ZOOLOGY

SENIOR INTERMEDIATE

UNIT – I – HUMAN ANATOMY AND PHYSIOLOGY – I

I(A) – DIGESTION AND ABSORPTION

SYNAPSIS

- The major components of our food are – carbohydrates proteins and fats. Vitamins and minerals are also required in small Quantities.
- The process of conversion of complex food substances to simple absorbable forms is called digestion.
- The process by which the end products of digestion pass through the intestinal mucosa into the blood or lymph is called absorption.
- The digestive system of humans consists of an alimentary canal and associated digestive glands.
- The alimentary canal consists of the mouth, buccal cavity, pharynx, oesophagus, stomach, small intestine, large intestine, rectum and the anus.
- In humans dentition is ----- Heterodont, Thecodont, Diphyodont
- Dental formula of adult human is 2, 1, 2, 3
  2, 1, 2, 3
- Dental formula of a baby is 2, 1, 0, 2
  2, 1, 0, 2
- The material that forms the bulk of a tooth is – dentine
- The hardest substance of the body is enamel
- The tongue tastes the food and manipulates it for proper mastication by mixing with the saliva.
- Frenulum attaches tongue to floor of oral cavity.
- Pharynx serves as a common passage for food and air.

- A cartilaginous flap called Epiglottis prevents the entry of food into the glottis (opening of the wind pipe) during swallowing.
- Cardiac sphincter regulates the opening of oesophagus into stomach.
- Pyloric sphincter regulates the opening stomach into duodenum.
- The wall of alimentary canal from oesophagus to rectum possesses 4 layers namely---
- 1. Serosa 2. Muscularis 3. Sub-mucosa 4. Mucosa.
- The columnar epithelial cells that line the villi produce numerous microscopic projections called microvilli.
- Mucosal epithelium has goblet cells which secrete mucus, that helps in the protection of wall from enzymes & also provides lubrication.
- The longest part of alimentary canal – small intestine stomach is J-shaped, duodenum is C-shaped.
- Opening of ileum into large intestine bears ileo – caecal valve and a sphincter.
- Caecum hosts symbiotic micro organisms.
- Vermiform appendix arises from the caecum.
- Anus is guarded by – Internal anal sphincter and external anal sphincter.
- **DIGESTIVE GLANDS :**
- 3 pairs of salivary glands are present in humans.
- Components of saliva are ptyalin or salivary amylase, lysozyme, mucin, water and salts.
- Parotid salivary glands are effected in mumps caused by – paramyxo virus.

Gastric gland (Fundic)
- Neck cells - Mucus
- Peptic/chief cells – pepsinogen, prorennin
- Oxyntic/parietal cells–HCl

- Castle's intrinsic factor

- Castle's Intrinsic factor essential for the absorption of B12
- Intestinal Glands (Brunner's glands + crypts of Lieberkuhn) secrete Intestinal juice or Success entericus.
- Liver is the largest gland in the body.

- Structural and functional units of liver are - Hepatic Lobules.
- Hepatic lobules are covered by Glisson's capsule.
- Hepato pancreatic duct opens into duodenum. That opening is guarded by Sphincter of Oddi
- Bile juice is without digestive enzymes.
- Glycocholates and Taurocholates of sodium and potassium are bile salts, helps in emulsification of fats.
- Gall bladder stores bile juice.
- Kupffer's cells (Hepatic macrophages) lies in sinusoids and are phagocytic in function.
- **Pancreas** is the second largest gland.
- The pancreas is a **compound / mixed / Heterocrine gland**. As it acts as both exocrine and endocrine.
- The Exocrine portion – Islets of Langerhans – Secretes pancreatic juice.
- The Endocrine portion – Islets of Langerhans - Secretes Insulin and Glucagon.

DIGESTION OF FOOD :

- Cutting, chewing churning and peristalisis of alimentary canal are mechanical processes.
- Salivary mucus helps in formation of bolus.
- In mouth about 30% of starch is hydrolysed into maltose.
- Lysozyme is antibacterial agent.
- HCl provides acidic medium to food in stomach.
- Rennin is a milk curdling enzyme, present in infants.
- Proteins only partially digested in stomach.
- Partly digested, acidic food ready to leave stomach is called – Chyme.
- In intestine chyme is mixed with bile juice, pancreatic juice and succus entericus.
- In stomach mainly protein digestion takes place.
- The digestion of proteins, carbohydrates and fats is Completed in duodenum of small intestine.

- The undigested food (faeces) enters into the caecum of the large intestine through – Ileo – caecal valve, which prevents the back flow – of the faecal matter.
- Maximum Absorption occurs in the – small intestine.
- Absorption of simple sugars, alcohol and medicines also takes place in the stomach.
- Most of the water is absorbed in the large intestine.
- The undigested food becomes semisolid in nature and then enters into the rectum, egested through anus.
- Liver is affected in jaundice.
- Vomiting centre of medulla oblongata controls vomiting reflexes.
- Retaining of faces for long time in rectum is a feature of constipation.
- The oxidation of 1g of proteins and carbohydrates yield about 4 KCal of energy.
- The oxidation of 1g of Fats yield – 9KCal of energy.
- KWASHIORKER is due to deficiency of proteins only.
- MARASMUS is due to deficiency of proteins and carbohydrates.
- PEM – Protein – Energy Malnutrition may affect large sections of the population during drought and turmoil.
- PEM affects infants and children to produce marasmus and kwasliorkar.

MULTIPLE CHOICE QUESTIONS

1. Human tongue is attached to the floor of the oral cavity by a tissue called

   1) Gingia 2) Frenulum 3) Epiglottis 4) Uvula

2. Entry of food into the trachea is prevented by
   1) Epiglottis 2) Bicuspid valve 3) Sphincter of Oddi 4) Epimysium

3. The process of digestion starts from
   1) stomach 2) Oesophagus 3) Mouth 4) Intestine

4. How many deciduous teeth are present in a child ?

   1) 22 2) 24 3) 20 4) 18

5. Total number of premolars in the adults is
   1) 16 2) 4 3) 12 4) 8

6. Small projections found on the upper surface of tongue are called

   1) Frenulus 2) Taste buds 3) Epiglottis 4) Papillae

7. Which one serves as a passage for both food and air ?

   1) Larynx 2) Pharynx 3) Gullet 4) Glottis

8. Tonsils present in the pharynx are formed of

   1) Pharyngeal tissue 2) Lymphoid tissue

   3) Cuboidal tissue 4) palatine tissue

9. The lengthy region of alimentary canal in humans is

   1) Large intestine 2) Jejunum 3) Ileum 4) Oesophagus

10. The common duct of liver and pancreas of a human being opens into the lumen of

    1) Stomach 2) Jejunum 3) Ileum 4) Duodenum

11. Large intestine of human being consists of four different regions in a sequential order as

    1) Colon, Caecum, Rectum, Anus 2) Caecum, Rectum, Colon, Anus

    3) Colon, Rectum, Caecum, Anus 4) Caecum, Colon, Rectum, Anus

12. In humans large intestine secretes

    1) Water 2) Mucus 3) Cellulose 4) Undigested food

13. Which one is not associated with the secretion of saliva in human being ?

    1) Parotid glands 2) Sub-lingual glands

    3) Brunner's glands 4) Sub-maxillary glands

14. Which of the following is essential for absorption of vitamin B12 in human being ?

    1) Castle's Intrinsic factor 2) Gastrin

    3) Pepsinogen 4) Enterokinase

15. The bile is secreted by

    1) Gall bladder 2) Brunner's gland 3) Hepatic cells 4) Pancreas

16. The Bile is stored in

    1) Liver 2) Pancreas 3) Gallbladder 4) Spleen

17. The HCl is secreted by the gastric cells called

    1) Parietal cells 2) Peptic cells 3) Neck cells 4) Goblet cells

18. The mucosa of the small intestine forms small finger like folds called

    1) Regal 2) Villi 3) Papillae 4) Capillaries

19. Which part of small intestine opens into large intestine ?

    1) Colon 2) Jejunum 3) Ileum 4) Duodenum

20. Choose the incorrect pair with respect to the composition of alimentary canal's layers.

    1) Serosa – Thin mesothelium 2) Muscularis – Somooth muscles

    3) Sub mucosa – Perforated myothlium 4) Mucosa – Villi

21. The lymph capillary present in the villus of the small intestine is called

    1) Lumen 2) Crypt 3) Microvillus 4) Lacteal

22. The irregular folds formed in the mucosa of the stomach are known as

    1) Lacteals 2) Crypts 3) Gastric Rugae 4) Villi

23. The intestinal wall layer that contains loose connective tissue, nerves, blood and lymph vessels is called

    1) Mucosa 2) Sub mucosa 3) serosa 4) muscularis

24. The painful inflammation of the parotid salivary glands is called

    1) Ulcer 2) Goitre 3) Mumps 4) Measles

25. Some of the stem cells of the intestinal wall are protected by the intestine cells called

    1) Oxyntic cells 2) Panneth cells 3) Parietal cells 4) Chief cells

26. Common bile duct is formed by the fusion of

    1) Pancreatic duct and cystic duct 2) Pancreatic duct and hepatic duct

    3) Pancreatic duct and stenson's duct 4) Hepatic duct and cystic duct

27. Which component of gastric juice inactivates salivary amylase ?

    1) Mucus 2) Rennin 3) HCl 4) Pepsin

28. Brunner's glands are present in

    1) mucosa of duodenum 2) mucosa of ileum

    3) Sub mucosa of ileum 4) sub – mucosa of duodenum

29. Correct sequence of layers in intestine from inside to outside is

    1) Serosa – muscularis – submucosa – mucosa

    2) mucosa – sub – mucosa – muscularis – serosa

    3) serosa – sub – mucosa – muscularis – mucosa

    4) mucosa – muscularis – serosa – submucosa

30. Incorrect set is

    1) stomach – J. shape 2) duodenum – 'C' shape

    3) Villus – Finger like 4) Appendix – U shape

31. When old RBC are destroyed in the body their heme parts become

    1) Bilepigments 2) Bilesalts 3) Macrophages 4) Phagocytes

32. The Haemopoitic organ in the faetus is

1) Pancrease 2) muscle 3) Liver 4) Yellow bone marrow

33. The pancreatic juice contains a proteolytic enzyme called

1) Pepsinogen 2) Trypsinogen 3) Salivary amylase 4) Casien

34. The role of Lysozyme present in the saliva is

1) Making food into bolus 2) Hydrolyzing starch

3) An antibacterial agent 4) Initiating the digestion process

35. A physical barrier that protects the stomach wall from the damaging effect of HCl is

1) Bicarbonates 2) Mucus 3) Lysozyme 4) Sub-Mucosa

36. In the duodenum, the acidic food is neatralised by

1) mucus 2) Bicarbonates 3) Trypsin 4) Pepsin

37. The enterokinase is secreted by

1) Stomach mucosa 2) Intestinal mucosa

3) Duodenum 4)Intestinal submucosa

38. The end products of protein digestion are

1) Fatty acids 2) Amino acids 3) Glucose 4) Dipeptides

39. The emulsification of fats is facilitated by

1) Lipases 2) Bile pigments 3) Bile salts 4) Water

40. Pancreatic and intestinal lipase act on

1) Fats 2) Fatty acids 3) Emulsified fats 4) Micelles

41. The end products of fat digestion are

1) Amino acids 2) Fatty acids and glycerol

3) Diglycerides 4) Monosaccharides

42. One of the following is not a component of succus entericus

1) Dipeptidases 2) Tripeptidases

3) Amino peptidases 4) Carboxypeptidases

43. Steapsin is a component of

1) Bile juice 2) Gastric juice 3) Intestinal juice 4) pancreatic juice

44. Deglutition means

1) Mastication of food 2) Digestion of food

3) Churning of food 4) Swallowing of food

45. In infant's stomach milk protein. Casein is acted upon by

1) pepsin 2) trypsin 3) Rennin 4) chymotrypsin

46. Micelles are formed in

1) Lumen of ileum 2) Lacteal 3) Blood 4) Epithelial cells

47. Protein coated fat globules are called

1) Lacteals 2) Glycerol 3) Micelles 4) Chylomicrons

48. Chylomicrons leave the epithelial cells by

1) Simple diffusion 2) Exocytosis 3) Facilitated transport 4) Active transport

49. Bile is released from the gall bladder due to the action of

1) Secretin 2) Enterogestrone 3) Gastrin 4) Cholecystokinin

50. Oxidation of one gram of following set of Nutrients release almost same amount of energy.

1) Proteins and fats 2) Fats and carbohydrates

3) Proteins and carbohydrates 4) Vitamins and minerals

51. The enzyme enterokinase helps in the conversion of

1) Prorennin into rennin 2) Trypsinogen into trypsin

3) Pepsinogen into pepsin 4) Proteins into polypeptides

52. Gastric juice of infants contains

1) Maltase, pepsinogen, Rennin 2) Nuclease, pepsinogen, lipase

3) Pepsinogen, Lipase, Rennin 4) Amylase, Rennin, Pepsinogen

53. The enzyme that is not present in succus entericus is

1) Maltase 2) Nucleases 3) Nucleosidase 4) Lipase

54. Enzyme sucrose hydrolyses sucrose into

1) Glucose and Galactose 2) Glucose and Fructose

3) Two molecules of Glucose 4) Two molecules of Fructose

55. Major site of absorption of nutrients in human beings is

1) stomach 2) small intestine 3) large intestine 4) mouth

56. By which process glucose and amino acids are mainly absorbed in the small intestine ?

1) Active transport 2) Passive transport 3) Osmosis 4) Selective absorption

57. Facilitate transport, facilitated the absorption of

1) Fructose 2) Amino acid 3) Glucose 4) Both 1 & 2

58. Which of the following is absorbed from undigested food in the large intestine ?

1) Water and vitamins 2) Water and product of bacterial digestion

3) Water and salt 4) Water and alcohol

59. The accumulation of faeces in the rectum and distension of the rectal wall initiates the feeling of defecation due to

1) Defecation reflex 2) Deamination 3) Deglutition 4) Digestion

60. Contraction of gall bladder occurs due to

1) Secretin 2) cholecystokinin 3) Gastrin 4) Pepsin

61. Which is not a disorder of the digestive system ?

1) Jaundice 2) Diarrhoea 3) Emphysema 4) Constipation

62. The abnormal frequent movement of the bowel and increased liquidity of the faeces is called

1) Vomiting 2) Indigestion 3) Constipation 4) Diarrhea

63. Which of the following is not a cause of indigestion ?

1) Over eating 2) Anxiety 3) Over sleeping 4) Food poisoning

64. Which of the following is a protein and energy malnutrition related disorder?

1) Kwashiorkor 2) Marasmus 3) Beri beri 4) xerophthalmia

65. Secretions released into the small intestine are

1) Bile juice 2) Pancreatic juice 3) Intestinal juice 4) All the above

66. Succus entericus is the name given to

1) A junction between ileum and large intestine 2) Intestinal juice

3) Swelling in the gut 4) Appendix

67. Gastric juice contains

1) Pepsin, lipase, rennin 2) Trypsin, Lipase, Rennin

3) Trypsin, pepsin, lipase 4) Trypsin, pepsin, rennin

68. Which of the following parasite does not cause infection of intestine

1) Pin worm 2) Round worm 3) Filarial worm 4) Thread worm

69. Which digestive juice activates lipases ?

1) Pancreatic juice 2) HCl 3) Bile 4) Succus entericus

70. Jaundice is a disorder of

1) Skin and eyes 2) Circulatory system 3) Digestive system 4) Respiratory system

71. The enzyme that is not present in succus entericus is

1) Lipase 2) Maltase 3) Nucleases 4) Nucleosidase

72. Conversion of milk to curd improves its nutritional value by increasing the amount of

1) Vitamin – D 2) Vitamin – A 3) Vitamin – E 4) Vitamin- B_{12}

73. Proteolytic enzymes are not the components of

1) Saliva 2) Gastric juice 3) Succus entericus 4) Pancreatic juice

74. The initial step in the digestion of milk in humans is carried out by

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

75. Irregular bowel movement but solid faces are egested in case of

1) Diarrhoea 2) Constipation 3) Vomitting 4) Indigestion

KEY

MULTIPLE CHOICE QUESTIONS

1) **2**	2) **1**	3) **3**	4) **3**	5) **4**	6) **4**	7) **2**	8) **2**	9) **3**	10) **4**
11) **4**	12) **2**	13) **3**	14) **1**	15) **3**	16) **3**	17) **1**	18) **2**	19) **3**	20) **3**
21) **4**	22) **3**	23) **2**	24) **3**	25) **2**	26) **4**	27) **3**	28) **4**	29) **2**	30) **4**
31) **1**	32) **3**	33) **2**	34) **3**	35) **2**	36) **2**	37) **2**	38) **2**	39) **3**	40) **3**
41) **2**	42) **4**	43) **4**	44) **4**	45) **3**	46) **1**	47) **4**	48) **2**	49) **4**	50) **3**
51) **2**	52) **3**	53) **2**	54) **2**	55) **2**	56) **1**	57) **4**	58) **2**	59) **1**	60) **2**
61) **3**	62) **4**	63) **3**	64) **2**	65) **4**	66) **2**	67) **1**	68) **3**	69) **3**	70) **3**
71) 3	72) 4	73) 1	74) 3	75) 2					

SPECIAL FORMAT QUESTIONS

1. Match Column – I with Column – II

Column – I	**Column – II**
a) Bilerubin and Biliverdin	i) Parotid
b) Hydrolysis of starch	ii) Bile
c) Digestion of Fat	iii) Lipases
d) Salivary gland	iv) Amylases

1) a-i, b-ii, c-iii, d-iv 2) a-ii, b-iv, c-iii, d-i
3) a-iii, b-i, c-iv, d-iii 4) a-iv, b-iii, c-ii, d-i

2. Match the following

Column – I	**Column – II**
a) Palatine rugae	i) Third molar teeth
b) Heterodont dentition	ii) Secreted by odontoblasts
c) Wisdom teeth	iii) Anterior bony hard palate
d) Dentine	iv) Hardest part
	v) Different types of teeth

1) a-iii, b-v, c-ii, d-i 2) a-iii, b-v, c-ii, d-iv
3) a-iii, b-v, c-i, d-iv 4) a-ii, b-iv, c-ii, d-i

3. Match the following

Column – I	**Column – II**
a) Pulp cavity	i) A cartilaginous flap
b) Papillae	ii) Universal tooth brush
c) Tongue	iii) Grinding food
d) Epiglottis	iv) A small cavity present inside the tooth

1) a-iv, b-v, c-ii, d-i 2) a-i, b-ii, c-iii, d-iv
3) a-ii, b-i, c-iii, d-v 4) a-iii, b-i, c-ii, d-iv

4. Match the following

Column – I	**Column – II**
a) Pyloric Sphincter	i) Opens into duodenum
b) Hepato-pancreatic duct	ii) Abdominal tonsil
c) Caecum	iii) Anal sphincter
d) Vermiform appendix	iv) Guards opening of stomach into intestine

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

3) a-iv, b-ii, c-iii, d-i 4) a-iii, b-I, c-iv, d-v

5. Match the following columns

Column – I	**Column – II**
a) Neck cells	i) Intrinsic factor
b) Peptic cells	ii) mucus
c) Oxyntic cells	iii) pepsinogen
d) Hepatocyte	iv) Bile

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

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

6. Match the following columns

Column – I	**Column – II**
a) Gastric juice	i) Amino peptidases
b) Parietal cells	ii) Intestinal juice
c) Succus entericus	iii) PH-1.8
d) Crypt of Leiberkahn	iv) HCl

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

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

7. Match the following columns

Column – I	**Column – II**
a) Lipase	i) Dipeptides
b) Nuclease	ii) Fats
c) Carboxypetidase	iii) Nucleic acids
d) Dipeptidases	iv) Proteins, peptones

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

8. Match the following columns

Column – I	**Column – II**
a) Proteins	i) Nucleotides
b) carbohydrates	ii) Amino acids
c) Fats	iii) Monosaccharides
d) Nucleic acids	iv) Fatty acids, Glycerol

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

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

9. Match the following

Column – I	**Column – II**
a) Gastrin	i) Stimulates gall bladder to release bile
b) Enterogastrone	ii) Stimulates gastric glands
c) Secretin	iii) Stimulates pancreatic acini to produce water & bi carbonates
d) cholecystokinin	iv) Inhibits gastric secretion

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

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

10. Match the following columns

Column – I	**Column – II**
a) Jaundice	i) Protein deficiency
b) Diarrhoea	ii) Deposition of bile pigments
c) Marasmus	iii) Deficiency of proteins and calories
d) Kwashiorkar	iv) Abnormal frequency of bowel movement

1) a-i, b-ii, c-iii, d-iv 2) a-i, b-iv, c-iii, d-ii
3) a-iv, b-i, c-iii, d-ii 4) a-ii, b-iv, c-iii, d-i

11. Which of the following is correct ?

1) Paneth cells secrete pepsinogen 2) Parietal cells secrete Hydrochloric acid
3) Argentiffin cells secrete mucus 4) Chief cells secrete gastrin

12. Study the following

I. Palatine rugae present on Hard palate II. Food bolus is formed in stomach
III. Rupffer cells of liver are phagocytic

1) Only II and III are correct 2) Only I and II are correct
3) Only I and III are correct 4) All are correct

13. Which of the following is correct

1) Pepsin activates pepsinogen and prorennin
2) Trypsinogen is activated by enterokinase and trypsin
3) Enterokinase activates pepsinogen and trypsinogen
4) HCl activates Nucleases

14. Which of the following statements about liver is incorrect

1) Liver is the largest gland
2) Secretion of liver contains lipases only
3) Liver is present below diaphragm, in the abdominal cavity
4) Liver consists of two lobes

15. Select incorrect statement

1) Caecum has intestinal flora

2) External anal splincter is formed by smooth muscle

3) Mumps is the inflammation of the parotid salivary glands

4) Teeth are useful in mastication of food

16. Select incorrect statement.

1) The proteases are formed during the protein digestion and are move complex than peptones

2) All the end products of food material after digestion pass through only lacteals into blood

3) Maximum absorption of the end products of digestion occurs in the small intestine.

4) Lipoprotein lipase enzyme converts the fats in the chylomicvons to fatty acids and glycerols

17. Read the following statements

1) The secretions of the digestive juices are controlled out by the non local hormones

2) Para sympathetic nervous system increases the peristaltic movements of the gut

3) The egestion of faeces to the out side through the anal opening is an involuntary process.

4) The gastric and intestinal secretions are stimulated by renewal signals.

The incorrect statements are

1) 2 and 3 2) 2 and 4 3) 1 and 3 4) 1, 3 and 4

18. Find out incorrect statement

1) Diarrhoea reduces the absorption of food and results in loss of water

2) In constipation the faeces are not retained within the rectum

3) The causes of indigestion are spicy foods and overeating

4) The inflammation of intestinal tract is the most common ailment due to bacterial or viral infections

19. Choose an incorrect statement regarding the functions of large intestine.

1) Large intestine absorbs the products of bacterial digestion

2) Absorption of electrolytes, water and some amino acids occur mainly here

3) Mucus lubricates faecal matter

4) Faeces are temporarily stored in the rectum

20. Find out correct statement from the following.

1) Digestion of starch starts from stomach

2) Around 30% of the starch is digested in the stomach

3) Digestion of food requires the action of pancreatic juice only

4) Digestion of food is completed in the longest part of the alimentary canal

21. Find out incorrect statement.

1) Pancreas is a compound gland as it possesses both exocrine and endocrine parts

2) Exocrine part secretes alkaline pancreatic juices

3) Endocrine part secretes hormones like Insulin and Glucagon

4) Acini of pancreas is surrounded by Glisson's capsule

SPECIAL FORMAT QUESTIONS

KEY

1) **2**	2) **3**	3) **1**	4) **2**	5) **1**	6) **1**	7) **4**	8) **2**	9) **1**	10) **4**
11) **2**	12) **3**	13) **2**	14) **2**	15) **2**	16) **2**	17) **3**	18) **2**	19) **2**	20) **4**
21) **4**									

NCERT EXEMPLAR - MCQ

1. Select what is not true of intestinal villi among followings

   1) They possess microvilli

   2) They increase the surface area

   3) They are supplied with capillaries and the lacted vessels

   4) They only participate in digestion of fats

2. Hepato – pancreatic duct opens into the duodenum and carries

   1) Bile 2) Pancreatic Juice 3) Both bile and pancreatic juice 4) Saliva

3. One of the following is not a common disorder associated with digestive system

   1) Tetanus 2) Diarrhoea 3) Jaundice 4) Dysentery

4. A gland not associated with the alimentary canal is

   1) Pancreas 2) Adrenal 3) Liver 4) Salivary glands

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

Column – I	**Column – II**
A) Bio molecules 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) The codont	iv) converted into simple substances
E) Serosa	v) J-shaped bag like structure

   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-ii, C-iii, D-iv, E-v

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

Column – I	**Column – II**
A) Duodenum	i) A cartilaginous flap
B) Epiglottis	ii) Small blind sac
C) Glottis	iii) ‘U’ shaped structure emerging from the Stomach

D) Caecum iv) Opening of wind pipe

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

7. 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) Corboxypeptidase	iii) Nucleic acids
D) Dipeptidases	iv) proteins, peptones and proteases

Options :-

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

8. Dental formula in human beings is

1) $\frac{3\ 2\ 2\ 3}{3\ 2\ 2\ 3}$ 2) $\frac{2\ 1\ 2\ 3}{2\ 1\ 2\ 3}$ 3) $\frac{1\ 2\ 3\ 2}{1\ 2\ 3\ 2}$ 4) $\frac{2\ 2\ 3\ 3}{2\ 2\ 3\ 3}$

9. Liver is the largest gland and is associated with various functions, choose one which is not correct

1) metabolism of carbohydrate 2) Digestion of fat

3) Formation of bile 4) secretion of hormone called gastrin

10. Mark the right statement among the following

1) Trypsinogen is an inactive enzyme
2) Trypsinogen is secreted by intestinal mucosa
3) Enterokinase is secreted by pancrease
4) Bile contains trypsin

NCERT EXEMPLAR – MCQ - Key

1) **4**	2) **3**	3) **1**	4) **2**	5) **2**	6) **3**	7) **4**	8) **2**	9) **4**	10) **1**

PREVIOUS NEET QUESTIONS

1. Intrinsic factor that helps in the absorption of vitamin–B12 is secreted by **(Oct-2020)**

   1) Goblet cells 2) Hepatic cells 3) Oxyntic cells 4) Chief cells

2. The proteolytic enzyme rennin is found in **(Oct-2020)**

   1) Intestinal juice 2) Bile juice 3) Gastric juice 4) Pancreatic Juice

3. Goblet cells of alimentary canal are modified from **(Sep-2020)**

   1) Columnar epithelial cells 2) Chondrocytes

   3) Compound epithelial cells 4) Squamous epithelial cells

4. Identify the correct statement with reference to human digestive system

   1) Serosa is the innermost layer of the alimentary canal **(Sep-2020)**

   2) Ileum is a highly coiled part

   3) Vermiform appendix arises from deodenum

   4) Ileum opens into small intestine

5. Identify the cells whose secretion protects the lining of gastro-intestinal tract from various enzymes **(May-2019)**

   1) Chief cells 2) Goblet cells 3) Oxyntic cells 4) Duodenal cells

6. Match the following structures with their respective location in organs

   a) crypts of Lieberkuhn i) pancreas **(May-2019)**

   b) Glisson's capsule ii) Duodenum

   c) Islets of Langer hans iii) Small intestine

   d) Brunner's glands iv) Liver

   Select the correct option from the following

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

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

7. Which of the following gastric cells indirectly help in erythropoisis ? **(May-2018)**

   1) Goblet cells 2) mucous cells 3) Chief cells 4) parietal cells

8. Which one of the following terms describe human dentition ? **(May-2018)**

   1) Pleurodont, Monophyodont, Homodont

   2) Thecodont, Diphyodont, Heterodont

   3) Thecodont, Diphyodont, Homodont

   4) Pleurodont, Diphyodont, Heterodont

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

   1) Incisons 2) Canines 3) Premolars 4) Molars

10. Which cells of crypts lieberrkuhn secrete Antibacterial lysozyme ?

    1) Argentaffin cells 2) Paneth cells **(May-2017)**

    3) Zymogen cells 4) Kupffer cells

11. Which of the following option best represents the enzyme composition of pancreatic juice ? **(2017)**

    1) amylase, peptidase, trypsinogen, rennin

    2) amylase, pepsin, typsinogen, maltase

    3) peptidase, amylase, pepsin, rennin

    4) lipase, amylase, trypsinogen, procarboxypeptidase

12. In the stomach gastric acid is secreted by the **(May-2016)**

    1) Parietal cells 2) peptic cells 3) Acidic cells 4) Gastrin secreting cells

13. Which of the following guards the opening of hepato pancreatic duct into the duodenum ?

    1) Ileocaecal value 2) Pyloric splincter

    3) Splincter of oddi 4) Semilunar value

14. Which hormones do stimulate the production of pancreatic juice and bicarbonate? **(2016-II)**

    1) Gastrin and Insulin 2) Chole cystokinin and secretin

    3) Insulin and Glucagon 4) Angiotensin and epinephrine

PREVIOUS NEET QUESTIONS – KEY

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

PREVIOUS AIIMS QUESTIONS

1. How many teeth grow only once in life time of man ? **(2019)**

   1) 20 2) 8 3) 32 4) 12

2. In large intestine find out correct sequence of parts. **(2018)**

   1) Descending colon-sigmoid colon-transverse colon-caecum-ascending colon

   2) Caecum–Ascending colon–Transverse colon–descending colon–sigmoid colon

   3) Sigmoid colon–descending colon–caecum–Ascending colon–Transverse colon

   4) Caecum-Descending colon–Transverse colon –sigmoid colon- Ascending colon

3. Stomach in humans is the site for the digestion of **(2017)**

   1) carbohydrates 2) fats 3) proteins 4) all of these

4. In mammals the teeth are **(2016)**

   I) only two sets, present throughout the life

   II) Embedded in the socket of the jaw bones

   III) These of different types conditions are respectively referred as

   1) diphyo dont, hetero dont, thecodont

   2) diphydont, thecodont and heterodont

   3) Thecodont, diphyodont and heterodont

   4) The codont, heterodont and diphyodont

5. Which one of the following is the correct matching of the vitamin with its nature and its deficiency disease ? **(2015)**

   1) Vitamin–A–Fat soluble–Night blindness 2) Vitamin–K–Fat soluble–Beri–beri

   3) Vitamin – A – Fat Soluble – Beri – beri4) Vitamin – K – water soluble - Pellagra

6. Brunner's gland is the characteristic feature of **(2014)**

   1) Ileum 2) duodenum 3) duodenum 4) fundic region of stomach

7. Excess carbohydrates and proteins are stored in the body as **(2013)**

   1) Amino acids 2) Fats 3) Starch 4) Monosaccharides

8. The PH of stomach is 1.6. Then which enzyme will digest protein ? **(2012)**

   1) Trypsin 2) Pepsin 3) Amylase 4) Lipase

9. The contraction of gall bladder is due to **(2011)**

   1) Gastrin 2) secretin 3) Chole cystokinin 4) Enterokinase

10. In humans the digestion of starch starts from **(2010)**

    1) Oesophagus 2) mouth 3) duodenum 4) stmach

11. Which of the following does not produce any digestive enzyme ? **(2009)**

    1) Pancreas 2) mouth 3) Gastric mucosa 4) Liver

PREVIOUS AIIMS QUESTIONS – Key

1) **4**	2) **2**	3) **3**	4) **2**	5) **1**	6) **3**	7) **2**	8) **2**	9) **3**	10) **2**
11) **4**									