

Digestion and Absorption Important Questions With Answers

NEET Biology 2023

1. Brunner's glands occur in_____
- a) sub-mucosa of duodenum** b) sub-mucosa of stomach c) mucosa of oesophagus d) mucosa of ileum

Solution : -

Brunner's glands are convoluted and branched glands found only in duodenum and located in sub-mucosa

2. A dental disease characterised by molting of teeth is due to the presence of a certain chemical element in drinking water. Which of the following is that element?
- a) Mercury b) Chlorine **c) Fluorine** d) Boron

Solution : -

Increased amount of fluorine in drinking water causes fluorosis, responsible for molting of teeth

3. Liver is the largest gland and is associated with various functions, choose one which is not correct.
- a) Metabolism of carbohydrate b) Digestion of fat c) Formation of bile
- d) Secretion of hormone called gastrin**

Solution : -

Gastrin hormone is secreted by gastrin cells (= G-cells) in the pyloric region of the stomach. It stimulates gastric glands to secrete and release the gastric juice. It also stimulates gastric mobility.

4. Identify the correct statement with reference to human digestive system_____
- a) Ileum is a highly coiled part** b) Vermiform appendix arises from duodenum
- c) Ileum opens into small intestine d) Serosa is the innermost layer of the alimentary canal.

Solution : -

(a) Small intestine is distinguishable into three regions, a 'C' shaped duodenum, a long coiled middle portion jejunum and a highly coiled ileum.

(b) A narrow finger-like tubular projection, the vermiform appendix which is a vestigial organ, arises from the caecum.

(c) Ileum opens into the large intestine.

(d) The wall of alimentary canal possesses four layers from outer to inner namely serosa, muscularis, submucosa and mucosa. Serosa is the outermost layer and mucosa is the innermost layer

5. Consider the following statements each with one or two blanks.

(i) The bile duct and the pancreatic duct open together into the duodenum as the____(i)_____which is guarded by a sphincter called the____(ii)_____

(ii) ____ (iii) _____ is a proteolytic enzyme found in gastric juice of infants which helps in the digestion of milk proteins.

(iii) Fatty acids and glycerol being insoluble, cannot be absorbed into the blood. They are first incorporated into small droplets called ____ (iv) _____ which move into the intestinal mucosa. They are re-formed into very small

protein coated fat globules called the ____ (v) ____ which are transported into the lymph vessels (lacteals) in the villi.

Which of the following options gives the correct fill ups for the respective blanks in the above statements?

(1) - Common hepato-pancreatic duct,

(1) - common bile duct,

(3) - Rennin,

(2) - phincter of Oddi,

(2) - sphincter of Boyden,

(4) - chyme,

(4) - micelles,

a) (3) - Pepsin

b) (5) - micelle

c) (5) - chylomicrons

(3) - Casein,

(4) - chylomicrons,

d) (5) - micelles

Solution : -

Rennin is a proteolytic enzyme found in gastric juice of infants which helps in the digestion of milk proteins.

6. In man the zymogen or chief cells are mainly found in ____

a) cardiac part of stomach

b) pyloric part of stomach

c) duodenum

d) fundic part of stomach

Solution : -

Chief cells or zymogen are mainly found in fundic part of stomach which secretes two proenzymes, pepsinogen and prorennin and an enzyme gastric lipase.

7. Ejection of stomach contents through the mouth is called ____

a) diarrhoea

b) constipation

c) vomiting

d) indigestion

Solution : -

The stomach contents forced upward through the oesophagus and pharynx and out the mouth is called vomiting.

8. A bolus is

a) a mass of crushed food moistened with saliva

b) the semisolid material resulting from partial digestion in the stomach

c) the milky emulsified fat absorbed from small intestine

d) indigestible materials that help in movement and absorption of food

Solution : -

In the mouth, saliva moistens and lubricates the food and chewing (by teeth) breaks the food into smaller pieces. This semi-solid food is moulded into a ball known as bolus by tongue and is pushed into the oesophagus via pharynx.

9. A person who is one along hunger strike and is surviving only on water, will have ____ .

a) less amino acids in his urine

b) more glucose in his blood

c) less urea in his urine

d) more sodium in his urine

Solution : -

Because of a long hunger strike and survival on water, a person will have less urea in his urine because urea is delivered to kidney as a waste product from liver which is formed after the breakdown of proteins fats, carbohydrates during hunger.

10. A gland not associated with the alimentary canal is

a) pancreas

b) adrenal

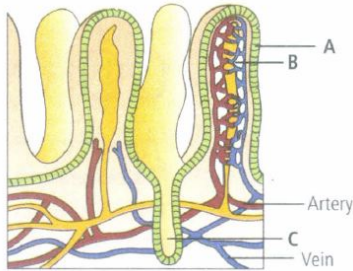
c) liver

d) salivary glands.

Solution : -

Adrenal glands are located on the top of kidneys. Adrenal glands are hormone secreting glands and do not take part in digestion.

11. The diagram given below represents a section of small intestinal mucosa. Identify A, B and C.



- a) A-Villi, B-Lacteal, C-Capillaries b) A-Lacteal, B-Villi, C-Capillaries **c) A-Villi, B-Lacteal, C-Crypts**
 d) A-Crypts, B-Lacteal, C-Capillaries
12. In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion: Caecum is a small blind sac which hosts some symbiotic microorganisms

Reason : Escherichia coli in return produces vitamin B₁₂, vitamin K, thiamine and riboflavin.

- 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. Secretin and cholecystokinin are digestive hormones. They are secreted in ____

- a) Pyloric stomach b) Duodenum **c) Ileum** d) Oesophagus

Solution : -

In the duodenum secretin and cholecystokinin are secreted. They provide stimulus to (i) Secretin : Acidic chyme entry into duodenum, (ii) CCK-PZ - Presence of fat in duodenum. Their action involves : (i) Secretin - releases bicarbonates in the pancreatic juice. (ii) CCK-PZ- contracts the gall bladder to release bile. Stimulating pancreas to secrete and release digestive enzymes in the pancreatic juice.

14. Which of the following statements is incorrect?

- a) Faecal accumulation in the rectum initiates a neural reflex causing an urge for its removal.
 b) Irregular bowel movements cause constipation **c) In diarrhoea absorption of food is increased**
 d) All of these

Solution : -

In diarrhoea, the absorption of food is reduced. Diarrhoea is abnormal frequency of bowel movement and increased liquidity of the faecal discharge.

15. Which one of the following types of cells and their secretion is correctly matched?

- a) Oxyntic cells - a secretion with pH between 2.0 and 3.0**
 b) Alpha cells of islets of Langerhans - secretion that decreases blood sugar level
 c) Kupffer cells - a digestive enzyme that hydrolyses nucleic acids d) None of these

Solution : -

Oxyntic (parietal) cells of gastric glands secrete HCl which forms the part of gastric juice. HCl makes the pH of gastric juice between 2-3. Beta cells of islets of Langerhans produce insulin that decreases blood sugar level. Kupffer cells present in the liver are phagocytic cells that eat out worn out WBCs, RBCs and bacteria.

16. Stenson's duct is associated with

- a) parotid gland** b) cardiac gland c) pancreatic gland d) thyroid gland

Solution : -

Parotid glands are the largest salivary glands, lying on the sides of the face, just below and in front of ears. Their ducts, called Stenson's ducts open opposite the upper second molar teeth.

17. Dental formula in human beings is

- a) $\frac{3223}{3223}$ b) $\frac{2123}{2123}$ c) $\frac{1232}{1232}$ d) $\frac{2233}{2233}$

Solution : -

Dental formula represents the number of teeth in each half of the jaw. Dental formula of human beings is

$$\frac{2123}{2123} \times 2 = 32$$

18. Which of the following is incorrectly represented?

- a) *Proteins* $\xrightarrow{\text{Trypsin/Chymotrypsin}}$ *dipeptides* b) *Nucleic acids* $\xrightarrow{\text{Nucleotidases}}$ *nucleotides*
 c) *Fats* $\xrightarrow{\text{Lipases}}$ *di/monoglycerides* d) *Starch* $\xrightarrow{\text{Salivary amylase}}$ *maltose*

19. Secretion of gastric juice is stopped by _____

- a) gastrin b) Pancreozymin c) cholecystokinin d) **enterogasterone**

Solution : -

Enterogasterone is produced by small intestine and slows down the secretion of gastric juice and decreases the gastric movements.

20. Calcium deficiency occurs in the absence of vitamin _____

- a) **D** b) C c) E d) B

Solution : -

Vitamin-D (calciferol/antirachitic factor) mainly helps in Ca/P balance in the body fluids. It increases absorption of calcium from intestine so, it is necessary for formation of healthy bones and teeth. Deficiency of vitamin D causes increased loss of Ca^{2+} in- urine, so, no Ca^{2+} gets deposited in the bones. This cause rickets in children and in pregnant woman it causes osteomalacia.

21. Match column I with column II and select the correct option from the given codes

Column I	Column II
A. Van Kupffer cells	(i) Islets of Langerhans
B. cells	(ii) Liver sinusoids
C. Oxyntic cells	(iii) Thyroid gland
D. Crypts of Lieberkuhn	(iv) Stomach
	(v) Small intestine

- a) A-(iv), B-(v), C-(i), D-(ii) b) A-(iii), B-(i), C-(iv), D-(ii) c) A-(iv), B-(v), C-(iii), D-(i)

d) A-(ii), B-(i), C-(iv), D-(v)

22. Which one of the following correctly represents the normal adult human dental formula?

- a) 3/3, 1/1, 3/2, 1/1 b) 2/2, 1/1, 3/2, 3/3 c) **2/2, 1/1, 2/2, 3/3** d) 3/3, 1/1, 3/3, 3/3

Solution : -

Fact.

23. In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion: Pancreas is a heterocrine gland.

Reason: Endocrine part secretes insulin and glucagon and exocrine part secretes an acidic pancreatic juice containing 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.

Solution : -

The pancreas is heterocrine gland (both exocrine and endocrine). The exocrine portion secretes an alkaline pancreatic juice containing enzymes and the endocrine portion secretes hormones, insulin and glucagon.

24. A child took sugarcane and sucked its juice. Regarding this which of the following match is correct?

a)

Substrate	Enzyme	Site of secretion of enzyme	Products formed
Proteins	Pepsin	Duodenum	Polypeptides

b)

Substrate	Enzyme	Site of secretion of enzyme	Products formed
Starch	Amylase	Salivary glands	Glucose

c)

Substrate	Enzyme	Site of secretion of enzyme	Products formed
Lipids	Lipase	Pancreas	Fat globules

d)

Substrate	Enzyme	Site of secretion of enzyme	Products formed
Sucrose	Invertase	Duodenum	Glucose +fructose

Solution : -

Sugarcane contains sucrose (disaccharide). In the duodenum, sucrose is acted upon by enzyme invertase which breaks down it into glucose and fructose.

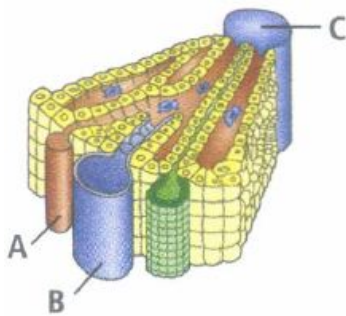
25. The given dissection figure shows the blood vessels in liver tissue. The three main blood vessels are indicated by capital letters (A-C). Following statements describe properties of blood that flows through these blood vessels.

For each description, indicate the vessel where that blood would be found.

I. Blood with the highest oxygen content.

II. Blood that contains newly absorbed nutrients.

III. Deoxygenated blood.



a) I-A, II-C, III-B b) I-A, II-B, III-C c) I-C, II-A, III-B d) I-C, II-B, III-A

Solution : -

A, B and C in the diagram represent hepatic artery, hepatic portal vein and hepatic vein respectively.

26. Duct leading from parotid gland and opening into vestibule is _____

a) Haversian duct b) **Stenson's duct** c) Wolffran duct d) Infra-orbital duct

Solution : -

Parotid glands are largest salivary glands, present just below the external ear. These are compound tubuloacinar glands. Saliva is secreted by Stenson's duct which open opposite to the second upper molar tooth.

27. Match column I with column II and select the correct option from the given codes.

Column I (Types of cells)	Column II (Secretions)
A. Beta cells	(i) Lysozym
B. Mast cells	(ii) Mucus

Column I (Types of cells)	Column II (Secretions)
C. Paneth cells	(iii) Histamine
D. Acinar cells	(iv) Insulin
	(v) Pancreatic enzymes

- a) A-(iv), B-(ii), C-(i), D-(v) b) A-(v), B-(ii), C-(iii), D-(iv) **c) A-(iv), B-(iii), C-(i), D-(v)**
d) A-(ii), B-(iii), C-(i), D-(v)

28. Which of the following is incorrect regarding the given digestion and absorption of protein?

- (a) The breakdown of proteins to peptides is catalyzed by pepsin in the stomach and by the pancreatic enzymes trypsin and chymotrypsin in the small intestine.
(b) Peptides are broken down into amino acids by pancreatic carboxypeptidase and intestinal aminopeptidase.
(c) Small peptides consisting of two or three amino acids can diffuse through epithelial cell and broken down into carbon dioxide and ammonia which are released into the blood.
(d) None of these

a)

The breakdown of proteins to peptides is catalyzed by pepsin in the stomach and by the pancreatic enzymes trypsin and chymotrypsin in the small intestine.

b) Peptides are broken down into amino acids by pancreatic carboxypeptidase and intestinal aminopeptidase.

c)

Small peptides consisting of two or three amino acids can diffuse through epithelial cell and broken down into carbon dioxide and ammonia which are released into the blood

d) None of these

Solution : -

When small peptides consisting of two or three amino acids i.e., dipeptides or tripeptides enter inside the cytosol of enterocyte they are broken down into further single amino acids by various peptidases inside cell. These single amino acids, then pass on through the other side of the enterocyte and then into the blood.

29. In man even though both air and food go through the pharynx, food does not normally enter the wind pipe because during swallowing of food

- a) the epiglottis covers the glottis** b) sphincter of Oddi closes the hepato-pancreatic duct
c) pyloric sphincter covers the opening of stomach into the duodenum d) none of these

Solution : -

A cartilaginous flap called epiglottis prevents the entry of food into the glottis, opening of the wind pipe.

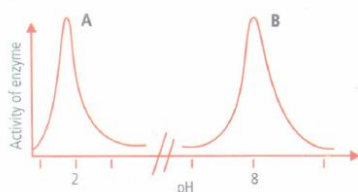
30. Emulsification of fat will not occur in the absence of _____

- a) lipase b) bile Pigments **c) bile salts** d) pancreatic juice

Solution : -

Bile is a watery greenish fluid containing bile salts, bile pigments, cholesterol and phospholipid. Bile salts play an important role in digestion of fats. Therefore in their absence emulsification of fat cannot take place.

31. A and B in the given graph are the action spectra of the two enzymes. The two enzymes are



- a) A: amylase B : trypsin **b) A: pepsin B : trypsin** c) A: chymotrypsin B : rennin
d) A: lactate dehydrogenase B: amylase

Solution : -

Pepsin and trypsin both are protein digesting enzymes, but they work at different locations and different pH in alimentary canal. Pepsin, which is most active at pH of 1.5 to 2.5, is an important peptic enzyme in stomach. Trypsin, which is a pancreatic protease, acts mostly in upper small intestine (duodenum and jejunum), works at an optimum pH of 7.5 - 8.5.

32. Which of the following pair is characterised by swollen lips, thick pigmented skin of hands and legs and irritability?
a) Thiamine - Beri-beri b) Protein - Kwashiorkor **c) Nicotinamide - Pellagra** d) Iodine - Goitre

Solution : -

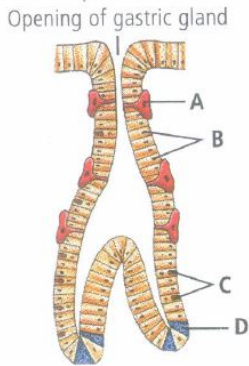
Pellagra is characterised by swollen lips, pigmented skin of hands, legs and irritability. This disease is caused by the deficiency, of vitamin- B₃ or niacin. This is pellagra protective vitamin and can be synthesised in the body from amino acid tryptophan.

33. Which of the following gastric cells indirectly help in erythropoiesis?
a) Goblet cells b) Mucous cells c) Chief cell **d) Parietal cells**

Solution : -

Parietal cells are source of HCl and intrinsic factor. HCl converts iron present in diet from ferric to ferrous form for its easier absorption and use during erythropoiesis.

34. Examine the figure of gastric gland given below and identify the labelled parts A to D.



a)

A	B	C	D
Oxyntic cell	Chief cell	Mucous cell	Argentaffin cell

b)

A	B	C	D
Argentaffin cell	Oxyntic cell	Mucous cell	Chief cell

c)

A	B	C	D
G cell	Chief cell	Mucous cell	Argentaffin cell

d)

A	B	C	D
Oxyntic cell	G cell	Mucous cell	Chief cell

35. Major utility of breaking up of food into small bits during chewing is
a) to reduce surface area of the food eaten up **b) to increase surface area of the food eaten up**
c) to make the food soluble d) to enjoy taste of food.

36. Which of the following match is correct?

a) Renin - Protein b) Trypsin - Starch **c) Invertase - Sucrose** d) Amylase - Lactose

37. Refer to the given flow chart

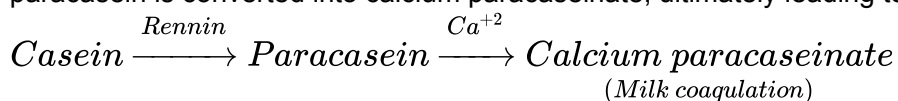


In it, letters 'Y' and 'Z' denote

a) rennin and Ca⁺ b) Ca⁺ and rennin c) rennin, HCl and Ca⁺ d) rennin and Ca⁺⁺.

Solution : -

In stomach, rennin acts on casein (milk protein) and converts it into paracasein. In the presence of calcium ions, paracasein is converted into calcium paracaseinate, ultimately leading to milk coagulation.



38. 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) Both statements 1 and 2 are correct b) Statement 1 is correct but statement 2 is incorrect
c) Statement 1 is incorrect but statement 2 is correct **d) Both statements 1 and 2 are incorrect**

Solution : -

Deglutition (swallowing) starts as a voluntary action in the mouth and then continues as an involuntary action. Striated muscle surrounds the upper one third of the oesophagus and smooth muscle surrounds the lower two thirds.

39. Lysozyme that is present in perspiration, saliva and tears, destroys _____ .

- a) certain types of bacteria** b) all viruses c) most virus-infected cells d) certain fungi

Solution : -

Lysozyme is an antibacterial agent which is secreted by the major salivary glands.

40. A patient is generally advised to specially, consume more meat, lentils, milk and eggs in diet only when he suffers from _____ .

- a) Scurvy **b) Kwashiorkor** c) Rickets d) Anemia

Solution : -

A child may have a diet containing sufficient carbohydrates and fats but still suffers a serious form of malnutrition. This form of malnutrition is known as Kwashiorkor. It develops in children whose diets are deficient in protein. When the first child is weaned (not accustomed to food other than its mother's milk) after the second is born, its primary supply of protein (the mother's milk) is lost. If the new, diet is very low in protein the needs of the growing individual this disease develops.

41. Hydrolytic enzymes which act on low pH are called as _____

- a) proteases b) a-amylases **c) hydrolases** d) peroxidases

Solution : -

Proteases catalyze breakdown of proteins and amylases act upon carbohydrates. Hydrolases catalyse hydrolysis.

42. If you chew on a piece of bread long enough, it will begin to taste sweet because

- a) maltase is breaking down maltose b) lipases are forming fatty acids
c) amylase is breaking down starches to disaccharides d) disaccharides are forming glucose

43. 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

Solution : -

The bile duct and the pancreatic duct open together into the duodenum as the common Digestion of Food Revision Notes hepatopancreatic duct which is guarded by a sphincter called the sphincter of Oddi.

44. In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : Oesophagus pierces the diaphragm and enters the abdominal cavity

Reason : Peristaltic movement starts from oesophagus

- 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

45. If this enzyme is absent in our small intestine, digestion of proteins in our body would be severely affected. Identify the enzyme

- a) Pancreatic amylase b) Maltase c) Lipase **d) Enterokinase**

Solution : -

Enterokinase is an enzyme present in intestinal juice. It helps in conversion of trypsinogen (inactive form of enzyme) into trypsin (active form of the enzyme) for protein digestion in the intestine.

46. Which of the following statements regarding small intestine are incorrect?

- (i) Throughout the small intestine, there are crypts of Lieberkuhn at the base of the villi.
 (ii) In duodenum, there are, in addition, small rounded peptic glands.
 (iii) The small intestine is strongly self-protective, by means of a copious production of mucus and a mechanism for the rapid replacement of cells damaged by contact with food and digestive juices.
 (iv) Each villus is richly supplied with blood capillaries only.
 a) (i) and (iv) **b) (ii) and (iv)** c) (iii) and (iv) d) (i) and (ii)

Solution : -

Peptic glands are present in stomach and secrete gastric juice. Villi in addition to being supplied by blood capillaries are also supplied by lymphatic capillaries called lacteals.

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

- a) Bolus **b) Chyme** c) Succus entericus d) Chylomicrons

Solution : -

Bolus is the food particles formed with chewing and mixing with saliva. Chyme is the food which is mixed thoroughly with acidic gastric juice.

48. In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as :

Assertion : The sight, smell and presence of food in the oral cavity can stimulate secretion of saliva.

Reason : The activities of the gastro-intestinal tract are only under neural control for proper coordination of different parts

- 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

Solution : -

The activities of the gastro-intestinal tract are under neural and hormonal control for proper coordination of different parts. The sight, smell and for the presence of food in the oral cavity can stimulate the secretion of saliva

49. Kwashiorkor occurs due to _____

- a) deficiency of proteins and calories **b) protein deficiency** c) deficiency of calcium
d) deficiency of fats

50. 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

Column I	Column II
C. Glottis	(iii) 'C' shaped structure emerging from the stomach
D. 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-(ij), B-(iv), C-(i), D-(iii)

