in the___(ii)___ where (i) and (ii) are respectively

(1) Mouth and stomach (2) Stomach and small intestine

(3) Stomach and mouth (4) Stomach and stomach

35. The abnormal frequent bowel movement and increased liquidity of faecal discharge is known as

(1) Constipation (2) Vomiting (3) Diarrhoea (4) Indigestion

36. Which of these terms is used for two different parts applied with a slight difference in its spellings and not in its pronunciation?

(1) Ileum (2) Intestine (3) Cloaca (4) Pelvis

37. Oxyntic cells are located in

(1) Islets of Langerhans (2) Gastric epithelium and secrete pepsin

(3) Gastric glands and secrete renin (4) Gastric epithelium and secrete HCl

38. Vermiform appendix originates from

(1) Caecum (2) Colon (3) Rectum (4) Anal canal

39. Depressions between the adjacent intestinal villi of man are

(1) Brunner's glands (2) Harderian glands

(3) fundic glands (4) crypts of Lieberkuhn

40. 'Brunner's glands are found in

(1) Submucosa of stomach (2) Wall of rectum

(3) Submucosa of duodenum (4) Mucosa of ileum

41. Which group contains biocatalysts?

(1) peptidase, amylase, rennin (2) myosin, oxytocin, adrenalin

(3) rhodopsin, pepsin, steapsin (4) glucose, amino acids, fatty acids

42. Liver secretes

(1) No digestive enzymes (2) Many digestive enzymes

(3) Hormones (4) Succus entericus

43. In which layer of stomach are gastric glands located?

(1) Serosa (2) Mucosa

(3) Submucosa (4) Muscularis mucosa

44. Man can not digest cellulose, whereas cows and other herbivores can because

(1) They have an enzyme cellulase in their stomach

(2) They masticate it well by chewing with teeth

(3) They have bacteria, in their alimentary canal, which digest cellulose

(4) None of the above

45. Which is a group of endproducts of carbohydrate digestion?

(1) glucose, galactose, fructose (2) sucrose, galactose, maltose

(3) galactose, glucose, maltose (4) glucose, galactose, isomaltose

SPP Answers

1.	(4)	**2.**	(3)	**3.**	(1)	**4.**	(4)	**5.**	(4)	**6.**	(1)	**7.**	(1)
8.	(1)	**9.**	(4)	**10.**	(1)	**11.**	(3)	**12.**	(2)	**13.**	(1)	**14.**	(1)
15.	(4)	**16.**	(4)	**17.**	(3)	**18.**	(2)	**19.**	(1)	**20.**	(2)	**21.**	(3)
22.	(4)	**23.**	(3)	**24.**	(2)	**25.**	(4)	**26.**	(3)	**27.**	(3)	**28.**	(3)
29.	(2)	**30.**	(1)	**31.**	(4)	**32.**	(1)	**33.**	(2)	**34.**	(3)	**35.**	(3)
36.	(1)	**37.**	(4)	**38.**	(1)	**39.**	(4)	**40.**	(3)	**41.**	(1)	**42.**	(1)
43.	(2)	**44.**	(3)	**45.**	(1)								