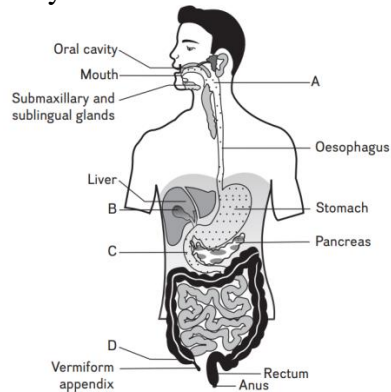


- papillae, all of which bear taste buds but not air.
- (c.) oesophagus is a short thin tube which leads to stomach. (d.) All of these

(8.) Choose the option with correct labels for A, B, C and D given in the figure of human digestive system.



- (a.) A B C D
Pharynx Gall bladder Duodenum Caecum
- (b.) A B C D
Larynx Duodenum Caecum jejunum
- (c.) A B C D
Parotid gland Ascending colon Jejunum Duodenum
- (d.) A B C D
Submaxillary gland Gall bladder Caecum Descending colon

(9.) Read the following statements.

(I) Tonsils are the lymphoid tissue of pharynx.

(II) Wharton's duct is one of the salivary ducts.

(III) Pharynx serves as a common passage for air and food.

(IV) A cartilaginous flap called epiglottis prevents the entry of food into the glottis during swallowing. Choose the correct set of statements

- (a.) I and II (b.) III and IV
(c.) Only III (d.) I, II, III and IV

(10.) Length of oesophagus is

- (a.) 25 cm (b.) 55 cm
(c.) 33 cm (d.) 45 cm

(11.) Column I contains names of the sphincter muscles of the alimentary canal and Column II contains their locations. Match them properly and choose the correct answer.

Column-I

- (A) Sphincter of ani-internus
 (B) Cardiac sphincter
 (C) Ileocaecal sphincter
 (D) Pyloric sphincter

(a.) A B C D
 3 2 4 1

(c.) A B C D
 2 3 1 4

(12.) Peyer's patches are present in

- (a.) ileum
 (c.) duodenum

(13.) The three major parts starting from oesophageal end to the intestinal end excluding body are

- (a.) cardiac, pyloric, fundus
 (c.) cardiac, fundic, pyloric

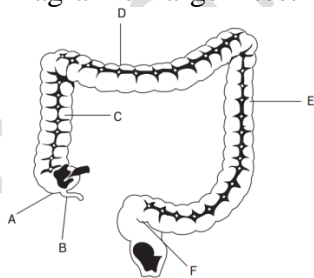
- (b.) fundic, cardiac, pyloric
 (d.) pyloric, fundic, cardiac

(14.) Which of the following is incorrect?

- (a.) Gastro-oesophageal is the opening of oesophagus into J'-shaped bag-like structure.
 (c.) Jejunum is the longest portion of small intestine.

- (b.) Duodenum is C-shaped.
 (d.) Ileum is the coiled middle portion of small intestine.

(15.) Diagram of large intestine is given below. Identify the parts A, B, C, D, E and F.



- (a.) A-Sigmoid colon B-Vermiform appendix, C-Ascending colon, D-Transverse colon, E-Descending colon, F-Caecum

- (c.) A-Caecum, B-Vermiform appendix, C-Ascending colon, D-Transverse colon, E-Descending colon, F-Sigmoid colon

Column-II

- (1) Between duodenum and posterior stomach
 (2) Guarding the terminal part of alimentary canal
 (3) Between oesophagus and anterior stomach
 (4) Between small intestine and bowel

(b.) 2 3 4 1
 A B C D

(d.) A B C D
 4 3 1 2

- (b.) jejunum
 (d.) sacculusrotandus

- (b.) A-Caecum, B-Vermiform appendix, C-Sigmoid colon, D-Ascending colon, E-Transverse colon, F- Descending colon

- (d.) A-Sigmoid colon B-Vermiform appendix, C-descending colon, D-Transverse colon, E-Ascending colon, F-Caecum

(16.) Match the following structure with their respective location in organs.

Column-I

- (A) Crypts of Lieberkuhn
- (B) glisson's capsule
- (C) Islets of Langerhans
- (D) Brunner's glands

Column-II

- (1) Pancreas
- (2) Duodenum
- (3) Small intestine
- (4) Liver

Select the correct option from the codes given below.

Codes:

- (a.) A B C D
2 4 1 3

- (b.) A B C D
3 4 1 2

- (c.) A B C D
3 2 1 4

- (d.) A B C D
3 1 2 4

(17.) A baby boy aged two years is admitted to play school and passes through a dental check-up. The dentist observed that the boy had 20 teeth. Which teeth were absent?

- (a.) Incisors
- (b.) Canines
- (c.) Premolars
- (d.) Molars

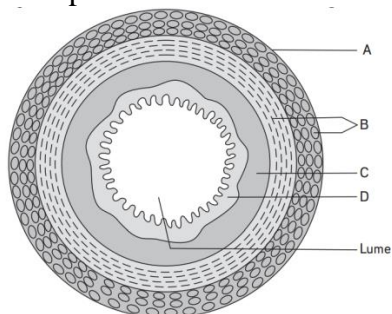
(18.) Which of the following statements is not correct?

- (a.) Brunner's glands are present in the submucosa of stomach and secrete pepsinogen.
- (b.) Goblet cells are present in the mucosa of intestine and secrete mucus.
- (c.) Oxyntic cells are present in the mucosa of stomach and secrete HCl.
- (d.) Acini are present in the pancreas and secrete carboxypeptidase.

(19.) Choose the correct arrangement of layers of alimentary canal from inside to the outside sequentially.

- (a.) Mucosa → Submucosa → Circular muscularis → Longitudinal muscularis
- (b.) Serosa → Muscularis → Submucosa → Mucosa
- (c.) Submucosa → Muscularis → Mucosa → Serosa
- (d.) Mucosa → Submucosa → Longitudinal muscularis → Circular muscularis

(20.) Given below is the diagram of the T.S of alimentary canal. Label it correctly and choose the correct option.



(a.)

A	B	C	D
Crypts	Capillaries	Lacteal	Villi

(b.)

A	B	C	D
Villi	Lacteal	Capillaries	Crypts

(c.)

A	B	C	D
Lacteal	Crypts	Capillaries	Villi

(d.)

A	B	C	D
Capillaries	Crypts	Lacteal	villi

(26.) choose the correct statement

- (a.) Liver weighs about 1.2 to 1.5 kg in an adult human and is situated in the abdominal cavity below the diaphragm and has two lobes.
- (b.) A narrow finger-like tubular projections, the vermiform appendix, which is a vestigial organ arises from the caecum.
- (c.) The major components of our food include carbohydrates, proteins and fats.
- (d.) All of these

(27.) Bile and pancreatic juices are carried by a common duct which opens into the duodenum is

- (a.) hepatopancreatic duct
- (b.) bile duct
- (c.) pancreatic duct
- (d.) none of these

(28.) Choose the incorrect statement with respect to liver.

- (a.) It is the largest gland which helps in digestion of fat.
- (b.) It helps in metabolism of carbohydrate.
- (c.) It helps in formation of bile.
- (d.) It helps in secretion of hormone called gastrin.

(29.) Which of the following guards the opening of hepatopancreatic duct into the duodenum?

- (a.) Ileocaecal valve
- (b.) Pyloric sphincter
- (c.) Sphincter of Oddi
- (d.) Semilunar valve

(30.) Match the Columns

Column-I (Parts of alimentary canal)

Column-II (Characteristic)

(A) Duodenum

(1) A cartilaginous flap

(B) Epiglottis

(2) Small blind sac

(C) Glottis

(3) U-shaped structure emerging from the stomach

(D) Caecum

(4) Opening of wind pipe

- (a.)
- | | | | |
|---|---|---|---|
| A | B | C | D |
| 1 | 2 | 3 | 4 |

- (b.)
- | | | | |
|---|---|---|---|
| A | B | C | D |
| 3 | 1 | 4 | 2 |

- (c.)
- | | | | |
|---|---|---|---|
| A | B | C | D |
| 4 | 3 | 2 | 1 |

- (d.)
- | | | | |
|---|---|---|---|
| A | B | C | D |
| 2 | 4 | 1 | 3 |

- (31.) Choose the incorrect statement for intestinal villi
- (a.) They possess microvilli. (b.) They only participate in digestion of fats.
- (c.) They increase the surface area. (d.) They are supplied with capillaries and the lacteal vessels.

(32.) All glands given below are associated with the alimentary canal except

- (a.) pancreas (b.) liver
(c.) adrenal (d.) salivary

(33.) Match the columns

Column-I

- (A) Biomacromolecules of food
(B) Human digestive system
(C) Stomach
(D) Thecondont
(E) Serosa

Column-II

- (1) Alimentary canal and associated gland
(2) Embedded in jaw bones
(3) Outer wall of visceral organs
(4) Converted into simple substances
(5) J-shaped bag-like structure

Codes

- (a.) A B C D E
4 1 5 2 3
- (c.) A B C D E
1 3 2 4 5

- (b.) A B C D E
1 2 3 4 5
- (d.) A B C D E
2 1 5 3 4

(34.) 'Digestion' word means

- (a.) burning of food (b.) oxidation of food
(c.) hydrolysis of food (d.) breakdown of food

(35.) Glisson's capsule

- (a.) is the characteristic of mammalian liver (b.) is a thin connective tissue sheath that covers each hepatic lobule
(c.) is one of the lymphatic chambers (d.) Both (a) and (b)

(36.) Choose the correct description of Kupffer cells.

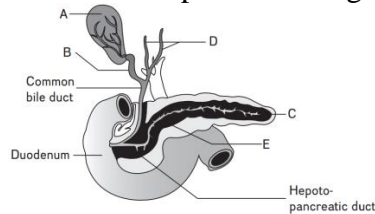
- (a.) Present in liver (b.) Form RBCs
(c.) Phagocytic (d.) Both (a) and (c)

(37.) A balanced diet contains all except

- (a.) carbohydrates and fats (b.) nucleic acids and enzymes
(c.) proteins and vitamins (d.) mineral salts

- (38.) Which of the following option is/are correct for pancreas?
- (a.) It is amixocrine gland. (b.) Endocrine part secretes glucagon and insulin.
- (c.) Exocrine part secretes alkaline pancreatic juice containing various enzymes. (d.) All of these

- (39.) Choose the correct option for the given figure lables A, B, C, D, E. A B C D E



- (a.)
- | | | | | |
|--------------|------------------|----------|-------------------------|--------------|
| A | B | C | D | E |
| Gall bladder | Ducts from liver | Pancreas | Ducts from gall bladder | Hepatic duct |
- (b.)
- | | | | | |
|----------|-----------------|-------|--------------|------------------|
| A | B | C | D | E |
| Pancreas | Pancreatic duct | Liver | Hepatic duct | Ducts from liver |
- (c.)
- | | | | | |
|--------------|-------------------------|----------|------------------|-----------------|
| A | B | C | D | E |
| Gall bladder | Ducts from gall bladder | Pancreas | Ducts from liver | Pancreatic duct |
- (d.)
- | | | | | |
|----------|-----------------|-------|-------------------------|------------------|
| A | B | C | D | E |
| Pancreas | Pancreatic duct | Liver | Ducts from gall bladder | Ducts from liver |
- (40.) Assertion: The epithelial cells lining the stomach of vertebrates is protected from the damage by HCl.
Reason: The epithelial cells are covered with a mucus secretion.
- (a.) Both Assertion and Reason are true and Reason is the correct explanation of Assertion. (b.) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c.) Assertion is true and Reason is false. (d.) Both Assertion and Reason are incorrect.
- (41.) Assertion: Non-functional goblet cells adversely affect the smooth movement of food downwards the intestine.
Reason: Goblet cells secrete mucin.

- (a.) Both Assertion and Reason are true and Reason is the correct explanation of Assertion. (b.) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c.) Assertion is true and Reason is false. (d.) Both Assertion and Reason are incorrect.
- (42.)** Assertion: There is no backflow of faecal matter in the large intestine
Reason: Ileo-caecal valve helps in prevention of backflow of faecal matter.
- (a.) Both Assertion and Reason are true and Reason is the correct explanation of Assertion. (b.) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c.) Assertion is true and Reason is false. (d.) Both Assertion and Reason are incorrect.
- (43.)** Assertion: Oesophagus helps in the passage of food through it.
Reason: The length of oesophagus is nearly 25 cm. Oesophagus is a hollow muscular tube found in vertebrates through which food is transferred from pharynx to stomach. It is about 25 cm long in adults. Peristaltic contractions of oesophageal muscle facilitate the passage of food through it.
- (a.) Both Assertion and Reason are true and Reason is the correct explanation of Assertion. (b.) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c.) Assertion is true and Reason is false. (d.) Both Assertion and Reason are incorrect.
- (44.)** Assertion: Brunner's glands are located in the submucosa of duodenum and they open into the crypts of lieberkuhn.
Reason: Crypts of lieberkuhn secrete hormones.
- (a.) Both Assertion and Reason are true and Reason is the correct explanation of Assertion. (b.) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c.) Assertion is true and Reason is false. (d.) Both Assertion and Reason are incorrect.
- (45.)** Assertion: In rabbit, the digestion of cellulose takes place in caecum.
Reason: Caecum is the proximal part of large intestine.
- (a.) Both Assertion and Reason are true and Reason is the correct explanation of Assertion. (b.) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c.) Assertion is true and Reason is false. (d.) Both Assertion and Reason are incorrect.
- (46.)** Food which is masticated is mixed with _____ to form _____ in the mouth.
- (a.) A -Mucus , B – Bolus (b.) A –Saliva , B – Bolus
- (c.) A –Chyme , B – Bolus (d.) A –Chyme , B – Saliva

- (47.) The deglutition process occurs as
- (a.) bolus passes down through the oesophagus by reverse peristalsis. (b.) epiglottis shuts down
- (c.) epiglottis remains open allowing air into larynx (d.) pulmonary aspiration is very frequent
- (48.) The composition of saliva is/are
- (a.) electrolytes (b.) salivary amylase
- (c.) lysozymes (d.) all of these
- (49.) Choose the correct statements with respect to the process of digestion occurring inside the mouth
- (I) Salivary amylase is released in the mouth.
(II) About 30% of starch is hydrolyzed here.
(III) Lysozyme present in the saliva acts as an antibacterial agent that prevents infection.
(IV) Starch splits into Fructose inside the mouth.
- (a.) I and II (b.) III and IV
- (c.) I and IV (d.) IV only
- (50.) In the stomach, gastric acid is secreted by the
- (a.) parietal cells (b.) peptic cells
- (c.) acidic cells (d.) gastrin secreting cells

ANSWER

(1.)	b	(2.)	b	(3.)	a	(4.)	a	(5.)	a
(6.)	c	(7.)	d	(8.)	a	(9.)	d	(10.)	a
(11.)	b	(12.)	a	(13.)	c	(14.)	c	(15.)	c
(16.)	b	(17.)	c	(18.)	a	(19.)	a	(20.)	c
(21.)	a	(22.)	b	(23.)	a	(24.)	b	(25.)	b
(26.)	d	(27.)	a	(28.)	d	(29.)	c	(30.)	b
(31.)	b	(32.)	c	(33.)	a	(34.)	c	(35.)	d
(36.)	d	(37.)	b	(38.)	d	(39.)	c	(40.)	a
(41.)	a	(42.)	a	(43.)	b	(44.)	c	(45.)	b
(46.)	b	(47.)	b	(48.)	d	(49.)	a	(50.)	a

Shiksha Classes, Bhandara

EXPLANATION

- (1.) (b.) The process of digestion in our digestive system involves conversion of complex substances into simple form.
- (2.) (b.) The terms therodont, diphyodont and heterodont describe human dentition. Humans have diphyodont condition (i.e., teeth appear twice during lifetime) comprising of milk teeth and permanent teeth. Teeth in humans remain embedded in the sockets of the jaw bones (thecodont). Also, humans have four different types of teeth, i.e., incisors, canine, premolar and molars and hence are called heterodont.
- (3.) (a.) The correct option is A-1, B-3, C-2
- (4.) (a.) An adult human has 32 permanent teeth which are of four different types namely incisors (I), canine (c), premolar (pm) and molar (m). Monophyodont teeth include premolars and molar and they appear once in life. Thus, the dental formula is $2123/2123$.
- (5.) (a.) The hardest substance of the human body is enamel.
- (6.) (c.) The human tongue is attached to the floor of the buccal cavity by a small fold of tissue called frenulum linguae.
- (7.) (d.) The upper surface of the tongue has small projections called papillae some of which bear taste buds. Pharynx serves as common passage for food and air. Oesophagus is a thin and long tube.
- (8.) (a.) A – Pharynx B – Gall bladder C – Duodenum D – Caecum
- (9.) (d.) All of the given statements are true.
- (10.) (10.)(a.) Oesophagus known as the food pipe is 25 cm long in an average adult human.
- (11.) (b.) A-2, B-3, C-4, D-1
- (12.) (a.) Ileum is the region where Peyer's patches are present. They are organized lymphoid follicles. They form an important part of the immune system by monitoring intestinal bacterial populations.
- (13.) (c.) The four parts of stomach are cardiac, fundi, body and pyloric portions. Stomach is located in the upper left part of the abdominal cavity.
- (14.) (c.) Ileum is the longest portion of small intestine and is the last region too.
- (15.) (c.) A – Caecum, B – Vermiform appendix, C – Ascending colon, D – Transverse colon, E – Descending colon, F – Sigmoid colon
- (16.) (b.) A-3, B-4, C-1, D-2
- (17.) (c.) In human beings, after birth the first set of teeth that develops are deciduous teeth or temporary teeth. These are 20 in number. The dental formula of child is $2102/2102$. Thus, they have 2 incisors, 1 canine, 0 premolars and 2 molars. Therefore, the baby boy would not have premolars.
- (18.) (a.) Brunner's glands are compound tubular submucosal glands found in a portion of the duodenum, which is above the hepatopancreatic sphincter (sphincter of Oddi). It secretes an alkaline fluid composed of mucus which protects the duodenum from acidic chyme.
- (19.) (a.) The correct arrangement of layers of alimentary canal from inside to the outside sequentially is Mucosa → Submucosa → Circular muscularis → Longitudinal muscularis.
- (20.) (c.) A – Serosa – made of thin mesothelium B – Muscularis – Made of smooth muscles C – Submucosa – Made of loose connective tissue D – Mucosa – Rugae or villi formation
- (21.) (a.) Goblet cells secretions protect the lining of gastrointestinal tract from various enzymes. These cells secrete mucus which along with bicarbonate ions helps in the lubrication and protection of the mucosal epithelium from excoriation by HCl.
- (22.) (b.) The mucosa present in between the bases of villi of small intestine (crypts of Lieberkuhn) contains paneth cells, which secrete antibacterial lysozyme.

- (23.) (a.) HCl is the gastric acid of the stomach and is secreted by the parietal cell of the stomach. It is secreted to make the medium acidic for activation of digestive enzymes.
- (24.) (b.) Salivary glands are located in lower jaw, cheeks and below the tongue.
- (25.) (b.) A – villi, B – lacteal, C – capillaries, D – crypts
- (26.) (d.) All of the given statements are correct.
- (27.) (a.) The duct of gall bladder along with hepatic duct from the liver and forms the common bile duct. The common bile duct and the pancreatic duct open together into the duodenum as a common hepatopancreatic duct, which carries both bile and pancreatic juice into the duodenum.
- (28.) (d.) Liver is involved in the production of bile. This bile helps in the digestion of fats in the small intestine by the emulsification process, i.e., conversion of large fat droplets into small ones. Liver also plays a critical role in controlling rate of metabolism by maintaining glucose concentration in normal range. Gastrin is secreted by G-cells in pyloric region of stomach. It stimulates gastric glands to secrete and release gastric juices.
- (29.) (c.) Sphincter of Oddi guards the opening of hepatopancreatic duct opening into the duodenum. This duct brings secretion of liver as well as of pancreas to the duodenum.
- (30.) (b.) A-3, B-1, C-4, D-2
- (31.) (b.) Intestinal villi are the numerous small finger shaped projections which increase the absorptive surface area. They contain abundant blood capillaries and lymph vessels called lacteals. They also possess countless minute microvilli which further increase their absorptive surface. Intestinal villi do not participate in the digestion of fats but helps in their absorption and various other food substances such as water, mineral, salts, amino acids, vitamins, etc.
- (32.) (c.) Adrenal glands are present at the apex of kidney and they produce hormones like adrenaline, cortisol, etc. They are not associated with alimentary canal.
- (33.) (a.) A-4, B-1, C-5, D-2, E-3
- (34.) (c.) Digestive word means hydrolysis of food. Digestion is the process in which non-diffusible food is converted into diffusible food with the help of digestive enzymes.
- (35.) (d.) Glisson's capsule is a characteristic feature of mammalian liver and is a thin connective tissue sheath that covers each hepatic lobule.
- (36.) (d.) Kupffer cells are found in liver and are phagocytic cells.
- (37.) (b.) A balanced diet include carbohydrates, protein, and fats in approximate ratios.
- (38.) (d.) The pancreas is a compound/heterocrine/ mixocrine gland, i.e., it performs both endocrine and exocrine functions. It is elongated organ situated between the limbs of the 'U'-shaped duodenum. The exocrine portion secretes an alkaline pancreatic juice containing enzymes and the endocrine portion secretes hormones, insulin and glucagon
- (39.) (c.) A – Liver, B – Ducts from gall bladder, C – Pancreas, D – Ducts from liver, E – Pancreatic duct.
- (40.) (a.) Mucus neck or goblet cells secrete mucus that protects the stomach wall against HCl action and protein digesting enzymes. The epithelial cells lining the stomach of vertebrates are protected from the damage of HCl because the epithelial cells are covered by a layer of mucus.
- (41.) (a.) Goblet cells are present in the columnar epithelium of the mammalian intestine and secrete mucin, a mucoprotein that forms mucus. If goblet cells become non-functional, this will adversely affect the smooth movement of food downwards the intestine due to the absence of mucin.
- (42.) (a.) The undigested, unabsorbed substances collectively called faeces enters into the caecum of the large intestine through ileo-caecal valve, which prevents the backflow of the faecal matter. Faeces is temporarily stored in rectum till the time of defaecation.

(43.) (b.) The length of oesophagus is nearly 25 cm. Oesophagus is a muscular tube found in vertebrates through which food is transferred from pharynx to stomach. It is about 25 cm long in adults. Peristaltic contractions of oesophageal muscle facilitate the passage of food through it

(44.) (c.) Crypts of Lieberkuhn are simple tubular intestinal glands which occur throughout the small intestine between the villi. They secrete digestive enzymes and mucus (not hormones). Bruner's glands open into the crypts of Lieberkuhn.

(45.) (b.) Caecum is the part of large intestine. In rabbit, the digestion of cellulose takes place in caecum. In this process, the chyme is first directed to ileocaecic valve from the small intestine into the caecum and then into the colon. Certain symbiotic bacteria and protozoa that permanently reside in the caecum hydrolyse cellulose into sugars.

(46.) (b.) Food which is masticated by teeth is mixed with saliva to form bolus in the mouth.

(47.) (b.) Mucus in saliva helps in lubricating and adhering the masticated food particles into a bolus. This bolus is then conveyed into the pharynx and then into the oesophagus by swallowing or deglutition. During deglutition epiglottis shuts down.

(48.) (d.) The saliva secreted into the oral cavity contains electrolytes (Na^+ , K^+ , Cl^- , HCO_3^-) and enzymes, salivary amylase, and lysozymes.

(49.) (a.) About 30% of starch is hydrolysed in the mouth by an enzyme i.e, salivary amylase into a disaccharide i.e maltose Salivary amylase pH 6.8

Starch $\xrightarrow[\text{pH } 6.8]{\text{Salivary amylase}}$ Maltose

(50.) (a.) In the stomach, gastric acid (HCl) is secreted by parietal cells of gastric gland. It makes the medium of food in stomach acidic for the stimulation of proteolytic enzymes.

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