

BIOLOGY

BOOKS - PRADEEP BIOLOGY (HINGLISH)

DIGESTION AND ABSORPTION

Ncert Exercises With Answers

- 1. Choose the correct answer among the following:
- (a) Gastric juice contains
- (i) pepsin, lipase and rennin
- (ii) trypsin lipase and rennin
- (iii) trypsin, pepsin and lipase
- (iv) trypsin, pepsin and renin
- (b) Succus entericus is the name given to

- (i) a junction between ileum and large intestine
- (ii) intestinal juice
- (iii) swelling in the gut
- (iv) appendix



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2. Match Column I with column II

Column I Column II

- (a)Bilirubin and biliverdin (i)Parotid
- (b) Hydrolysis of starch (ii)Bile
- (iii)Lipases (c)Digestion of fat
- (iv)Amylases (d)Salivary gland

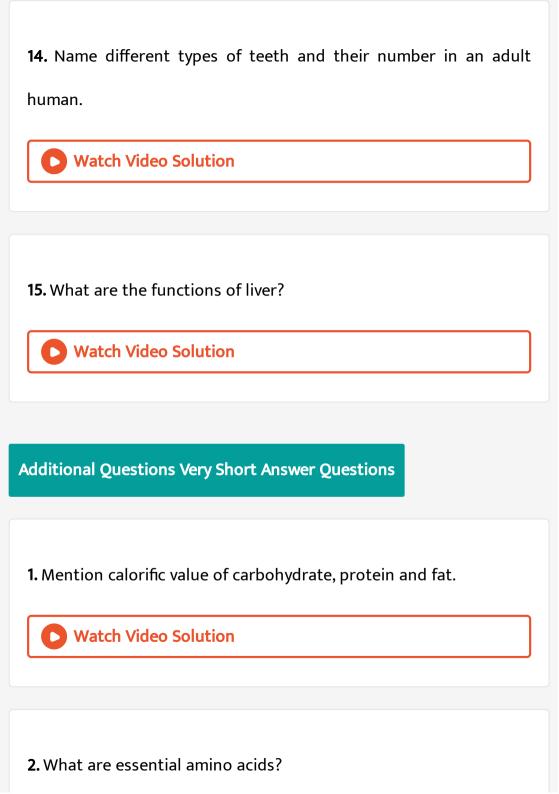


- 3. Answer briefly:
- (a) Why are villi present in the intestine and not in the stomach?
- (b) How does pepsinogen change into its active form?

(c) What are the basic layers of the wall of alimentary canal?
(d) How does bile help in the digestion of fats?
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4. State the role of pancreatic juice in digestion of proteins.
Watch Video Solution
5. Describe the process of digestion of protein in stomach.
Watch Video Solution
6. Give the dental formula of human beings
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7. Bile juice contains no digestive enzymes, yet it is important for
digestion. Why?
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8. Describe the digestive role of chymotrypsin. What two other digestive enzymes of the same category are secreted by its source gland?
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9. How are polysaccharides and disaccharides digested?
Watch Video Solution
10. What would happen if HCl were not secreted in the stomach?

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11. How dose butter in your food get digested and absorbed in the
body?
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12. Discuss the main steps in the digestion of proteins as the food
passes through different parts of the alimentary canal.
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13. Explain the term thecodont and diphyodont.
Watch Video Solution



Watch Video Solution
3. State the anatomical location of pancreas.
Watch Video Solution
4. What are crypts of Leiberkuhn?
Watch Video Solution
5. Name three accessory digestive organs in human.
Watch Video Solution
6. What do you understand by the term malnutrition?

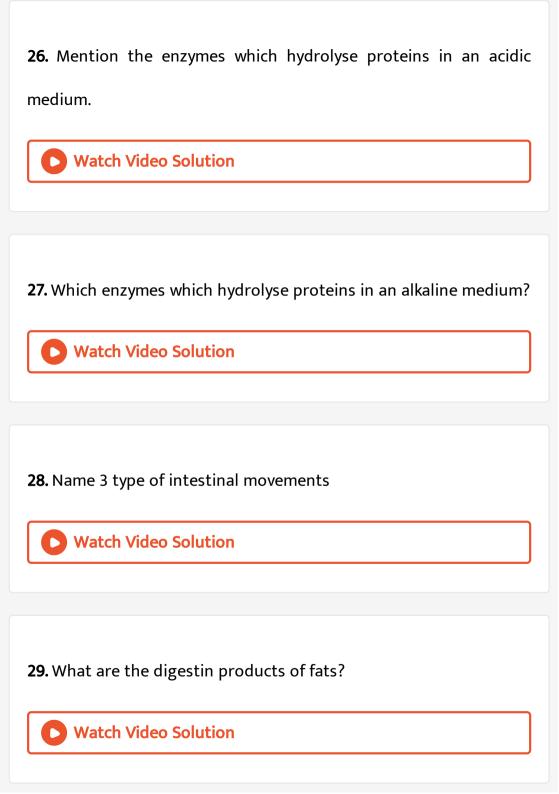
Watch Video Solution
7. Crop, Midgut, Hepatic caeca, Gizzard, Buccal cavity, Hindgut-
arrange these part of the alim cannal of a cockroach in proper
sequence in relation to digestion.
Watch Video Solution
8. What is the function of oesophageal sphincter?
Watch Video Solution
9. List the main components of food.
Watch Video Solution

10. Which carbohydrate functions as a blood sugar?
Watch Video Solution
11. What is the physiologic fuel value of carbohydrate, fat, and proteins?
Watch Video Solution
12. Give the daily requirements fo carbohydrate, fat and protein for an average man doing moderate work? Watch Video Solution
13. Name the essential fatty acids.

14. What is the role of iron in our body? Watch Video Solution
15. Who discovered the vitamins?
Watch Video Solution
Water video solution
16. List the fat-soluble vitamins.
Watch Video Solution
17. What is the role of vitamin K?
Watch Video Solution

18. Name the teeth which are used for chewing food. Watch Video Solution
19. Where are the opeinngs of eustachian tubes located?
Watch Video Solution
20. Name the sphincter present between the small and large intestines.
Watch Video Solution
21. Mention the vestigial part of the human alimentary cannal.
Watch Video Solution

22. Which is the largest gland in the human body.
Watch Video Solution
23. What is deglutition?
Watch Video Solution
24. Name the enzymes that curdle milk.
Watch Video Solution
25. List the enzymes which hydrolyse carbohydrates
Watch Video Solution



30. Name the chamber of a ruminant stomach in which cellulose is digested.

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31. What is the major role of carbohydrates in our body?



32. Which carbohydrate serves as a roughange in the gut?



33. Name the disorder caused by lack of Castle's intrinsic gastric factor.



34. Cite a case of intracellular digestion in humans. Watch Video Solution
35. Name the hardest substance in the body. Watch Video Solution
36. Does the food slide down the oesophagus merely by gravity. Watch Video Solution
37. What kind of meal should be taken before athletic competition? Watch Video Solution

38. What is the colour of urine due to?
Watch Video Solution
39. Where is dentine found in the human body?
Watch Video Solution
40. Give the role of odontoblasts in a tooth.
Watch Video Solution
41. Which components of bile cause emulsification of fats?
Watch Video Solution

42. What is lacteal?
Watch Video Solution
43. Name the animals which have protases to digest animal fibrous
proteins
Watch Video Solution
44. Where from do the chemoautotrophs derive energy for the
synthesis of their food?
Watch Video Solution
45. At which sites do the proteases act in the samll intestine?
Watch Video Solution

46. What are chemoautotrophs?



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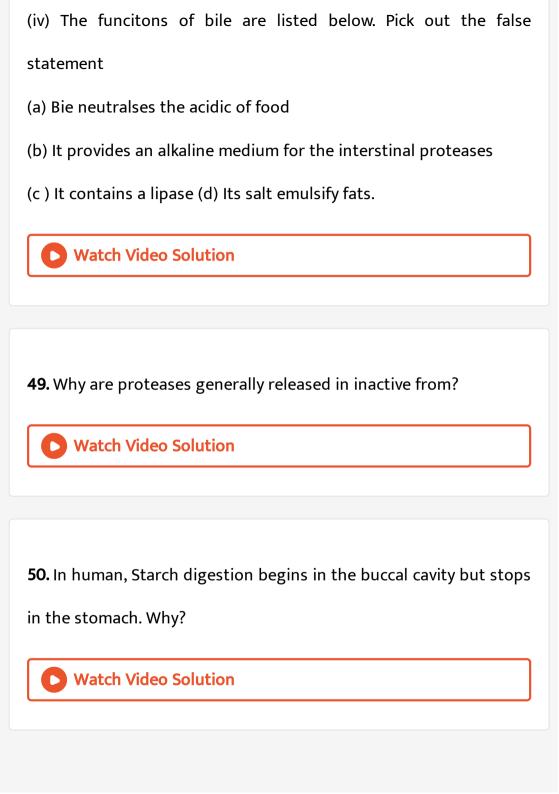
47. What is the function of bile salts?



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48. Anser simply as, a,b,c or d

- (i) Sucrase in an enzyme found in
- (a) Saliva (b) Gastric juic (c) Intertinal juice (d) Panceatic juice
- (ii) Most digestion occurs in
- (a) Mouth (b) stomach (c) small intestine (d) Large intestine
- (iii) What is the substrate of salivary amylase?
- (a) Protein (b) starch (c) Glucose (d) maltose



51. The food mixed thoroughly with the acidic gastric juice of the stomach by the churning movements of its muscular wall. What do we call the food then?



52. Trypsinogen is an inactive enzyme of pancreatic juice. An enzyme, enterokinase, activates it. Which tissue/cells secrete this enzyme?/How is it activated?



53. In which part of alimentary canal does absorption of water, simple sugars and alcohol takes place?



54. What do we call the type of teeth attachment to jaw bones in which each tooth is embedded in a socket of jaws bones?



Additional Questions Short Answer Questions

1. Define nutrients. How do they help in the well-being of an orgainsm?



2. Wrtie down the human dental formula. What is meant by diphyodont?



3. Nutrition in human is holozoic. What do you mean by this?
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4. Name of the five main processes involved in nutrition.
Watch Video Solution
5. Define the term digestion. List the food contents that need
digestion.
Watch Video Solution
6. Name the tonils found in the human pharynx. Also give their location
Watch Video Solution

7. What is a nondigestve enzyme? Name one such enzyme released into the intestine and given its role.



8. What is emulsification? Where and how does it occur?

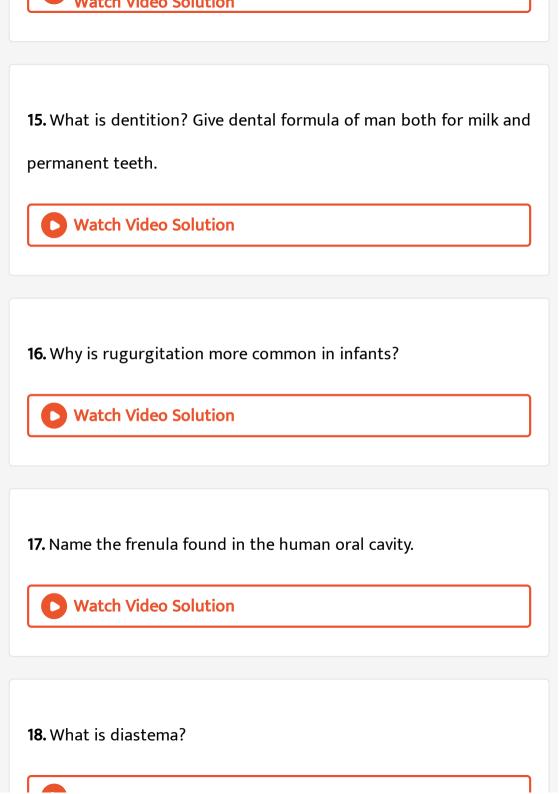


9. What is the site of fat digestion in human? Name the enzymes that digests facts. Mentions the end products of fat digestion.



10. How do the epiglottis and uvula differ in their role?

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11. What are appendices epiploicae?
Watch Video Solution
12. Mention the postion and role of Kupffer's cells
Watch Video Solution
13. What are micelles? How are they helpful?
Watch Video Solution
14. Name the various regions of pharynx and colon.
O Watch Video Colution



19. Name the respective mineral nutrient element that (i) forms the core constituent of the ring structure of chloryphy ii (ii) activates carboxylases (ii) forms the component of nitrogenase (iv) synthesises middle lamella of plant cells.



- **20.** Suggest suitable words for the blanks left in the sentences given below:
- (i) Intesine receives chyme and turns out
- (ii) Release of pancreatic juice is caused by two hormonesand
- (iii) Trypsinogen is activated to trypsin by
- (iv) Fatty acids and glycerol are absorbed into but glucose and amino acids are absorbed into.....
- (v) Colon bacteria synthesize vitamins and

- (vi) Glycogen is stroed in liver and (vii) There is no storage of in the body. **Watch Video Solution** 21. Complete the underwritten sentences, (i) The six essential of diet are carbohydratesand water. (ii) An average man needs of carbohydrates of fats, and Of proteins daily. (iii)andare the energy of foods. (iv)builds the body. **Watch Video Solution**
 - **22.** Fill in the blanks with suitable words,
 - (i) Calcium is a but elements like iron are required in very

Amount, and hence, they

(ii) Ptyalin is a starch digesting......, secreted by......gland



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23. Match column I with column II:

Column II Column II

(i)Lion (a)Omnivore

(ii)Bats (B)Sanguivore

(iii)Cow (c)Frugivore

(iv)Cockroach (d)Carnivore

(e)Herbivore



- 24. Which of the following statements are false?
- (i) Amylase hydrolyzes proteins to amino acids.
- (ii) Pepsinogen is activated to pepsin by HCI.
- (iii) Human body can synthesize all the amino acids it needs.

- (iv) Pancreatic amylase hydrolyses polyasharides to disaccharides.
- (v) Enteropeptidase activates pepsinogen to pepsin
- (vi) Tryspin coagulates the milk protein casein.



- **25.** Indicate whether each of the following statements is true (T) or false (F):
- (i) Bilirubin is derived from haemoglobin
- (ii) The stomach has the lowest pH.
- (iii) The liver contains lipid emulsifer.
- (iv) Lack of castle,s interinsic gastric factor causes pemicious anaemia.
- (v) The nonessential amino acids cannot be synthesized in the body cells.
- (vi) Large intestine secretes many enzymes.

(vii) Insects have proteases to digest animals fibrous proteins

(viii) All proteases function in the lumen of samll intestine.



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- 26. Mark the odd one in each of the following series:
- (i) Gastric trypsin, secretin, duocrinin (ii) Maltase, lactase, lipase, sucrase
- (iii) Villi, Brunnner,s glands, crypts of Lieberkuhn, gastric glands
- (iv) Pepsin, lipase, tryspin, rennin
- (v) Bile salts, bile pigments, gall bladder gastric juice
- (vi) Maltase, lactase, aminopeptidase, sucrase.



27. Match the items listed in column I with appropriate items (one of more) from column II.

(i)Fluorosis	$(a) { m Xerophthalmia}$	
$(ii) { m Vitamin} { m D}$	(b)Kwashirokor	
$(iii) { m Vitamin~A}$	(c)Mottled teeth	
(iii)Beriberi	(d)Night blindness	
(v)Protein deficinecy	(e) vitamin B_1	
. ,	(f)Rickets	
	(g)Fluroine	
Watch Video Solu	ution	
28. Name the enzymes involved in the breakdown of nucleotides		
into sugars and bases?		
Watch Video Solution		
29. What is mutualism?	Give three examples	
Watch Video Solu	ution	

Column II

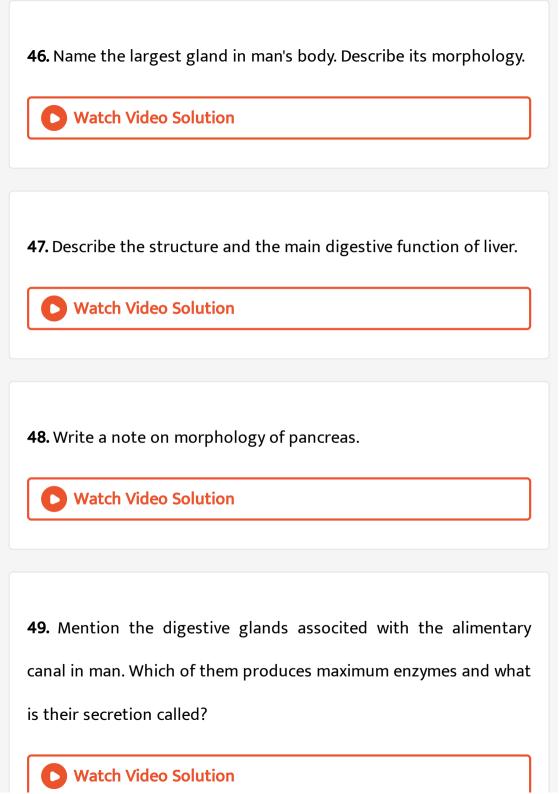
 $\operatorname{Column} \operatorname{I}$

30. How does gastrovascular cavity in cnidarians help in digestion?
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31. What are microvilli? State their functions.
Watch Video Solution
32. What is peristalsis? How does it help in digestion?
Watch Video Solution
33. Name the cell that secretes mucus. What are the functions of mucus?
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34. State the sources of vitamin A and vitamin C.
Watch Video Solution
35. What are the deficiency symptoms of vitamin A and D?
Watch Video Solution
36. State the physiologic functions of three fat soluble vitamins.
Watch Video Solution
37. State the physiological functions of three water-soluble vitamins.
Watch Video Solution

38. What is the role of digestive systems?
Watch Video Solution
39. Give an account of dentition (arrangment of teeth) in man.
Watch Video Solution
40. Describe the structure of a mammalian tooth.
Watch Video Solution
41. Write down the morphology and functions of human tongue.
Watch Video Solution

43. Describe the structure of human stomach. Watch Video Solution 44. What changes does the food undergo in the stomach? Watch Video Solution 45. Write down the morphology of small intestine. Watch Video Solution	42. Mention the process the food undergoes in the buccal cavity.
Watch Video Solution 44. What changes does the food undergo in the stomach? Watch Video Solution 45. Write down the morphology of small intestine.	Watch Video Solution
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45. Write down the morphology of small intestine.	44. What changes does the food undergo in the stomach?
	Watch Video Solution
Watch Video Solution	45. Write down the morphology of small intestine.
	Watch Video Solution



50. Name the enzymes for protein digestion in the gastric, pancreatic and intestinal juice, the substrates they digest, and the products of their action.



51. How are the following enzymes activated in the alimentaryy canal?

(a) Pepsin (b) Carboxypeptidase (c) Rennin (d) Trypsin (e) chymotrypsin.



52. Name the enzymes of the pancreatic juice, the substrates they digest, and the products of their digestive action.

Watch Video Solution				
53. Give the advantages of a complete digestive tract and				
drawbacks of an incomplete digestive tract.				
Watch Video Solution				

54. How is pepsinogen changed into pepsin? State its role in digestion.

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55. What is the role of roughage in our diet?

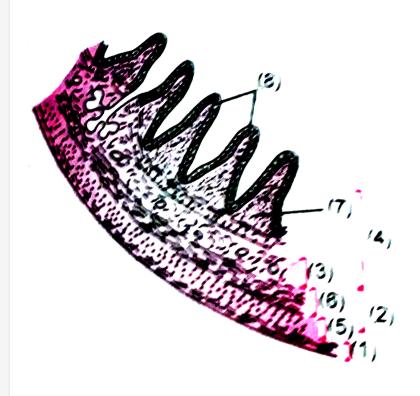


56. Make a list the essential amino acids for humans



- **57.** Figure depicts microsopic structure of the intestinal wall of alimentary canal. Study the figure and answer the following question?
- (i) The wall of alimentary canal consists of 4 main concentric coats labelled as 1,2,3 and 4. Name these coats.
- (ii) The coat marked 2 has two layers marked as 5 and 6. Between these two layers is a network of nerve cells and para-sympathetic nerve fibres called..... It controls the
- (iii) The coat marked 3 is highly vasucular connective tissue having another network of nerve cells and sympathetic nerve fibres called...... it controls the secretion of

(iv) Name the parts labelled as 7 and 8





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58. Fill in the blanks:

(i) Liver separates excess of sugar from the blood and stores it in its cells as glycogen by a process called It is aided by the,a parncreatic hormone.

(iii) Excess of amino acids/fat from very high protein/fat diet are also changed into glycogen by a process called....... Liver also converts excess glucose and amino acids into fats by aa process called.......

(iv) In the liver, excess or unnecessary amino acids are broken down, their amino radical separating as..... and carbon chain changing into a.....

(v) The process of breakdown of excess amino acid in the liver is called It forms ammonia which is immediately convered into relatively harmless.....

59. What is pancreas ? Mention the major secretions of pancreas that are helpful in digestion.



60. Name the part of the alimentary canal where major absorption of digested food takes place. What are the absorbed forms of different kinds of food materials ?



61. What are three major types of cells found in the gestric glands? Name their secretions.



Additional Questions Long Answer Questions

1. Draw a diagram of the human duodenum and the associated glands. Label the glands and their respective ducts pouring into the duodenum.



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- 2. Distinguish between the following?
- (a) Autotrophic and heterotrophic nutrition (b) Holozoic and saprozoic nutrition
- (c) Proximate and protective principles of food (d) Calorfic and physilogical values
- (e) Kwashiorkor and marasmus



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3. Write down the functions of liver.				
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4. Describe the absorption of digested food from the gut into the				
body fluids.				
Watch Video Solution				
5. Discuss the assimilation of absorbed food in the body.				
Watch Video Solution				
6. Give an account of gastrointestinal hormones.				
Watch Video Solution				

7. Describe the structure of a mammalian tooth.
Watch Video Solution
8. List the function of blie and HCI in digestion of food.
Watch Video Solution
9. Give a labelled figure of human digestive system.
Watch Video Solution
10. Describe the digestion of fats in the human alimentary canal.
Watch Video Solution
Watch video solution

11. Describe the structure and function of pancreas.
Watch Video Solution
12. Give the names, locations and functions of the various sphincter
muscles associated with the digestive systems.
Watch Video Solution
13. Make a labelled diagram of V.S mammalian tooth.
13. Make a labelled diagram of V.S mammalian tooth. Watch Video Solution
Watch Video Solution
Watch Video Solution 14. Discuss the digestion of carbohydrates or proteins in the

15. How does intestinal juice contriute to the digestion of proteins? What provides the alkaline pH in the small intestine?

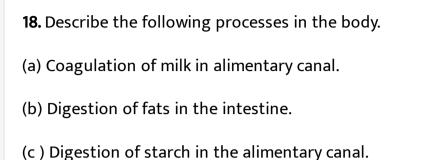


- **16.** Distinguish between:
- (a) villi and mirovilli. (b) Sucrase and maltase.
- (c) Peptic and oxyntic cells (d) Duffusion and active absorption.
- (e) Lipases and peptidases. (f) Extracellular digestion and intracellular digestion.



17. How is the digested fat absorbed?





- (d) Role of bile salts in the digestion and absorption of fats.
- (e) Microbial digestion of cellulose in the herbivore alimentary canal.



19. Dicuss the role proteins in the body.



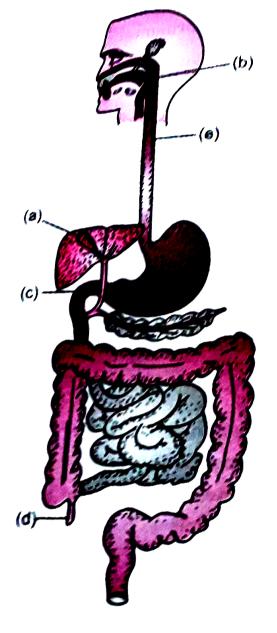
20. Give a brief account of vitamins or mineral necessary for normal health in humans.



- **21.** Draw a portion of human alimentary canal. Showing the location of digestive glands with their ducts opening into the duodenum. Label the parts.
- (b) Name the largest digestive gland in humans. Describe the functions of its secretion in digestion.



22. Diagram of alimentary canal. Of man is given. Label five parts mentioned as (a) to (e) and give their



23. Fill in the blanks:

- (i) A person who specializes in the processes and problem of nutrition is called......
- (ii) Carboydrates, lipids and proteins form major part of the food and hence are termed........ These constitute the energy sources for the production of heat and different organic functions and hence are also termed........
- (c) Water, minerals and vitamins are micronutrients and are also termed as...... Minerals and vitamins functions as...... substance.
- (d) Common disachharides are.....,andand
- (e) Common examples of homopolysaccharides are, and

 In polysaccharides, monosaccharide molecules are linked by.............

bonds.

- (h) acids are examples of essential fatty acids.
- Proteins are made up of numerous monomers, tha amino acids which are joined together by bonds.

24. A person had roti and dal for his lunch. Trace the changes in those during its passage through the alimentary canal.



25. Discuss mechanisms of absorption.



26. Explain the process of digestion in the buccal cavity with a note on the arrangement of teeth.



1. Which part of digestive system is affected during jaundice? Which pigments are involved in jaundice?



2. In an attempt to reduce weight, some people resort to dieting. What are harmful effects of dieting on health?

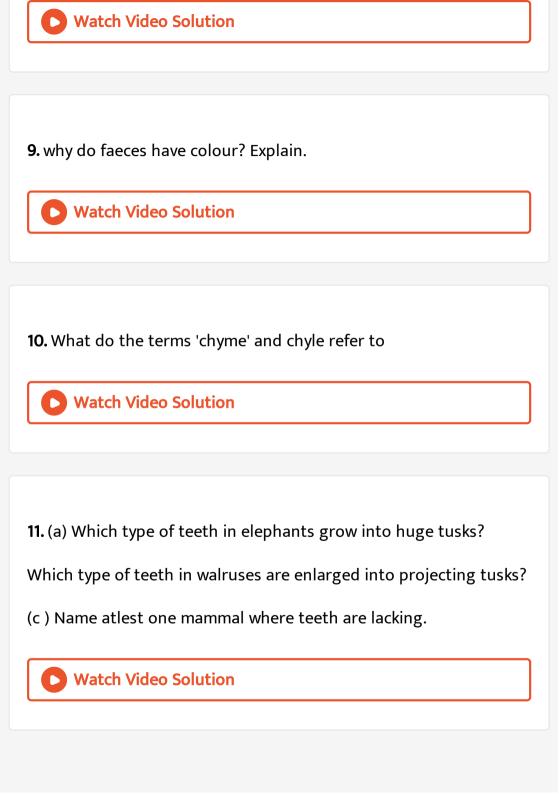


3. Why is it advised to have lot of fibrous material in the diet?



4. How are gall stones formed? How do the gall stones affect the patient?

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5. What are plicae circulares ? Give their location and function.
Watch Video Solution
6. What is lactose intolerance? Explain.
Watch Video Solution
7. What do the terms deglution and reguragitation means?
Watch Video Solution
8. How is our gut lining protected from its own secretion of proteases?



- **12.** (a) Which part of the tooth is the hardest substance in the body? It is rich in which mineral?
- (b) A tooth is man is composed of which material? What is enclosed in it?



13. Fill in the blanks with appropriate answers

Hormone	Source	Target Organ	Action
Gastrin	Mucosa of pyloric stomach	(a)	1. Stimulates secretion of gastric juice.
			2. Constricts cardiac sphincter.
(b)	Duodenal epithelium	Stomach	Shows gastric contraction to delay its emptying.
			2. Stops secretion of gastric juice.
Cholecystokinin	(c)	Pancreas,	1. Release of enzymes in pancreatic
		Gall bladder	juice.
			2. Release of bile from gall bladder.
Enterocrinin	Intestinal epithelium	Intestine	(d)



- **14.** Fill in the blanks with appropriate enzymes that being the required changes in the following
- (i) Trypsinogen $\stackrel{?}{\longrightarrow}$ Trypsin
- (ii) Caesin $\stackrel{?}{\longrightarrow}$ paracasein + Whey proteins
- (iii) RNA $\stackrel{?}{\longrightarrow}$ Ribonucleotides
- (iv) Triglycerides $\stackrel{?}{\longrightarrow}$ Fatty acids + Glycerol



15. Fill in the blanks with appropriate answers

Digestive gland	Digestive Julee	Ensymee	
Intestinal glands	Intestinal juice	Intestinal amylase, Maltase, Isomaltase, Limit Destrinase, Lactase, Aminopeptidases, Lipase, Nucleotidases, Nucleosidases etc.	(a)
Salivary glands Gastric glands	Saliva (c)	(b) Pepsin, Rennin,	Oral cavity Stomach
(d)	Pancreatic juice	Gastric lipase, Trypsin, Chymotrypsin, Pancreatic amylase	Small Intestine



- **16.** (i) As a digestive gland, liver secretes what? Where is this secretion stored? Name the enzymes secreted by liver.
- (ii) Digestive secretion of liver contains which salts? What is their function?



17. What do you mean by burn?



- **18.** (a) A 1-3 years old child is underweight, has stunted growth, poor brain development, loss of appetite anaemia, protruding belly, slender legs and bulging eyes. What type of deficiency disease is he suffering from?
- (b) A person is suffering from bacterial growth in eyes, thickening,

keratinization and ulceration of cornea. What type of deficiency disease is he suffering from?

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19. How does obstructive jaundice occurs?



20. How does long chain fatty acids, monoglycerides and diglycerides get absorbed in the small intestine?



Practice Questions Multiple Choice Questions

1. Which one is correctly matched?
A. Vitamin E-Tocopherol
B. Vitamin D-Riboflavin
C. Vitamin B-Calciferol
D. Vitamin A-Thiamine
Answer: A
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2. Most abundant organic compound on earth is
2. Most abundant organic compound on earth is A. Protein

D. Steroids
Answer: B
Watch Video Solution
3. Hydrolytic enzyme which acts at low pH is
A. Protease
B. $lpha$ -Amylase
C. Hydrolases

D. Peroxidase

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Answer: C

4. Organisms which obtain energy by the oxidation of reduced
inorganic compounds are called
A. Photoautotrophs
B. chemoautotrophs
b. chemodatotrophs
C. saprozoic
D. conrobatoratrophs
D. coproheterotrophs
Answer: B
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Watch Video Solution
5. Total number of cannies in permanet dental set of human is
A. 8
B. 12

- C. 6
- D. 4

Answer: D



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- 6. Vitamin C is helpful in the
 - A. Formation of visual pigment
 - B. Growth of bones
 - C. Treatment of pernicious anaemia
 - D. Wound healing

Answer: D



7. Thecodont, diphyodont and heterodont teeth are characteristic of
A. Aves
B. Reptiles
C. Mammals
D. Ampjibians
Answer: C
Watch Video Solution
8. Puly cavity if teeth is linked by
A. Odontoblast
B. Choroblast
C. Osteblast
C. OSCEDIUSC

D.	Amy	νlο	bl	ast
		,	~ .	

Answer: A



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- 9. Which one of the following pairs is not correctly matched?
 - A. Vitamin B_1 Beri-beri
 - B. Vitamin B_2 -Pellagra
 - C. Vitamin B_{12} -Pernicious anaemia
 - D. Vitamin B_6 -Loss of appetie

Answer: B



10. The richest sources of vitamin B_{12} are

A. Rice and hen's egg

B. carrot and chicken breast

C. Goat's liver and spirullina

D. Chocolate and green gram

Answer: A



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11. Which one of the following is the correct matching of a vitamin , its nature and its deficiency disease

A. Vitamin A-Fat soluble-Beri-beri

B. Vitamin K-water soluble-Pellagra

- C. Vitamin A-Fat soluble-Night blindness
- D. Vitamin K-Fat soluble Beri-beri

Answer: C



- **12.** Which group of three of the following five statement (1-5) contain is all three correct statements regarding beri-beri
- 1 . A crippling disease prevalent among the native population of sub-Saharan Africa
- 2. A deficiency disease caused by lack of thiamine (vitamin B_1)
- 3. A nutritional disorder in infants and young children when the diet is persistenly deficient in essential protein
- 4 . Occurs in those countries where the staple diet is polished rice
- 5 . The symptoms are pain from neuritis, paralysis, muscle wasting, progressive oedema mental deterioration and finally heart failure.

A. 2,4 and 5 B. 1,2 and 4 C. 1,3 and 5 D. 2,3 and 5 **Answer: A Watch Video Solution** 13. A patient is advised to specially consume more meat ,lentil ,milk and eggs in diet when the patient suffers from A. scurvy B. kwashiorker C. rickets D. anemia

Answer: A



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14. Epithelial cells involved in absorption of digested food have on their free surface.

A. pinocytic vesicles

B. microvilli

C. zymogen granules

D. phagocytic vesicles

Answer: B



15. Secretin and cholecystokinin are digestive hormones. They are secreted in :
A. pyloric stomach

B. duodenum

C. ileum

D. oesophagus

Answer: B



16. Which of the following vitamins is water soluble as well as an anti-oxidant

A. Vitamin B_1

B. Vitamin A

- C. Vitamin D
- D. Vitamin C

Answer: D



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17. Which one of the following four secretions is correctly matched wwith its source, target and nature of action?

	Secretion	Source	Target	Action
(A)	Gastrin	Stomach	Oxyntic	Production of
(11)	Gustin	lining	cells	HCl
	Inhibin	Sertoli	Hypothala-	Inhibition of
(B)		cells	mus	secretion of
(-)				gonadotropin
				releasing hor-
				mone
	Enterokinase	Duodenum	Gall	Release of
(C)			bladder	bile juice
	Atrial natriu-	Sinoatrial	Juxtaglo-	Inhibition
(D)	retic factor	node	merular	of release of
	(ANF)	(SAN)	apparatus	renin
		M-Cells of	(JGA)	
		atria		

A. Gastrin Stomach Oxyntic Production of HCI

- B. Inhibin Sertoli cells Hypothanlamus Inhibition of secretion of gonadotrophin releasing hormone
- C. Enterokinase Duodenum Gall blandder Release of bile juice
- D. Atrial Natriuritic factor (ANF) node (SAN M-cells of atria juxta glomerular apparatus (JGA) Inhibition of release of renin

Answer: D



18. Examination of blood of a person suspected of having anaemia, shows large, immature, nucleated erythrocytes without haemoglobin. Supplementing his diet with which of the following is likely to alleviate his symptoms

- A. iron compounds
- B. thiamine

- C. folic acid and cobalamine
- D. riboflavin

Answer: C



- **19.** Which one of the following pairs of the cells with their secretion is correctly matched
 - A. Oxyntic cells-a secretion with pH between 2-0 and 3.0
 - B. alpha cells of islets of Langerhas secreation that decreases blood sugar level.
 - C. Kupffer cells-a digestive enzyme that hydrolyses mucleic acids.
 - D. Secbaceous glands --- a secretion that evaporates for cooling

Answer: A



20. Lipids, which can be found in oil based salad dressings and ice sream, during digestion are splitted into

The main function of Lacteals in the human small intestine is the absorption of

- A. glucose and vitamins
- B. amino acids and glucose
- C. water and vitamins
- D. fatty acids and glycerol

Answer: D



21. In the homeostatic control of blood sugar level, which organs function respectively as modulator and effector

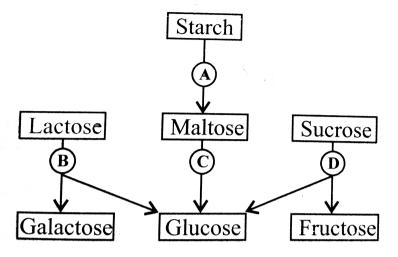
- A. liver and islets of Langerhans
- B. hypothalamus and liver
- C. hypothanlamus and islets of Langerhans
- D. islets of Langerhans and hypothalamus

Answer: C



22. The given flowchart shows the fate of carbohydrates during digestion in the human alimentary canal. Identify the enzymes acting at stages indicated as A,B,C and D and selct the correct

option.



A. A = amylase, B = maltase, C = lactase, D = invertase

B. A = amylase, B = maltase, C = invertase, D = lactase

C. A = amylase, B = invertase, C = maltase D = lactase

D. A = amylase, B = lactase, C = maltase D = invertase

Answer: D



23. Kupffer cells are found in
A. liver
B. small intestine
C. pancreas
D. thyroid gland
Answer: A
Watch Video Solution
24. In which of the following, putrifying bacteria is present?
24. In which of the following, putrifying bacteria is present? A. intestine

D. liver
Answer: B
Watch Video Solution
25. A person on long hunger strike and surviving only on water will have
A. less amino acis in his urine
B. More glucose in his blood

C. less urea in his urine

Answer: C

D. more sodium in his urine

26. Which one of the following is a fat-solu	ble vitamin and its
related deficiency disease	
A Retinal Verenhthalmia	

- A. Retinol Xerophthalmia
- B. Cobalamine Beri-beri
- C. Calciderol Pellagra
- D. Ascorbic acid Scurvy

Answer: A



- ${\bf 27.}$ Osteomalacia occurs due to the deficiency of ,
 - A. Vitamin A
 - B. Vitamin B

C. Vitamin C
D. Vitaimin D

Answer: D



28. Vitamin B_{12} consists of which type of element ?

A. Co

B. Ni

C. Fe

D. none of these

Answer: A



- 29. Succus entericus is secreted by
 - A. Crypts of Leiberkuhn
 - B. Brunner's gland
 - C. both (a) and (b)
 - D. none of these

Answer: C



- 30. Dental formula of rabbit is
 - A. $\frac{2}{1} \frac{0}{0} \frac{3}{2} \frac{3}{3}$
 - B. $\frac{2}{1} \frac{1}{0} \frac{3}{2} \frac{3}{3}$
 - $\mathsf{C.} \; \frac{2}{1} \, \frac{0}{0} \, \frac{2}{2} \, \frac{3}{3}$

D. $\frac{1}{1} \frac{3}{2} \frac{0}{0} \frac{3}{3}$

Answer: A



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31. Digestion of protein is completed in

A. stomach

B. duodenum

C. ileum

D. duodenum and ileum

Answer: B



32. Part of bile useful in digestion is

- A. bile salt
- B. bile pigment
- C. bile matrix
- D. all of them

Answer: A



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33. What is true for vitamin C?

- A. also called as ascorbic acid
- B. also called as fumaric acid
- C. obtained from citrus fruits

[. both a and c
Ansv	ver: D
C	Watch Video Solution

34. Anti haemorrhagic vitamin is

A. vit. C

B. vit. B

C. vit A

D. vit. K

Answer: D



35. Part of the stomach which opens into the duodenum

A. cardiac

B. pyloric

C. fundus

D. body

Answer: B



36. Which of the following is the correct matchin of the site of action on the given substrate, the enzyme acting state upon it and the end product

A. Small intestine, proteins $\stackrel{\mathrm{pepsin}}{\longrightarrow}$ Amino acids

B. Stomach, fats $\stackrel{\mathrm{Lipase}}{\longrightarrow}$ micelles

C. Duodenum, triglycerids $\stackrel{\mathrm{Trypsin}}{\longrightarrow}$ monogycerides

D. Small intestine , starch $\xrightarrow{\alpha-\mathrm{Amylase}}$ disaccharide (maltose)

Answer: D



37. What will happen if the secretion of parietal cells of gastric glands is blocked with an inhibitor?

A. in the absence of HCI secretion inactive pepsinogen is not converted into the active enzyme pepsin

B. enterokinase will not be released from the duodenal muscosa and so trypsinogen is not converted to trypsin

C. gastric juice will be dificient in chymosin

D. gastric juice will be dificient in pepsinogen

Answer: A Watch Video Solution

38. Pellagra is caused due to the deficiency of

A. thiamine

B. niacin

C. pyridoxine

D. biotin

Answer: B



Watch Video Solution

39. Osteomalacia is a disease caused by the dificiency of

A. calciferol B. retinol C. tocopherol D. phylloquinone **Answer: A Watch Video Solution** 40. Pernicious anaemia results due to dificiency of A. vit B_1 B. vit. A C. vit. B_{12} D. iron **Answer: C**



41. Lactic acid bateria convert milk into curd an improves its nutritional quality by enhancing vitamin:

A. A

B. B

C. C

D. D

Answer: B



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42. Common ingredient in secretion of salivary and Brunner's

glands having role in growth, repair and regeneration is

- A. enterogastrone
- B. urogastrone
- C. neurotensin
- D. somatostain

Answer: D



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43. Secretin:

- A. stimulates enzymes secretion by pancreas inhibits acid secretion in stomach stimulates gall bladder
- B. stimulates bicarbonate secretion by pancreas, inhibits bicarbonate secretin in stomach, stimulates bicarbonate secretion by liver

C. stimulates acid secretion in stomach, potentiates action of CCK, inhibits intestinal movement

D. stimulates gall bladder, inhibits acid secretion in stomach, stimulates bicarbonate secretion by pancreas

Answer: D



44. Liver necrosis and muscular dystrophy are caused by the lack of this trace element

A. arsenic

B. molybdenum

C. zinc

D. selenium

Answer: D Watch Video Solution 45. The food that enters intestine from stomach is called A. chyle B. chyme C. fundus D. none of these





46. Which one of the following pairs of food components in human reaches the stomach totally undigested

B. protein and starch C starch and fat D. fat and cellulose Answer: D **Watch Video Solution** 47. 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. The yellow colour of stool is due to A. Pancreatic juice poured into duodenum B. Intestinal juice C. Bile pigment passed through bile juice

A. starch and cellulose

D. Undigested milk protein caesin

Answer: C



- **48.** Which one of the following statements is true regarding digestion and absorption of food in humans?
 - A. About 60% of starch is hydrolysed by salivary amylase in our mouth.
 - B. Oxyntic cells in our stomach secrete the proenzyme pepsinogen
 - C. Fructose and amino acids are absorbed through intestinal mucosa with the help of carrier ions like $Na^{\,+}$

D. Chylomicrons are small lipoprotein particles that are transported from intestine into blood capillaries

Answer: C



49. When breast feeding is replaced by less nutritive food low in proteins and calories, the infants below the age of one year are likely to suffer from

A. Pellagra

B. Marasmus

C. rickets

D. Kwashiorkor

Answer: B

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

- A. They prosses microvilli
- B. They increases the surface area
- C. They are supplied with capillaires and the lacteal vessels
- D. They only participate in digestion of fats

Answer: D



51. Hepato-pancreatic duct opens into the duodenum and carrles

A. bile salt

B. Pancreatic juice C. Both bile andpancreatic juice D. Saliva **Answer: C Watch Video Solution** 52. One of the following is not a common disorder associated with digestive system. A. Tetanus B. Diarrhoea C. Jaundice D. Dysentery **Answer: A**



53. A gland not associated with the alimentary canal is

A. Pancreas

B. Adrenal

C. Liver

D. Salivary glands

Answer: B



54. Mathc the two column and select the correct among option given.

Column I	Column II
Biomacromolecules	(i) Alimentary canal and associated gland
Human digestive system	(ii)Embedded in jawbones
Stomach	(iii)Outer wall of visceral organs
Thecodont	(iv)Converted into simple substances
Serosa	(v)J-shaped bag like structure
A. A-(II), B-(I), C-(V), D-(III)), E-(IV)
B. A-(IV), B-(I), C-(V), D-(II), E-(III)
C. A-(I), B-(II), C-(III), D-(IV	/), E-(V)
D. A-(I), B-(III), C-(II), D-(IV	/), E-(V)
Answer: B Watch Video Solutio	n
55. Match the two column given	and select the right one among option

Epiglottis	(ii)Small bilnd sac	
Glottis	(iii)'C' shaped structure emerging from the stomach	
Caecum	(iv)Opening of wind pipe	
A. A-(i),B-	(ii), C-(iii), D-(iv)	
B. A-iv), B	-(iii), C-(ii), D-(i)	
C. A-(iii),	B-(i), C-(iv), D-(ii)	
D. A-(ii), B	B-(iv), C-(i), D-(iii)	
Answer: C		
○ Watch	Video Solution	
56. Mathc the enzymes with their respective substrates and choose		
the right one among options given.		

Column I

Duodenum

 $\operatorname{Column} \operatorname{II}$

(i)A cartilaginous flap

Nuclease (ii) Fats
Carboxypeptidase (iii) Nucleic acids
Cipeptidases (iv) Proteins, peptones and proteoses

A. a-(ii), B-(iii), C-(i), D-(iv)

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

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

D. A-(iii), B-(iii), C-(iv), D-(i)

Column II

(i)Dipeptides

Answer: D

Column I

Lipase



57. Dental formula in human beings is

$$\frac{322}{322}$$
 $\frac{322}{212}$

$$\frac{212}{212}$$

1232

Answer: B



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

A. Metabolism of carbohydrates

B. Digestion of fat

C. Formation of bile

D. Secretion of hormone called gastrin

Answer: D



59. Mark the right statement among the following.

- A. Trypsinogen is an inactive enzyme
- B. Trysinogen is secreted by intestinal mucosa
- C. Enterokinase is secreted by pancrease
- D. Bile contains tryspin

Answer: A



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60. If the some reason the parietal cells of the gut epithelium become partially non-functional, what is likely to happen

- A. Thepancreatic enzymes especially trypsin and lipase will not work efficiently
- B. The pH of stomach becomes less suddenly
- C. Proteins will not be adequately hydrolysed by pepsin into proteoses and peptones
- D. Trypsin becomes more effective

Answer: C



- 61. The sugar present in milk is
 - A. glucose
 - B. lactose
 - C. fructose

Answer: B



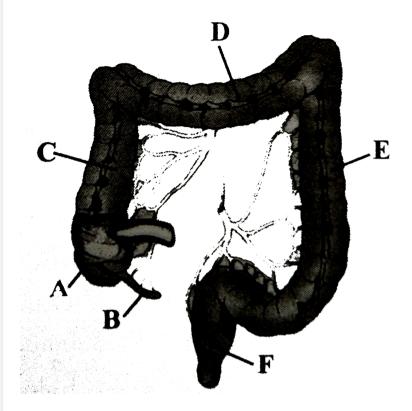
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- 62. Succus entericus is secreted by
 - A. Peyers patches
 - B. Crypts of Lieberkuhn
 - C. Auerbach's plexus
 - D. Brunner's glands

Answer: B



63. The diagram of large intestine of man is given here. Identify the parts labelled as A,B,C,D,E and F



A. A=Caecum, B-vermiform appendix, C=Ascending colon,
D=Transverse colon, E= Descending colon, F= Sigmoid

B. A=Sigmoid, B=Vermiform appendix, C=Descending colon,

D=Transverse colon, E=Ascending colon, F=Caecum

C. A=Sigmoid, B=Vermiform appendix, C=Ascending colon,

D=Transverse colon, E=Descending colon, F=Caecum

D. A=Caecum, B=Vermiform appendix, C=Sigmoid, D= Ascending colon, E=Transverse colon, F=Descending colon,

Answer: A



64. Vitamin D is produced in human body by

A. muscles

B. nerves

C. skin

D. bone marrow

Answer: C

65. Bile salts activate enzyme

A. Pepsinogen

B. Trypsinogen

C. Lipase

D. Pancreatic amylase

Answer: C



66. Which of the following cells produce HCI?

A. β -cell

C. Oxyntic cell D. Chief cell **Answer: C Watch Video Solution** 67. Brunner's gland is present in A. liver B. duodenum C. oesophagus D. stomach **Answer: B Watch Video Solution**

B. α -cell

68. Which of the following vitamins has some physiological effects similar to those of parathormone ?

A. vit. A

B. vit. D

C. vit. C

D. Vit. B

Answer: B



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69. "All enzymes are proteins", this statement is now modified because of exception to this

A. arylsulfatase
B. dehydrogenase
C. ribozyme
D. nitroreductase
Answer: C
Watch Video Solution
70. Which one of the following enzymes carries out the initial step
in the digestion of milk in humans?
A. pepsin
B. rennin
C. lipase
D. trypsin



Watch Video Solution

71. In humnas one of the constituents of the pancreatic juice which is poured into the doudenum is

- A. trypsinogen
- B. chymotrypsin
- C. trypsin
- D. enterokinase

Answer: A



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72. Which one of the following correctly represents the normal adult human formula:

- A. $\frac{3}{3}$, $\frac{1}{1}$, $\frac{3}{2}$, $\frac{1}{1}$
- $\mathsf{B.}\,\frac{2}{2},\frac{1}{1},\frac{3}{2},\frac{3}{3}$
- $\mathsf{C}.\,\frac{2}{2},\frac{1}{1},\frac{2}{2},\frac{3}{3}$
- D. $\frac{3}{3}$, $\frac{1}{1}$, $\frac{3}{3}$, $\frac{3}{3}$

Answer: C



73. Argentaffin cells in human beings are found in

A. small intestine

B. stomach

C. large intestine
D. liver.

Answer: B



74. In human beings, the three pair of salivary glands and numerous buccal glands produce about

- A. $1.0cm^3$ of saliva per day
- B. $1.5cm^3$ of saliva per day
- C. $2.0cm^3$ of saliva per day
- D. $2.5cm^3$ of saliva per day

Answer: B



75. This is the common	passage for bile	and pancreatic juices

- A. ampulla of vater
- B. ductus choledochus
- C. duct of wirsung
- D. duct of Santorini



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76. In the gastrointestinal tract the Meissner's plexus and the

Auerbach's plexus occur respectively in the

A. lamina propria and muscularis mucosa

B. submucosa and muscularis externa C. submucosa and mucosa

D. mucosa and muscularis externa.

Answer: B



77. Gastro-intestinal hoemone that stimulates insulin secretion is

A. gastrin

B. CCK

C. secretin

D. GIP

Answer: D



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78. Consumption of which one of the following foods can prevent the kind of blindness associated with vitamin 'A' deficiency?

- A. Flaver's savr's tomato
- B. Canolla
- C. Golden rice
- D. Bt-Brinjal

Answer: C



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79. Anxiety and eating spicy food together in an otherwise normal human, may lead to

A. Indigestion B. Jaundice C. Diarrhoea D. Vomiting **Answer: A Watch Video Solution** 80. Where do certain symboitic microorganisms normally occur in human body A. Caecum B. oral lining and tongue surface C. Vermiform appendix and rectum D. Duodenum



81. Select the correct match of the digested products in humans given in column I with their absorption site and mechanism in column II.

- A. Fructose $Na^{\,+}$ Small intestine passive absorption
- B. Glycerol, fatty Dduodenum, move as chilomicrons
- C. Cholesterol, maltose Large intestine, active absorption
- D. Glycine, Glucose Small intestine, active absorption

Answer: D



82. Which one of the following is a non-reducing carbohydrate?			
A. Maltose			
B. Sucrose			
C. Lactose			
D. Ribose 5 phosphate			
A			
Answer: B			
Watch Video Solution			
83. The intitial step in digestion of milk in infant is carreid out by			
A. Lipase			
A. Lipase B. Trypsin			
B. Trypsin			

Answer: C



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84. Fructose is abosrbed into the blood through mucosa cells of intestine by process called

- A. active transport
- B. facilitated tansport
- C. simple diffusion
- D. Co-transport mechanism

Answer: B



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85. The primary dentition in human differs from permanent
dentition in not having one of the following type of teeth
A. Incisors
B. Canines
C. Premolars
D. Molars
Answer: C
Watch Video Solution
86. The enzyme that is not present in succus entericus is
A. Lipase

B. Maltase

- C. Nuclease

 D. Nucleosidase
- Answer: C



87. Which one of the following pairs is not correctly matched

- A. Vitamin- B_{12} -Pernicious anaemia
- B. Vitamin- B_1 loss of appetie
- C. Vitamin- B_1 -Beri-beri
- D. Vitamin- B_2 -Pellagra

Answer: D



88. The two polypeptides of human insulin are linked together by
A. Phosphodiester bond
B. Covalent bond
C. Diuslphide bridges
D. Hydrogen bonds
Answer: C
Watch Video Solution
89. Which of the following gurads the opening of hepatopancreatic
duct into the duodenum?
A. Ileocaecal valve

B. Pyloric sphincter

C. Sphincter of Oddi
D. Semilunar valve

Answer: C



90. In the stomach, gastric acid is secreted by the

- A. Parietal cells
- B. Peptic cells
- C. Acidic cells
- D. Gastrin secreting cells



91. Which hormones do stimulate the production of pancreatic juice and juice bicarbonate

A. Angiotesin and epinephrine

B. Gastrin and insulin

C. Cholecystokinin and secretin

D. Insulin and glucagon

Answer: C



92. Which cells of Crypts of Lieberkuhn secrete antibacterial lysozyme?

A. paneth cells

B. Zymogen cells

- C. Kupffer cells
- D. Argentaffin cells



Watch Video Solution

93. The Primary denition in human differ from permanent denition is not having one of the folloiwn type of teeth or

A baby boy aged two years years is admitted to play school and passes through a dental observed that boy that had twenty teeth.

Which teeth were absent absent

- A. Canines
 - **B. Pre-molars**
 - C. Molars

D. I	ncisors

Answer: B



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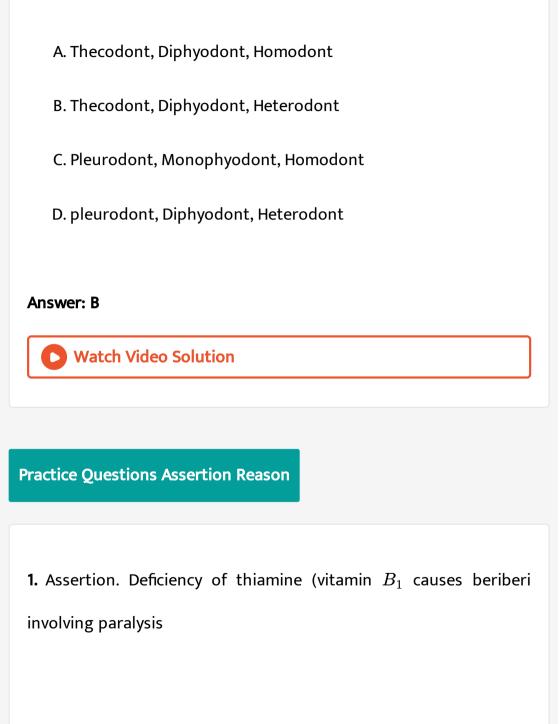
94. Which of the following options best represents the enzymes composition of pancreatic juice?

- A. Amylase, Pepsin, Trypsinogen, Maltase
- B. Peptidase, Amylase, Pepsin, Rennin
- C. Lipase, Amylase, Trypsinogen, Procarboxypeptidase
- D. Amylase, Peptidase, Trypsinogen, Rennine

Answer: C



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95. Which of the following terms describe humans dentition?

Reason. Taking cooked fish may cause beriberi but eating raw fish does not.

A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

C. If Assertion is true but Reason is false.

D. If both Assertion and Reason are false.

Answer: C



2. Assertion. Minerals do not form a component of biologically active compounds.

Reason. Some persons suffer from anaemia due to iron deficiency

- A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.

Answer: D



3. Assertion. Mammals develop a secondary palate.

Reason. Backward shifting of internal nares has led to the formation of secondary palate.

- A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.



- 4. Assertion. Teeth are lophodont in the elephants
- Reason. Enamel forms transverse ridges on the top of teeth.
 - A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.



- **5.** Assertion. Gall bladder may develop small pebbles the gall stones, in it.
- Reason. Cholesterol sometimes precipitates as crystals and combines with bile salts and pigments forming stones.
 - A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.



- **6.** Assertion: Water and electrolytes are almost fully absorbed in the large intestine.
- Reason: In large intestine, haustral contraction (slow semgmenting movements) roll the forming faeces over and over, causing absorption of water and electrolytes.
 - A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.



- 7. Read the following statements and select the correct option.
- Statement 1: Deglutition starts as a reflex and then continues by voluntary action.
- Statement 2: Oesophagus has smooth muscles in the beginning and striated muscles in the rest of its wall.
 - A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.

Answer: D



- **8.** Assertion: Products of digestion are absorbed in the small intestine.
- Reason: Large intestine has impermeable wall.
 - A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.

Answer: C



- **9.** Assertion. Teeth are not knocked out during mastication of food.

 Teeth, though firmaly anchored in sockets, are still albe to move slightly.
 - A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.



- 10. Assertion: Bile is not a true digestive juice
- Reason: Bile lacks digestive enzymes.
 - A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
 - B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.



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11. Read the assertion and reason carefully to mark the correct option out of the option given below:

Assertion: In alcoholic drink, the alcohol is converted into glucose in the liver.

Reason: Liver cells are able to produce glucose form alcohol by back fermentation.

A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.

Answer: D



- **12.** Assertion: Fish meal is a rich source of protein for cattle and poultry.
- Reason: Fish meal is produced from non-edible parts of fishes like fins, tail etc.
 - A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.



- **13.** Read the assertion and reason carefully to mark the correct option out of the option given below:
- Assertion: In alcoholic drink, the alcohol is converted into glucose in the liver.
- Reason: Liver cells are able to produce glucose form alcohol by back fermentation.

- A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- C. If Assertion is true but Reason is false.
- D. If both Assertion and Reason are false.

Answer: D



14. Assertion. Liver is the largest gland of the body. The hepatic lobules are the structural and functional units of liver contaning hepatic cells arranged in the form of cords.

Reason. Each lobule of the liver is covered by a thin connective

tissue sheath called the Glission's capsule. The bile is secreted by hepatic cells.

A. If both Assertion and Reason are true and Reason is the correct explanation of Assertion.

B. If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.

C. If Assertion is true but Reason is false.

D. If both Assertion and Reason are false.

Answer: A



Notable Question

1. What	is	the	role	of	recently	identified	bacterial	species
Helicobacter pylori?								



Curiosity Questions

- **1.** Why are carbohydrates, lipids and proteins termed proximate principles of food ?
 - Watch Video Solution

- 2. What are protective principles of food? Give examples.
 - Watch Video Solution

3. What is the importance of plexus of Auerbach in the wall	of
alimentary canal ?	
Watch Video Solution	

4. What checks the entry of food into the lungs when it is swallowed?



5. Why is the stomach and intestinal wall not digested?



6. Have the bacteria living in large intestine any role in nutrition?



