Respiration MDCAT-2024 (Conceptual Test-1)

1. Question1 points

The wall of trachea contains C shaped structure called?

1. A. Cartilaginous rings
2. B. Elastic rings
3. C. Muscular rings
4. D. None of above

Correct

Explanation A

The trachea is also called as Windpipe.

The trachea or windpipe is a tubular structure lying ventral to the oesophagus and extends to the chest cavity or thorax where it is divided into right and left bronchi. In the wall of trachea there are a series of C shaped cartilage rings which prevent the trachea from collapsing and keep the passage of air open.

2. Question1 points

In humans complex cartilaginous structure also known as voice box is called?

1. A. Nostrils
2. B. Trachea
3. C. Pharynx
4. D. Larynx

Correct

Explanation D

The larynx or voice box is a complex cartilaginous structure surrounding the upper end of the trachea. One of the cartilages, the epiglottis has a muscularly controlled, hinge-like action and serves as a lid which automatically covers the opening of the larynx during the act of swallowing so as to prevent the entry of food or liquids into the larynx. The opening of larynx is called glottis and is also lined with mucous membrane. In the glottis the mucous membrane is stretched across into two thin edged fibrous bands called vocal cords, which help in voice production, when vibrated by air.

3. Question1 points

Which of the following is the functional unit of lungs?

1. A. Bronchus
2. B. Bronchi
3. C. Bronchioles
4. D. Air sac

Correct

Explanation D

Air-sac is the functional unit of the lungs. Each air-sac consists of several microscopic single layered structures called alveoli.

4. Question1 points

During the act of swallowing larynx is closed by?

1. A. Glottis
2. B. Epiglottis
3. C. Vocal cords
4. D. Mucous flap

Correct

Explanation B

One of the cartilages, the epiglottis has a muscularly controlled, hinge-like action and serves as a lid which automatically covers the opening of the larynx during the act of swallowing so as to prevent the entry of food or liquids into the larynx.

5. Question1 points

Respiratory tubules are termed as bronchioles when they attain the diameter _____ or lesser:

1. A. 10 mm
2. B. 1 cm
3. C. 1 mm
4. D. 20 mm

Correct

Explanation C

When the smaller bronchi attain a diameter of one mm or less, then they are called bronchioles.

6. Question1 points

Which is the correct sequence of the air passage in a man?

1. A. Nasal cavity → Pharynx → Trachea → Larynx → Bronchi → Bronchioles → Alveoli
2. B. Nasal cavity → Pharynx → Larynx → Trachea → Bronchi → Bronchioles → Alveoli
3. C. Nasal cavity → Larynx → Pharynx → Trachea → Bronchi → Bronchioles → Alveoli
4. D. Nasal cavity → Larynx → Bronchi → Pharynx → Trachea → Bronchioles → Alveoli

Correct

Explanation B

7. Question1 points

The cartilaginous structure forming the upper end of the trachea is known as

1. A. Larynx
2. B. Pharynx
3. C. Epiglottis
4. D. Glottis

Correct

Explanation A

Choice A: Larynx also known as the voice box is a complex cartilaginous structure surrounding the upper end of the trachea. The opening of the larynx is called as glottis and is also lined with mucous membrane.

Choice B: Pharynx is a muscular passage lined with mucous membrane. The air is channelized from the pharynx into the larynx.

Choice C: Epiglottis is a cartilage having hinge-like action and serves as a lid which automatically covers the opening of the larynx during the act of swallowing.

Choice D: The opening of the larynx is called as glottis and is also lined with mucous membrane.

8. Question1 points

The floor of the chest cavity is called

1. A. Pleura
2. B. Lungs
3. C. Diaphragm

4. D. Intercostal muscles

Correct

Explanation C

The floor of the chest is called diaphragm. Diaphragm is a sheet of skeletal muscles.

9. Question1 points

In our air passageway, nasal cavities lead to

1. A. Pharynx
2. B. Larynx
3. C. Trachea
4. D. Buccal cavity

Correct

Explanation A

Air passage ways consist of nostrils, nasal cavities, pharynx, larynx, trachea, bronchi, bronchioles and alveolar ducts which ultimately lead into the alveolar sac. Nasal cavities are lined with mucous membrane of ciliated epithelium. Each nasal cavity is subdivided into three passage ways by the projection of bones from the walls of the internal nose.

The nasal cavity leads into the throat or pharynx by two internal openings.

10. Question1 points

In human beings, rib cage and sternum move upwardly and outwardly during

1. A. Inspiration
2. B. Expiration
3. C. Both

4. D. None

Correct

Explanation A

During inspiration the space inside the chest cavity is increased in two ways. Firstly, the muscles of ribs contract and elevate the ribs upwards and forwards and secondly, the muscles of diaphragm also contract and diaphragm becomes less domelike. This downward movement of diaphragm and outward and upward movement of the ribs causes increase in the chest cavity and reduces pressure. When the pressure from the lungs is removed they expand. With the expansion of the lungs vacuum is created inside the lungs in which the air rushes from the outside due to higher atmospheric pressure. This is called inspiration.

11. Question1 points

In case of breathing which process is active?

1. A. Expiration
2. B. Inspiration
3. C. Both are Active
4. D. None

Correct

Explanation B

12. Question1 points

The maximum amount of air a person can expel from the lungs after a maximum inhalation:

1. A. Vital capacity
2. B. Residual volume
3. C. Functional residual capacity

4. D. Expiratory reserve volume

Correct

Explanation A

Choice A: Vital capacity (VC) is the maximum amount of air a person can expel from the lungs after a maximum inhalation.

Choice B: Residual volume is the amount of air that remains in a person's lungs after fully exhaling.

Choice C: Functional Residual Capacity (FRC) is the volume of air present in the lungs at the end of passive expiration.

Choice D: expiratory reserve volume is the additional amount of air that can be expired from the lungs by determined effort after normal expiration

13. Question1 points

The total inside capacity of lungs is _____ for man.

1. A. 6.7 liters
2. B. 2.5 liters
3. C. 7 liters
4. D. 5 liters

Correct

Explanation D

In an adult human being when the lungs are fully inflated the total inside capacity of lungs is about 5 liters. Normally when we are at rest or asleep the exchange is only about half a liter. The volume of air taken inside the lungs and expelled during exercise is about 3.5 liters. In other words, there is a residual volume of 1.5 liters even during exercise which cannot be expelled.

14. Question1 points

Which of the following will always be in higher concentration in expired air as compared to inspired air

1. A. Carbon dioxide
2. B. Nitrogen
3. C. Hydrogen
4. D. None

Correct

Explanation A

Carbon dioxide is 0.04% in the inspired air while 4% in expired air. It means expired air contains about 100 times more CO_2 as compared to inspired air.

15. Question1 points

The enzyme involved in CO_2 transport in blood is

1. A. Carboxylase
2. B. Carbonic anhydrase
3. C. Decarboxylase
4. D. None of these

Correct

Explanation B

About 70% of CO_2 is carried from tissues to lungs as bicarbonate ions. As CO_2 enters from tissues into capillaries, it combines with water to form carbonic acid, which further dissociates to form bicarbonate ions. This reaction is catalyzed by carbonic anhydrase (CA) enzyme o form carbonic acid, which further dissociates to form bicarbonate ions. This reaction is catalyzed by carbonic anhydrase (CA) enzyme.

16. Question1 points

One molecule of muscle hemoglobin can bind with

1. A. 1 oxygen molecule
2. B. 2 oxygen molecules
3. C. 3 oxygen molecules
4. D. 4 oxygen molecules

correct

Explanation A

One molecule of muscle hemoglobin (also called as myoglobin) contains one heme group attached to one polypeptide chain. So, it can bind to 1 oxygen molecule.

17. Question1 points

Percentages of nitrogen, oxygen and carbon dioxide in exhaled air are about

1. A. 79, 4, 17 %
2. B. 79, 16, 4 %
3. C. 16, 50, 2 %
4. D. 79, 80, 4 %

correct

Explanation B

The percentage of nitrogen is same in case of exhaled and inhaled air i-e 79%. In inhaled air carbon dioxide is 0.04% and 4% in exhaled air. Oxygen is 21% in inhaled air and 16% in exhaled air.

18. Question1 points

Which of the following is true about hemoglobin?

1. A. It is a globular protein.
2. B. It has quaternary level of protein structure.

3. C. It has haem units.

4. D. All of the above.

Correct

Explanation D

Hemoglobin's quaternary structure comes from its four subunits in roughly a tetrahedral arrangement. In most vertebrates, the hemoglobin molecule is an assembly of four globular protein subunits. Each subunit is composed of a protein chain tightly associated with a non-protein heme group.

Haemoglobin in man increases the oxygen carrying capacity of the blood to about 75 time's.

Quaternary level of protein structure on as shown in the figure below.

19. Question1 points

Respiration occurs at how many levels?

1. A. 2

2. B. 3

3. C. 4

4. D. 5

Correct

Explanation A

Respiration is one of the most important metabolic activities of all organisms. Respiration occurs at two levels, i.e., organismic and cellular level

Organismic respiration is also known as breathing or ventilation. The cellular respiration is directly involved in the production of energy, necessary for all living activities. Cellular respiration is the process by which cell utilizes oxygen, produces carbon dioxide, extracts and conserves the energy from food molecules in biologically useful form, such as, ATP.

20. Question1 points

Bronchioles are made up of?

1. A. Longitudinal smooth muscle
2. B. Circular smooth muscle
3. C. Both longitudinal and circular smooth muscle
4. D. skeletal muscle

Correct

Explanation B

Bronchioles are made up of mainly circular smooth muscles. The bronchioles totally lack cartilages.

21. Question1 points

In older stems, the cork tissues have a special pores which are involved in gaseous exchange.

1. A. Guard cells
2. B. Xylem cells
3. C. Lenticels
4. D. Phloem cells

Correct

Explanation: C

In plants, in contrast to animals, no special organ or system is present for gaseous exchange as they exist in higher animals.

Every cell of plant carries out exchange of gases according to its needs. The transport system of plants which includes conducting tissues i.e. xylem and phloem is not involved in the transport of gases in the plants. In most cells of mesophyll which are specialized for photosynthesis, there are present large air spaces. These air spaces are directly involved in gaseous exchange. Stomata are the main sites of exchange of gases in plants. Stomata are largely present in the leaves and in young stem. In older stems, cork tissue is present which is formed of dead cells. The cork

tissue has special pores called lenticels which are involved in gaseous exchange. Land plants get their oxygen directly from air which enters through stomata

22. Question1 points

About 70-85% CO_2 is carried in blood as:

A. Carboxy Hb

B. Freely as CO_2

C. With proteins in plasma

D. As bicarbonate

1. A.
2. B.
3. C.
4. D.

Correct

Explanation D

About 70-85% CO_2 is carried in blood as Bicarbonate.

23. Question1 points

Hemoglobin is?

1. A. Lipid in nature
2. B. Protein in nature
3. C. Carbohydrate in nature
4. D. Lipoprotein in nature

Correct

Explanation B

Hemoglobin is a protein made up of different amino-acids.

24. Question1 points

Cellular respiration is a process by which cell utilize oxygen and proteins, and produce?

A. CO

B. CO_2

C. NO

D. NO_2

1. A.
2. B.
3. C.
4. D.

Correct

Explanation B

Cellular respiration is the process by which cell utilizes oxygen, produces carbon dioxide, extracts and conserves the energy from food molecules in biologically useful form, such as, ATP.

25. Question1 points

What volume is air is exchanged in the lungs at any given time during exercise?

1. A. 1/2 liter.
2. B. 2 liters.
3. C. 3.5 liters.
4. D. 5 liters.

Correct

Explanation C

26. Question1 points

Respiratory system is most efficient in?

1. A. Humans
2. B. Frog
3. C. Fish
4. D. Birds

Correct

Explanation D

Respiratory system in birds is the most efficient and elaborate. The birds are very active animals with high metabolic rate, and thus need large amount of oxygen. The respiratory system in the birds is so arranged that there is one way flow of the air through the lungs and the air is renewed after inspiration.

27. Question1 points

Hemoglobin combines with oxygen to form?

1. A. Oxyhaemoglobin
2. B. Carboxyhaemoglobin
3. C. Methemoglobin
4. D. Reduced hemoglobin

Correct

Explanation A

Oxygen + Hemoglobin = Oxyhaemoglobin

28. Question1 points

Respiratory pigment in the humans is known as?

1. A. Arteries
2. B. Hemoglobin
3. C. Bilirubin
4. D. Biliverdin

Correct

Explanation B

Hemoglobin is the respiratory pigment in humans.

29. Question1 points

During inspiration diaphragm moves?

1. A. Downward
2. B. Upward
3. C. Inward
4. D. Outward

Correct

Explanation A

30. Question1 points

In cockroach, trachea is lined by an

1. A. Lignin
2. B. Chitin
3. C. Membrane
4. D. Tissues

Correct

Explanation: B

RESPIRATION IN COCKROACH

Cockroach has specialized organs for respiration. The respiratory system of the cockroach is very specialized. It consists of branching systems of air tubules called tracheae lined by chitin.

1. Question1 points

Pigment present in muscle fiber is?

1. A. Myoglobin
2. B. Hemoglobin
3. C. Biliverdin
4. D. Bilirubin

Correct

Explanation A

Myoglobin is present in muscle fiber and can store oxygen.

2. Question1 points

In the lungs of birds tiny thin walled ducts are present called

1. A. Larynx

2. B. Para bronchi

3. C. Bronchi

4. D. Tracheoles

Correct

Explanation: B

In the lungs of birds, tiny thin walled ducts called parabronchi are present instead of alveoli. These parabronchi are open at both ends and the air; is constantly ventilated. The walls of the parabronchi are chief sites of gaseous exchange.

3. Question1 points

Which of the following described the movements involved in breathing out?

Movement of ribs, and movement of Diaphragm

1. A. Ribs down and in diaphragm downwards

2. B. Ribs down and in diaphragm upwards

3. C. Ribs up and out diaphragm downwards

4. D. Ribs up and out diaphragm upwards

Correct

Explanation B

4. Question1 points

In cutaneous respiration gaseous exchange takes place through?

1. A. Gills

2. B. Skin

3. C. Buccal cavity

4. D. Lungs

Correct

Explanation B

The gaseous exchange through the skin is known as cutaneous respiration. Gaseous exchange through the lungs is called pulmonary respiration.

5. Question1 points

Which of the following is the part of both digestive system and respiratory system?

1. A. Larynx
2. B. Pharynx
3. C. Nostril
4. D. Trachea

Correct

Explanation: B

Pharynx is cone-shaped passageway leading from oral and nasal cavity to esophagus and larynx. It is part of both digestive and respiratory system.

6. Question1 points

How many horse shoe shaped incomplete rings are present in trachea?

1. A. 20 – 30
2. B. 16 – 20
3. C. 1 – 10
4. D. 30 – 40

Correct

Explanation B

Trachea lies below the larynx. Its wall is stiffened by 16 – 20 characteristic horse shoe shaped incomplete rings.

7. Question1 points

Surfactants in the lungs are secreted by?

1. A. Mucosal cells
2. B. Tracheal cells
3. C. Bronchial cells
4. D. Alveolar cells

Correct

Explanation: D

Special cells of alveolus called alveolar cell secret surfactant. It lowers the surface tension.

8. Question1 points

The lung with smaller volume is?

1. A. Left lung
2. B. Right lung
3. C. Superior lung
4. D. Inferior lung

Correct

Explanation: A

Left lung has smaller volume because it represent only 44% of total lung volume.

9. Question1 points

Nostrils and Nasal cavities are involved in

1. A. Filtration of air
2. B. Moistening of air
3. C. Warming of air
4. D. All of these

Correct

Explanation D

Air, while passing through the nasal cavity, become moist warm and filtered of small foreign particles by mucous membrane.

10. Question1 points

In humans, the muscular air passage lined by mucous membrane is called?

1. A. Nostrils
2. B. Pharynx
3. C. Larynx
4. D. Trachea

correct

Explanation B

The pharynx is a muscular passage lined with mucous membrane.

11. Question1 points

1. A. A-Bronchus, B-Bronchioles, C-Larynx, D-Trachea
2. B. A-Bronchiole, B-Bronchus, C-Larynx, D-Trachea
3. C. A-Larynx B-Trachea C-Bronchus, D-Bronchiole
4. D. A-Trachea, B-Bronchus, C-Bronchiole. D-Larynx

Correct

Explanation D

The lungs begin at the bottom of our trachea (the windpipe). The trachea is the tube that carries the air in and out of the lungs. Each lung has a tube called bronchus that connects to trachea. The bronchi branch off into smaller bronchi and even smaller tubes called bronchioles. Larynx commonly called “voice box’ is an organ in the top of the neck involved in breathing, producing sound and protecting trachea against food aspiration.

So, option is the correct option.

12. Question1 points

Which of the following organ system involves in the exchange of gases with the environment?

1. A. Digestive system
2. B. Respiratory system
3. C. Circulatory system
4. D. Endocrine system
5. E. Nervous system

Correct

Explanation B

The digestive system includes alimentary canal and associated glands to carry out the digestion of food and release the energy stored in these food substances. The primary function of the respiratory system is to allow atmospheric oxygen from the air to enter the blood and

carbon dioxide from the blood to exit into

the air. The endocrine system includes endocrine glands and maintains the homeostasis of the body through hormonal actions. Nervous system serves in the reception of sensory input followed by their integration in the brain and spinal cord and generation of motor output to produce the response. Thus, the correct answer is .

13. Question1 points

Larynx is a modified portion of

1. A. Pharynx
2. B. Trachea
3. C. Bronchus
4. D. Lungs

Correct

Explanation B

14. Question1 points

The ultimate end parts of the respiratory system in humans are known as

1. A. Alveoli
2. B. Bronchioles
3. C. Tracheoles
4. D. Bronchi

Correct

Explanation A

The respiratory system terminates in the alveoli which are sac-like structures and are enveloped by the capillary network for the exchange of gases. Hence, the correct answer is ‘alveoli’

15. Question1 points

Lungs have a large number of alveoli for

1. A. Having spongy texture and proper shape
2. B. More surface area for diffusion of gases
3. C. More space for increasing volume of inspired air
4. D. More nerve supply

Correct

Explanation B

The structure of the alveoli maximizes their surface area to increase gas diffusion. Alveoli are tiny sacs at the end of bronchioles, they are so tiny yet abundant that help increasing their surface area to volume ratio. Breathing ensures that the oxygen concentration in the alveoli is higher than in the capillaries so oxygen moves from the alveoli to the blood. The exchange of gases occurs between the alveoli and blood in the capillaries that supply the Lungs.

16. Question1 points

Which of the following helps human beings in producing sounds?

1. A. The eardrum
2. B. The auditory nerve
3. C. The optical cortex
4. D. The vocal cords

Correct

Explanation D

The larynx is known as voice box or sound producing organ. A pair of membranous folds called vocal cords, stretch across the laryngeal cavity. In normal condition, the vocal cords lie apart so that the glottis remains widely open to allow free passage of respiratory air. For sound production, vocal cords come close together, the vibrate when air rushes out through glottis and produce voice. Thus, the correct answer is option D.

17. Question1 points

Respiratory system in human comprises of

1. A. Lungs
2. B. Gills
3. C. Respiratory tract
4. D. Both A and C

Correct

Explanation D

The respiratory system consists of all the organs involved in breathing. These include the nose, pharynx, larynx, trachea, bronchi and lungs, while. Gills or gill-like organs, located in different parts of the body, are found in various groups of aquatic animals, including mollusks, crustaceans, insects, fish, and amphibians.

18. Question1 points

Which of the following options is incorrect about the larynx (sound box)?

1. A. It is a bony box.
2. B. Glottis is the opening into the larynx.
3. C. During swallowing of food glottis is covered by epiglottis to prevent food entry into the larynx.
4. D. All of these

correct

Explanation A

Larynx is a cartilaginous box containing nine pieces of cartilages.

19. Question1 points

The respiratory center which regulates respiration is located in

1. A. Cerebellum
2. B. Medulla oblongata
3. C. Cerebral peduncle
4. D. The vagus nerve

Correct

Explanation B

The respiratory center in the medulla oblongata that regulates the rate and depth of breathing.

20. Question1 points

How many oxygen molecules bound to hemoglobin to give 50% saturation?

1. A. 6
2. B. 4
3. C. 2
4. D. 7

Correct

Explanation C

Hemoglobin can bind with maximum 4 oxygen molecules, so for obtaining 50% saturation only 2 molecules of oxygen should be bound to hemoglobin.

21. Question1 points

Which of the following is shift in chloride-shift?

A. N_2 and CO_2

B. Bicarbonate ions

C. CO

D. O_2

1. A.
2. B.
3. C.
4. D.

Correct

Explanation B

In chloride shift, exchange of bicarbonate ions of erythrocytes and chloride ions of plasma is called chloride shift.

22. Question1 points

The amount of CO_2 per 100 ml of human venous blood is

1. A. 60 ml
2. B. 70 ml
3. C. 54 ml
4. D. 55 ml

Correct

Explanation: C

Carbon Dioxide Concentration in Arterial and Venous Blood.

It has been found that arterial blood contains about 50 ml of carbon dioxide per 100 ml of blood whereas venous blood has 54 ml of carbon dioxide per 100 ml of blood. In this way each 100 ml of blood takes up just 4 ml of carbon dioxide as it passes through the tissues and gives of 4 ml of carbon dioxide per 100 ml of blood as it passes through the lungs

23. Question1 points

Emphysema is a breakdown of

1. A. Trachea
2. B. Tracheoles
3. C. Alveoli
4. D. Air sacs

Correct

Explanation: C

24. Question1 points

Number of air sacs in birds is:

1. A. 6
2. B. 7
3. C. 8
4. D. 9

Correct

Explanation D

The birds are very active animals with high metabolic rate, Lungs in birds have also developed several extensions known as air sacs which reach all parts of the body and even penetrate some of the bones. In most birds the air sacs are nine in number which become inflated by air at

atmospheric pressure when the rib articulations are rotated forward and upward. The inflated air sacs act as bellows and send air into the parabronchi for gaseous exchange.

25. Question1 points

The difference in oxygen content of inhaled and exhaled air is

1. A. 21%
2. B. 10%
3. C. 5%
4. D. 16%

Correct

Explanation C

Oxygen

Inhaled = 21%

Exhaled = 16%

Difference = 5%

26. Question1 points

In earthworm, exchange of gases mainly occurs through:

1. A. Gills
2. B. Lungs
3. C. Skin
4. D. Ostia

Correct

Explanation C

Although earthworm is much complex than hydra, yet it does not have any specialized respiratory organs. The exchange of gases occurs mainly through skin. Skin is richly supplied

with blood capillaries and is always kept moist by the secretion of epidermal mucous gland cells and also by coelomic fluid exuding out through the dorsal pores. Oxygen dissolved on the wet surface passes through the cuticle and epidermal cells into the blood. In the blood, oxygen combines with haemoglobin to form Oxyhaemoglobin. Oxyhaemoglobin releases up oxygen at the tissue level. In earthworm, blood does not come into direct contact with tissue cells so oxygen must diffuse through the tissue fluids and coelomic fluid. Carbon dioxide is removed from the tissues by the blood and carried in the plasma to skin, from where it is excreted.

27. Question1 points

Organs of voice in birds:

1. A. Larynx
2. B. Pharynx
3. C. Syrinx
4. D. None

Correct

Explanation C

28. Question1 points

Respiratory rate in human can be in the range of _____ times per minute.

1. A. 100
2. B. 10
3. C. 50
4. D. 15

Correct

Explanation D

Normally, at rest, we inhale and exhale 15-20 times per minute. During exercise, the breathing rate may rise to 30 times per minute. So, Respiratory rate in human can be in the range of 15 – 30 times per minute.

29. Question1 points

Breathing consists of

1. A. Four Phases
2. B. Three Phases
3. C. One Phase
4. D. Two Phases

Correct

Explanation D

Breathing is a process in which fresh air containing more oxygen is pumped into the lungs and air with more carbon dioxide is pumped out of the lungs. In other words breathing is a mechanical process consisting of two phases, inspiration and expiration.

30. Question1 points

These all factors affect the capacity of haemoglobin to combine with oxygen except

1. A. Carbon dioxide
2. B. Temperature
3. C. pH
4. D. Air

correct

Explanation D

There are three important factors which affect the capacity of haemoglobin to combine with oxygen

Carbon dioxide

when carbon dioxide pressure increases, the oxygen tension decreases, the capacity of haemoglobin to hold oxygen becomes less. In this way increased carbon dioxide tension favours the greater liberation of oxygen from the blood to the tissue.

Temperature

Rise in temperature also causes a decrease in the oxygen-carrying capacity of blood, e.g., in the increased muscular activity.

PH

The pH of blood also influences the degree to which oxygen binds to haemoglobin. As the pH of the blood declines, the amount of oxygen bound to haemoglobin also declines. This occurs because decreased pH results from an increase in hydrogen ions, and the hydrogen ions combine with the protein part of the haemoglobin molecules, causing a decrease in the ability of haemoglobin to bind oxygen. Conversely, an increase in blood pH results in an increased ability of haemoglobin to bind oxygen.

1. Question1 points

Vocal cords in males, as compared to females, are:

1. A. Small in size
2. B. Large in size
3. C. Equal in size
4. D. Females have no vocal cords

Correct

Explanation: B

Male:

→ Large vocal cord

→ Low pitch sound

Female

→ Short vocal cord

→ High pitch sound

2. Question1 points

A series of C-shaped cartilage rings present in the trachea of man, prevent it from:

1. A. Bending
2. B. Shortening
3. C. Collapsing
4. D. Swelling

Correct

Explanation: C

C-shaped hyaline cartilaginous rings are non-collapsible thus prevents suffocation.

3. Question1 points

The wall of trachea (windpipe) and bronchi of man is furnished with a series of incomplete:

1. A. Cartilaginous Plates
2. B. Chitinous Rings
3. C. Cartilaginous Rings
4. D. Muscular Rings

Correct

Explanation: C

→ These rings help them to prevent from closing.

→ Trachea has 16-20 incomplete horse shoe shaped ring

→ While bronchioles have complete cartilaginous rings

4. Question1 points

Which part of the air passage way possesses cartilage plates in its walls?

1. A. Bronchioles
2. B. Distal region of bronchi
3. C. Proximal region of bronchi
4. D. Trachea

Correct

Explanation: C

Distal end is close to bronchiole, so without cartilage plates.

5. Question1 points

Bronchioles have a diameter of:

1. A. 1.2 mm
2. B. 1 mm
3. C. 2 mm
4. D. 1.3 mm

Correct

Explanation: B

• Their walls consist of ciliated cuboidal epithelium.

• Alveoli thickness = 0.1 µm

• Bronchioles thickness = 1 mm

• Trachea thickness = 2–2.5 cm

6. Question1 points

Which of the following has no cartilage?

1. A. Trachea
2. B. Larynx
3. C. Bronchi
4. D. Bronchioles

Correct

Explanation: D

• Trachea consists of incomplete horse shoe shaped cartilaginous rings

• Bronchi has complete cartilaginous rings

• Bronchioles are only passeges that does not contain cartilage. They are ciliated and consists of cuboidal epithelium

7. Question1 points

Thickness of the alveolar walls is:

1. A. 1 µm
2. B. 0.1 µm
3. C. 10 µm
4. D. 2 µm

Correct

Explanation: B

• Their walls consist of ciliated cuboidal epithelium.

• Alveoli thickness = 0.1 µm

• Bronchioles thickness = 1 mm

• Trachea thickness = 2–2.5 cm

8. Question1 points

Surfactant is secreted by the cells of:

1. A. Bronchi
2. B. Lungs
3. C. Alveoli
4. D. All of these

Correct

Explanation: C

Special cells in alveolus walls secrete a detergent like onto the inside lining of the alveolus. It lowers the surface tension of fluid layer lining the alveolus and reduces the amount of effort needed to breath in and inflate the lungs.

9. Question1 points

How much oxygen molecules are transported by the red blood cells as oxyhemoglobin?

1. A. 96%
2. B. 97%
3. C. 98%
4. D. 99%

Correct

Explanation: B

Approximately 97% of O2 is carried by RBC as oxyhemoglobin, while 03% is transported as dissolved oxygen in the plasma.

10. Question1 points

Approximately _____ of oxygen is carried out by plasma.

1. A. 2%
2. B. 3%
3. C. 5%
4. D. 6%

Correct

Explanation: B

97% is carried by RBC's as Hb_4O_2 form.

11. Question1 points

Maximum oxygen carrying capacity of arterial blood at 100 mmHg PO_2 is:

1. A. 20ml/100ml of blood
2. B. 19.4ml/100ml of blood
3. C. 5ml/100ml of blood
4. D. 4.4ml/100ml of blood

Correct

Explanation: A

1gm of Hb dissolve 1.34mlO_2

100ml of blood have 15gm of Hb, so

100ml of blood have dissolved $O_2 = 15 \times 1.34 = 20ml O_2$

12. Question1 points

Amount of hemoglobin in 100ml of blood is:

1. A. 5 g
2. B. 10 g
3. C. 15 g

4. D. 20 g

Correct

Explanation: C

100ml of blood have 15gms of Hb.

13. Question1 points

1 gm hemoglobin can combine with:

A. 1.24 ml of O2

B. 1.34 ml of O2

C. 1.44 ml of O2

D. 2.34 ml of O2

1. A.
2. B.
3. C.
4. D.

Correct

Explanation: B

Hafner's constant = 1gm of Hb dissolve 1.34ml of O2.

14. Question1 points

Normal value of oxygen in 100ml of arterial blood will be:

A. 19.4 ml O2

B. 18.4 ml O2

C. 17.4 ml O2

D. 20.4 ml O2

1. A.

2. B.

3. C.

4. D.

Correct

Explanation: A

100ml of arterial blood carries 19.4ml of O2 at 2 = 95mm of Hg and saturation 97% at rest condition. While 100ml of venous blood contains 14.4ml O2 (75% saturated; 40mm Hg)

15. Question1 points

100ml of venous blood will have oxygen at rest:

A. 19.4 ml O2

B. 14.4 ml O2

C. 20 ml O2

D. 5 ml O2

1. A.

2. B.

3. C.

4. D.

Correct

Explanation: B

100ml of venous blood carries 14.4ml O2 at PO2 is 40mm of Hg and saturation is 75% at rest condition.

16. Question1 points

100ml of blood will release oxygen to the tissue at rest at a volume of:

1. A. 5 ml
2. B. 20 ml
3. C. 19.4 ml
4. D. 20.4 ml

Correct

Explanation: A

Arterial blood = venous blood

19.4 mlO_2 – 14.4mlO_2 = 5mlO_2

17. Question1 points

The venous blood that leaves an active tissue has only oxygen:

1. A. 4.4ml/100ml of blood
2. B. 3.4ml/100ml of blood
3. C. 19.4ml/100ml of blood
4. D. 1.34ml/100ml of blood

Correct

Explanation: A

19.4ml O_2 – 15ml O_2 = 4.4ml O_2

18. Question1 points

In plasma 100ml of arterial blood will have oxygen:

A. 0.29ml O_2

B. 0.39ml O_2

C. 0.49ml O_2

D. 0.59ml O_2

1. A.
2. B.
3. C.
4. D.

Correct

Explanation: A

100ml of arterial blood plasma carries 0.29ml O_2 at 95mm of Hg.

19. Question1 points

In plasma 100ml of venous blood will have oxygen:

1. A. 0.02 ml
2. B. 0.12 ml
3. C. 0.18 ml
4. D. 2.1 ml

Correct

Explanation: B

100ml of venous blood plasma has 0.12ml of dissolved O_2 at 40mm of Hg.

20. Question1 points

100ml of venous blood will carry oxygen in the dissolved state in plasma:

1. A. 0.17 ml
2. B. 0.27 ml
3. C. 0.37 ml
4. D. 0.47 ml

Correct

Explanation: A

0.29ml O2 – 0.12ml O2 = 0.17ml O2

21. Question1 points

In man the O2 is liberated from hemoglobin when the pressure in ml of Hg in cells or tissues falls below:

1. A. 80 of Hg
2. B. 60 of Hg
3. C. 70 of Hg
4. D. 50 of Hg

Correct

Explanation: D

O2 is liberated from Hb at rest condition at 40mm of Hg while at exercise condition O2 liberated from Hg at 18mm of Hg.

22. Question1 points

The enzyme carbonic anhydrase is present in:

1. A. White blood cells
2. B. Red blood cells
3. C. Platelets
4. D. Lungs

Correct

Explanation: B

Carbonic anhydrase is produced by RBC membrane.

23. Question1 points

Oxygen carrying capacity of blood does not depend on:

A. Partial pressure of CO2

B. Partial pressure of O2

C. Height from sea level

D. Quantity of blood

1. A.
2. B.
3. C.
4. D.

Correct

Explanation: D

Quantity of blood is not link with O2 pressure.

24. Question1 points

Hamburger's phenomenon or chloride shift is associated with the transport of:

A. Oxygen

B. Nitrogen

C. CO2

D. All of these

1. A.
2. B.
3. C.
4. D.

Correct

Explanation: C

Hamburger’s phenomenon in related to CO_2 transport.

25. Question1 points

Most of the carbon dioxide is transported in the form of:

1. A. Carboxyhemoglobin
2. B. Oxyhemoglobin
3. C. Bicarbonate ions
4. D. Dissolved in plasma

Correct

Explanation: C

Transporting CO_2 as bicarbonate ion is 70%.

Plasma = 7%

Carboxyhemoglobin = 27%

26. Question1 points

When the human blood leaves the capillary bed of the tissue, most of the carbon dioxide is in the form of:

1. A. Carbonic acid
2. B. Bicarbonate ions
3. C. Carboxylic acid
4. D. None of them

Correct

Explanation: B

Transporting CO_2 as bicarbonate ion = 70%

27. Question1 points

Our normal oxygen intake per minute amounts to:

1. A. 20 ml
2. B. 250 ml
3. C. 100 ml
4. D. 300 ml

Correct

Explanation: B

5000 × (5%) ÷ 100 = 250 → 5L air has 5% O2 intake.

28. Question1 points

Respiratory system provides the fundamental ability to

A. Smell

B. Breath

C. Intake of O2

D. Giving out of CO2

1. A.
2. B.
3. C.
4. D.

Correct

Explanation: B

Self Explanatory.

29. Question1 points

Which of the following process takes place during gaseous exchange in respiratory surface?

1. A. Diffusion
2. B. Active transport
3. C. Osmosis
4. D. All of these

Correct

Explanation: A

Diffusion

30. Question1 points

Lungs are _____ in origin.

1. A. Endodermal
2. B. Ectodermal
3. C. Mesodermal
4. D. Preformed

Correct

Explanation: A

Male:

→ Large vocal cord

→ Low pitch sound

Female

→ Short vocal cord

→ High pitch sound

31. Question1 points

Adult males have larger cords and usually_____ pitched voices.

1. A. High
2. B. Low
3. C. Fluctuate
4. D. No effect

Correct

Explanation: B

Low

32. Question1 points

Which part of body is involve in digestive as well as respiratory system?

1. A. Larynx
2. B. Oesophagus
3. C. Trachea
4. D. Pharynx

Correct

Explanation: D

Pharynx

33. Question1 points

_____ serve as a dual function: as an air canal to lungs and controller of its access and as the organ of voice?

1. A. Pharynx
2. B. Larynx

3. C. Trachea

4. D. Bronchi

Correct

Explanation: B

Larynx

1. Question1 points

The part of respiratory system having tube like body 10 to 12cm long, 2cm wide, 16 to 20 horse shoe Incomplete rings in neck region is:

1. A. Pharynx

2. B. Larynx

3. C. Trachea

4. D. Bronchi

Correct

Explanation: C

Trachea contains 16-20 horse shoe rings which are opened from backward embedded in dense connective tissue

2. Question1 points

The bronchioles are located at the end of the bronchi and terminate in the?

1. A. Lungs

2. B. Alveoli

3. C. Air sac

4. D. Both B and C

Correct

Explanation: D

Air sacs is another term used for alveoli

3. Question1 points

Alveoli expand and relax easily during breathing because of having,

1. A. Elastic fibres
2. B. Collagen
3. C. Both A & B
4. D. Squamous epithelium

Correct

Explanation: C

Self Explanatory.

4. Question1 points

The human left lung is composed of two lobes and represents a volume of:

1. A. 52%
2. B. 54%
3. C. 44%
4. D. 58%

Correct

Explanation: C

Left Lung → 2 lubes → 44% lung volume

Right lung → 3 lubes → 56% lung volume

5. Question1 points

Walls of bronchioles consist of smooth muscles and:

1. A. Ciliated cuboidal epithelium
2. B. Squamous epithelium
3. C. Ciliated mucus membrane
4. D. Collagen & elastic fiber

Correct

Explanation: A

Ciliated cuboidal epithelium while squamous epithelium is present in alveoli

6. Question1 points

Special cells in the alveolus wall secrete a detergent like chemical on the inside lining of the alveolus, this is called a:

1. A. Alveolar macrophages
2. B. Enzymes
3. C. Surfactant
4. D. Goblet cells

Correct

Explanation: C

Special cells in alveolus walls secrete a detergent like onto the inside lining of the alveolus. It lowers the surface tension of fluid layer lining the alveolus and reduces the amount of effort needed to breath in and inflate the lungs.

7. Question1 points

Membrane that cover the lungs known as

1. A. Peritoneum membrane
2. B. Cardiac membrane

3. C. Pleura membrane

4. D. None

Correct

Explanation: C

Lungs → Pleura

Kidney → Peritonium

Heart → Pericardrium

Brain → Meninges

8. Question1 points

The pH of blood is:

1. A. 6.4
2. B. 7.4
3. C. 8.4
4. D. 5.4

Correct

Explanation: B

7.4

9. Question1 points

How much oxygen will be released to the tissue by 700ml blood?

1. A. 5 ml
2. B. 20 ml
3. C. 30 ml
4. D. 35 ml

Correct

10. Question1 points

How much oxygen will be released to the tissue by 500ml blood plasma?

1. A. 0.17 ml
2. B. 0.29 ml
3. C. 0.12 ml
4. D. 0.85 ml

Correct

11. Question1 points

Oxygen dissolved in 50g of Hb:

1. A. 17 ml
2. B. 37 ml
3. C. 47 ml
4. D. 67 ml

Correct

Explanation: D

1g Hb = 1.34ml O2

50g Hb = 50 × 1.34ml O2

=67ml

12. Question1 points

Carbon dioxide diffuses in the blood and combines with the water to form:

1. A. Fumaric acid
2. B. Acetic acid
3. C. Carbonic acid
4. D. Carbonic anhydrase

Correct

Explanation: C

$H_2O + CO_2 \rightarrow H_2CO_3 \rightarrow HCO_{-3} + H+$

13. Question1 points

$Hb.4HO_2 + H + 4O_2$?

A. Hb

B. HHb

C. HbO

D. H_2CO_3

1. A.
2. B.
3. C.
4. D.

Correct

Explanation: B

HHb (haemoglobin acid)

14. Question1 points

About _____ % of carbon dioxide is carried as carboxyhemoglobin.

1. A. 23

2. B. 33

3. C. 43

4. D. 53

Correct

Explanation: A

CO_2 transport plasma = 7%

Carboxyhemoglobin = 23%

Bicarbonate ions = 70%

15. Question1 points

About _____ % of carbon dioxide is carried in dissolved form is plasma:

1. A. 7

2. B. 17

3. C. 27

4. D. 37

Correct

Explanation: A

CO_2 transport plasma = 7%

Carboxyhemoglobin = 23%

Bicarbonate ions = 70%

16. Question1 points

Cyanosis, a blue tinge to the skin is due to:

A. Lack of CO_2

B. Lack of O_2

C. Excess of CO_2

D. Excess of O_2

1. A.
2. B.
3. C.
4. D.

Correct

Explanation: B

Lack of oxygen

17. Question1 points

Carbonic acid, H_2CO_3 is unstable compound and dissociate to form:

1. A. Hydrogen ions
2. B. Bicarbonate ions
3. C. Both A and B
4. D. None of them

Correct

Explanation: C

$H_2CO_3 \rightarrow HCO_3^- + H^+$

18. Question1 points

Hamburger's phenomenon is also known as:

1. A. Potassium shift

2. B. Sodium shift

3. C. Chloride shift

4. D. All of them

Correct

Explanation: C

Chloride shift

19. Question1 points

The respiratory pigment in mollusks is

1. A. Hemerythrin

2. B. Chlorocruorin

3. C. Hemocyanin

4. D. Haemoglobin

Correct

Explanation: C

Mollusk: Hemocyanin

Marine Animals: Haemoerythrin

Annelids: chlorocruorin

20. Question1 points

Oxygenated hemocyanin is _____ in colour.

1. A. Green

2. B. Blue

3. C. Red

4. D. None of them

Correct

Explanation: B

Oxygenated:

Hemocyanin = Blue

Chlorocruorin = Green

Haemoerythrin = Violet or Pink

21. Question1 points

Oxygenated colour of respiratory pigment is pink, it is:

1. A. Hemocyanin
2. B. Hemerythrin
3. C. Haemoglobin
4. D. Chlorocruorin

Correct

Explanation: B

Oxygenated:

Hemocyanin = Blue

Chlorocruorin = Green

Haemoerythrin = Violet or Pink

22. Question1 points

When haemoglobin is fully saturated with oxygen, the 100cc of blood contains _____?

1. A. 15cc of oxygen
2. B. 20cc of oxygen
3. C. 25cc of oxygen

4. D. 10cc of oxygen

Correct

Explanation: B

At 100% full saturation 100ml/100cc of blood contains 20ml/cc of oxygen

23. Question1 points

Deoxygenated hemocyanin have _____ Color?

1. A. Blue
2. B. Green
3. C. Red
4. D. None

Correct

Explanation: D

On deoxygenated:

Hemoglobin = Dark red

Hemocyanin = Colourless

Chlorocruorin = Colourless

24. Question1 points

Phrenic nerve is connected with:

1. A. Intercostal muscles
2. B. Alveoli
3. C. Diaphragm
4. D. Both A and C

Correct

Explanation: C

The breathing centre communicates with intercostal muscles by intercostal nerves

The breathing communicates with diaphragm by phrenic nerves

25. Question1 points

During exercise 100 ml of venous blood contains _____ ml of O2.

1. A. 4 ml
2. B. 15 ml
3. C. 14.4 ml
4. D. 19.4 ml

Incorrect

Explanation: B

26. Question1 points

PO2 is _____ to oxygen carrying capacity of Hb?

1. A. Directly proportional
2. B. Inversely proportional
3. C. No effect
4. D. None

Correct

Explanation: A

27. Question1 points

Carbonic anhydrase require_____ For its activity?

A. Ca++

B. Zn++

C. Mg++

D. Cu++

1. A.
2. B.
3. C.
4. D.

Correct

Explanation: B

Carbonic anhydrase require Zn+2 ions coordinated by three histidine ligand and water and becomes active

28. Question1 points

One hemocyanin molecule can carry _____ Molecules of oxygen?

1. A. 4
2. B. 3
3. C. 10
4. D. None

Correct

Explanation: D

Hemocyanin carry only one O2 molecule

29. Question1 points

Hemocyanin is found in:

1. A. Annelids
2. B. Marine animals
3. C. Arthropods
4. D. Mollusks

Correct

Explanation: D

Mollusk: Hemocyanin

Marine Animals: Haemoerythrin

Annelids: chlorocruorin

30. Question1 points

O2 carrying molecules in annelids _____?

1. A. Hemerythrin
2. B. Hemocyanin
3. C. Chlorocruorin
4. D. None

Correct

Explanation: C

Mollusk: Hemocyanin

Marine Animals: Haemoerythrin

Annelids: chlorocruorin

31. Question1 points

Deoxygenated chlorocruorin is _____ in color?

1. A. Red

2. B. Purple

3. C. Green

4. D. None

Correct

Explanation: D

On deoxygenated:

Hemoglobin = Dark red

Hemocyanin = Colourless

Chlorocruorin = Colourless

32. Question1 points

Special bicarbonate chloride carrier protein is _____ Protein?

1. A. Uniporter.

2. B. Symporter

3. C. Antiporter

4. D. None

Correct

Explanation: C

Antiporter protein is membrane protein that transports two molecules at the same time in opposite direction.

33. Question1 points

Warming of air is the function of:

1. A. Hair

2. B. Cilia

3. C. Mucus

4. D. Blood capillaries

Correct

Explanation: D

Inside the nose, cilia trap substances, underneath there is mucous membrane having blood capillaries that warms the air upto 30◦C depending on external temperature.

1. Question1 points

All of the following are the functions of mucus in nose except:

1. A. Filtration of air
2. B. Warming of air
3. C. Moistening of air
4. D. Physical barrier for germs

Correct

Explanation: B

Inside the nose, cilia trap substances, underneath there is mucous membrane having blood capillaries that warms the air upto 30◦C depending on external temperature.

2. Question1 points

The voice organ in human is:

1. A. Mouth
2. B. Pharynx
3. C. Larynx
4. D. Glottis

Correct

Explanation: C

3. Question1 points

Which one is true about adult male vocal cord?

1. A. Larger with high pitch voice
2. B. Smaller with low pitch voice
3. C. Larger with low pitch voice
4. D. Smaller with high pitch voice

Correct

Explanation: C

Male:

→ Large vocal cord

→ Low pitch sound

Female

→ Short vocal cord

→ High pitch sound

4. Question1 points

Horse shoe shape cartilage rings are found, in:

1. A. Larynx
2. B. Trachea
3. C. Bronchi
4. D. Bronchioles

Correct

Explanation: B

→ These rings help them to prevent from closing.

→ Trachea has 16-20 incomplete horse shoe shaped ring

→ While bronchioles have complete cartilaginous rings

5. Question1 points

How many stem bronchi are there in human respiratory system?

1. A. One
2. B. Two
3. C. Four
4. D. Many

Correct

Explanation: B

6. Question1 points

The type of epithelium found in alveoli is:

1. A. Ciliated epithelium
2. B. Cuboidal epithelium
3. C. Dry epithelium
4. D. Squamous epithelium

Correct

Explanation: D

Cuboidal epithelium → Bronchioles

Squamous epithelium → Alveoli

7. Question1 points

Which of the following is true about the right lung in human?

1. A. Smaller in size
2. B. Represent 44% of both lungs
3. C. Has three lobes
4. D. None

Correct

Explanation: C

Right lung → 56% lung volume → has 3 Lobes

8. Question1 points

Each lung is encased by a thin membranous sac called:

1. A. Pericardium
2. B. Perichondrium
3. C. Peritoneum
4. D. Pleura

Correct

Explanation: D

Lung → Pleura

Heart → Pericardium

Kidney → Peritoneum

Brain → Meninges

9. Question1 points

Hemerythrin is found in:

1. A. Annelid

2. B. Arthropod

3. C. Mollusk

4. D. Marine animals

Correct

Explanation: D

Mollusk: Hemocyanin

Marine Animals: Haemoerythrin

Annelids: chlorocruorin

10. Question1 points

Oxygenated chlorocruorin have _____ color?

1. A. Red

2. B. Green

3. C. Blue

4. D. Yellow

Correct

Explanation: B

Oxygenated:

Hemocyanin = Blue

Chlorocruorin = Green

Haemoerythrin = Violet or Pink

11. Question1 points

Diameter of bronchiole is:

1. A. 2 mm

2. B. 1 µm

3. C. 0.1 mm

4. D. 1 mm

Correct

Explanation: D

Bronchioles → 1mm or less

Alveoli → 0.1 µm

12. Question1 points

Which one is not found in larynx?

1. A. Cartilage plate

2. B. Muscle

3. C. Mucous membrane

4. D. None

correct

Explanation: D

Larynx → Cartilages Plate

Larynx → Vocal cord in which nervous in stretched

13. Question1 points

Elastin protein is found in:

1. A. Trachea

2. B. Alveoli

3. C. Bronchi

4. D. All

Correct

Explanation: B

→ Collagen and elastic fibres are found in alveoli

→ Alveoli also contains epilated squamous epithelium

14. Question1 points

Surfactant secreted by Type-II alveolus cell have role in:

1. A. Decreasing surface tension
2. B. Kill the bacteria
3. C. Both
4. D. None

correct

Explanation: C

Special cells in alveolus walls secrete a detergent like chemical on the inside lining of alveolus called Surfactant. It lowers surface tension of fluid layer lining the alveolus and reduce amount of effort needed to breath in and inflate the lungs. It also help to kill bacteria which reach alveoli

15. Question1 points

Which one is not correct about left lung?

1. A. 44% capacity
2. B. Have short bronchus
3. C. Have long bronchus
4. D. All

Correct

Explanation: B

→ Left lung has capacity of 44%

→ Left main bronchus is a narrow, long passageway in our left lung

16. Question1 points

CO2 attaches with _____ part of Hb?

1. A. Iron part
2. B. Haem part
3. C. Globin part
4. D. Pyruvate ring

Correct

Explanation: C

Haemoglobin → Haem part → O2 binding

Haemoglobin → Globin part → CO2 binding

17. Question1 points

When blood leaves the capillary bed most of the carbon dioxide is in the form of

1. A. Carbonate ions
2. B. Bicarbonate ions
3. C. Hydrogen ions
4. D. Hydroxyl ions

Correct

Explanation: B

Transport of CO-2

- By plasma = 7%
- As bicarbonate ion = 27%
- As carboxyhemoglobin = 70%

18. Question1 points

With which other system do specialized respiratory systems most closely interface in exchanging gases between the cells and the environment?

1. A. The skin
2. B. The excretory system
3. C. The circulatory system
4. D. The muscular system

Correct

Explanation: C

19. Question1 points

Which of the following is the respiratory surface in human respiratory system?

1. A. Larynx
2. B. Trachea
3. C. Bronchi
4. D. Alveoli

Correct

Explanation: D

Alveoli is basic structural and functional unit of respiratory system where actual gasses exchange takes place

20. Question1 points

How is most of the oxygen transported in the blood?

1. A. Dissolved in plasma

2. B. Bound to hemoglobin

3. C. As bicarbonate

4. D. Dissolved in water

Correct

Explanation: B

Oxygen Transport

By plasma = 3%

By haemoglobin = 97%

21. Question1 points

Which of the following factors is the most effective in accelerating the rate of breathing in man?

1. A. A lack of oxygen in the blood

2. B. A lack of oxygen in the tissues

3. C. An excess of carbon dioxide in the lungs

4. D. An excess of carbon dioxide in the blood

correct

Explanation: D

22. Question1 points

Which of the following changes will increase the body rate of carbon dioxide excretion into the alveoli?

1. A. Holding the breath

2. B. The breakdown of alveolar tissue as a result of disease

3. C. A decrease in the partial pressure of carbon dioxide in the alveolar air

4. D. A decrease in the pulmonary circulation

Correct

Explanation: C

23. Question1 points

Breathing is an example of

1. A. Counter current exchange
2. B. Cellular respiration
3. C. Ventilation
4. D. Diffusion

Correct

Explanation: C

Breathing is inhalation and exhalation of air in and out of lungs, that's also called Ventilation

24. Question1 points

Which sequence most accurately describes the sequence of airflow in the human respiratory system?

1. Pharynx 2. Bronchus 3. Trachea 4. Larynx 5. Alveolus 6. Bronchiole

1. A. 4, 1, 3, 2, 5, 6
2. B. 1, 4, 3, 2, 5, 6
3. C. 4, 1, 3, 2, 6, 5
4. D. 1, 4, 3, 2, 6, 5

Correct

Explanation: D

25. Question1 points

Our normal oxygen intake per minute amounts to:

1. A. 20 ml
2. B. 250 ml
3. C. 100 ml
4. D. 300 ml

Correct

Explanation: B

This is a General MCQs, not directly given in your Text Book but relevant to this Chapter and asked in Past Exams

The purpose of adding this MCQ is to share basic Key Points.

26. Question1 points

In man the O2 is liberated from hemoglobin when the pressure in ml of Hg in cells or tissues fall below:

1. A. 80mm of Hg
2. B. 70mm of Hg
3. C. 50mm of Hg
4. D. 60mm of Hg

correct

Explanation: A

27. Question1 points

In plasma 100ml of venous blood will have oxygen:

1. A. 10.02 ml
2. B. 0.18 ml

3. C. 0.12 ml

4. D. 2.1 ml

Correct

Explanation: C

28. Question1 points

Lung cells are:

1. A. Pneumocytes

2. B. Phagocytes

3. C. Osteocytes

4. D. None

Correct

Explanation: A

This is a General MCQs, not directly given in your Text Book but relevant to this Chapter and asked in Past Exams

The purpose of adding this MCQ is to share basic Key Points.

29. Question1 points

Surfactants are _____.

1. A. Glycoprotein

2. B. Lipoprotein

3. C. Galactoses

4. D. None

Correct

Explanation: B

30. Question1 points

Lungs of an adult has weight of:

1. A. 1.1 kg
2. B. 1.2 kg
3. C. 1.3 kg
4. D. 1.4 kg

Correct

Explanation: C

This is a General MCQs, not directly given in your Text Book but relevant to this Chapter and asked in Past Exams

The purpose of adding this MCQ is to share basic Key Points.

31. Question1 points

Right lung is _____ % larger than the left one.

1. A. 20
2. B. 30
3. C. 40
4. D. 50

Correct

Explanation: B

This is a General MCQs, not directly given in your Text Book but relevant to this Chapter and asked in Past Exams

The purpose of adding this MCQ is to share basic Key Points.a

32. Question1 points

Pharynx is cone shaped and _____ in length.

1. A. 4 inch
2. B. 4.5 inch
3. C. 5 inch
4. D. 5.5 inch

Correct

Explanation: B

1. Question1 points

Following nasal passage are composed of cartilage except:

1. A. Trachea
2. B. Bronchus
3. C. Bronchioles
4. D. None

Correct

Explanation: C

• Trachea consists of incomplete cartilaginous rings

• Bronchus consists of complete cartilaginous rings

• Bronchioles are only air passage that does not consist of cartilage. Have diameter of around 1m. They are initially ciliated and have simple columns epithelium.

2. Question1 points

The process responsible for energy production in animals is:

1. A. Photosynthesis

2. B. Digestion

3. C. Respiration

4. D. Circulation

Correct

Explanation: C

Respiration is a chemical process in which organic compounds are broken down and energy is released in form of ATP.

3. Question1 points

The alveoli represent the total surface area of:

A. 10 – 30 m2

B. 30 – 60 m2

C. 70 – 90 m2

D. 90 – 110 m2

1. A.

2. B.

3. C.

4. D.

Correct

Explanation: C

There are over 700 million alveoli present in lungs representing a total surface area of 70 – 90 m2.

4. Question1 points

The rate of breathing of a child of 5 years is about:

1. A. 44 times/min

2. B. 40 times/min

3. C. 25 times/min

4. D. 20 times/min

Correct

Explanation: C

As age increases, the breathing rate decreases.

Adult person breathing rate is 12–16 times/min

5. Question1 points

Smaller the animal; [2018-B]

1. A. More the rate of respiration

2. B. Less the rate of respiration

3. C. Rate of respiration has nothing to do with size of animal

4. D. Periodically increase and decrease rate of respiration

Correct

Explanation: A

Smaller animals have higher rate of respiration because they have higher metabolism. Smaller animals need to generate more heat because their heat loss is greater for their mass.

6. Question1 points

The oxygen carrying capacity of haemoglobin in humans when the blood is 100% oxygenated is:

1. A. 19.4 ml

2. B. 19.6 ml

3. C. 20 ml

4. D. 21 ml

Correct

Explanation: C

• 100% oxygenated blood carries 20ml of oxygen

• Actually blood contain 19.4 ml O_2 at 97% saturation.

7. Question1 points

Which of the following ions play important role in the transport of carbon dioxide?

1. A. Sodium
2. B. Potassium
3. C. Bicarbonate
4. D. Chloride

Correct

Explanation: C

• Carbonic acid immediately dissociates into bicarbonate ion and a proton. Thus, bicarbonate is the primary means by which CO_2 -is transported across blood stream.

• $CO_2 + H_2O \rightarrow H_2O_3 + HCO_3^- + H^+$

8. Question1 points

Percentage of CO_2 carried by plasma is:

1. A. 5%
2. B. 6%
3. C. 7%
4. D. 8%

Correct

Explanation: C

→ Transport of CO_2:

- By plasma = 7%
- By bicarbonate = 70%
- By carboxyhemoglobin = 23%

9. Question1 points

Amount of O_2 carried by red blood cells is:

1. A. 77%
2. B. 90%
3. C. 87%
4. D. 97%

Correct

Explanation: D

Approximately 97% of O_2 is carried by RBCs as oxyhemoglobin while 3% is transported as dissolved oxygen in the plasma.

10. Question1 points

Of 100ml of arterial blood, oxygen provided to the tissue is:

1. A. 2ml
2. B. 3ml
3. C. 4ml
4. D. 5ml

Correct

Explanation: D

Text Book Reference; Page#10, Ch#14, 2nd year

11. Question1 points

Select a structure which do not belong to human respiratory system.

1. A. Trachea
2. B. Diaphragm
3. C. The lungs
4. D. All of the above

Correct

Answer = B

12. Question1 points

Which of the following gas is released out during the process of respiration?

1. A. Oxygen
2. B. Hydrogen
3. C. Carbon dioxide
4. D. None of the above

Correct

Answer = C

13. Question1 points

The tiny air sacs present in human lungs is called_.

1. A. Alveoli
2. B. Bronchus
3. C. Bronchioles

4. D. All of the above

Correct

Answer = A

14. Question1 points

The total number of alveoli present in the human lungs is estimated to be around _____.

1. A. 1 billion
2. B. 800 million
3. C. 700 million
4. D. 1500 million

Correct

Answer = C

15. Question1 points

The exchange of gases between the external environment and the lungs__.

1. A. Respiration
2. B. External Respiration
3. C. Cellular Respiration
4. D. None of the above

Correct

Answer = B

16. Question1 points

The intake of oxygen and giving out of carbon dioxide is related to

1. A. Breathing
2. B. Internal respiration
3. C. External respiration
4. D. Both A & C

Correct

Answer = D

17. Question1 points

The process of internal respiration is

1. A. Anabolic
2. B. Catabolic
3. C. Intercellular
4. D. Both A & C

Correct

Answer = B

18. Question1 points

The process of intake of oxygen and release of carbon dioxide occurs by:

1. A. Respiratory exchange
2. B. Gaseous exchange
3. C. Diffusion
4. D. Osmosis

Correct

Answer = C

19. Question1 points

Diffusion through respiratory system of human being is directly related to all except:

1. A. Surface area
2. B. Permeability
3. C. Blood supply
4. D. Thickness

Correct

Answer = D

20. Question1 points

Which part out of them is respiratory surface:

1. A. Bronchi
2. B. Bronchioles
3. C. Lungs
4. D. Alveoli

Correct

Answer = D

21. Question1 points

Pick up a part of upper respiratory system which is lined by ciliated mucus membrane

1. A. Nasal cavity
2. B. Trachea
3. C. Both of them
4. D. None of them

Correct

Answer = A

22. Question1 points

Chose an incorrect option about bronchi:

1. A. Its structure belong trachea
2. B. Right bronchus is smaller then left
3. C. Right bronchus is shorter then left
4. D. All are correct

Correct

Answer = B

23. Question1 points

The cluster of pouches opened from alveolar ducts is known as:

1. A. Bronchi
2. B. Bronchioles
3. C. Pharynx duct
4. D. Alveoli

Correct

Answer = D

24. Question1 points

Which of the is irrelevant to respiration?

1. A. Breakdown of glucose

2. B. Formation of glucose

3. C. Release of energy

4. D. Exchange of gases

Correct

Answer = B

25. Question1 points

A muscular passage that is common to both food and air is known as:

1. A. Bronchi

2. B. Bronchioles

3. C. Larynx

4. D. Pharynx

Correct

Answer = D

26. Question1 points

The smaller tubes within the chest cavity having cartilaginous plates are known as:

1. A. Pharynx

2. B. Bronchioles

3. C. Bronchi

4. D. Both B and C

Correct

Answer = C

27. Question1 points

What is correct about myoglobin?

1. A. It is iron containing protein pigment
2. B. It occurs in muscle fibers
3. C. It also stores some oxygen
4. D. All of these

Correct

Answer = D

28. Question1 points

What is correct about hemoglobin?

1. A. Oxygen carrier
2. B. Globular protein
3. C. Having 4 heme
4. D. All of them

Correct

Answer = D

29. Question1 points

What is the intermediate part of the respiratory system between trachea and pharynx?

1. A. Glottis
2. B. Voice box
3. C. Bronchi
4. D. A and B

Correct

Answer = D

30. Question1 points

Pleural membranes cover:

1. A. Brain
2. B. Heart
3. C. Heart
4. D. Lungs

Correct

Answer = D

31. Question1 points

The factor which affect the oxygen saturation of hemoglobin:

1. A. CO_2
2. B. Temperature
3. C. pH of blood
4. D. All of these are correct

Correct

Answer = D

32. Question1 points

Intercostal muscles are found in:

1. A. Ribs
2. B. Pharynx

3. C. Lungs

4. D. Both B and C

Correct

Answer = A

33. Question1 points

The partial pressure of oxygen in muscles is much less then capillaries, the difference is about:

1. A. 100mmHg
2. B. 80mmHg
3. C. 40mmHg
4. D. 20mmHg

correct

Answer = b

34. Question1 points

Amount of oxygen in inspired air is 21 % while in expired air is:

1. A. 0.11
2. B. 0.12
3. C. 0.15
4. D. 0.16

Correct

Answer = D

35. Question1 points

A surfactant plays its role by:

1. A. No effect on surface tension
2. B. Increasing surface tension
3. C. Decreasing surface tension
4. D. None of these

Correct

Answer = C

36. Question1 points

The thick muscular structure which is present below the pair of lungs is known as:

1. A. Pharynx
2. B. Diaphragm
3. C. Bronchi
4. D. None of these

Correct

Answer = B

37. Question1 points

In human, the total inside capacity of lungs is about:

1. A. 3.5 liters
2. B. 2.5 liters
3. C. 4 liters
4. D. 6 liters

Correct

Answer = D

38. Question1 points

Which pigment protein is also known as muscle hemoglobin?

1. A. Melanin
2. B. Myoglobin
3. C. Rhodopsin
4. D. Lutein

Correct

Answer = B

39. Question1 points

Maximum capacity of hemoglobin to absorb oxygen is:

1. A. 19.6ml/100 ml blood
2. B. 25 ml/100 ml blood
3. C. 30 ml/100 ml blood
4. D. 20 ml/100 ml blood

Correct

Answer = D

40. Question1 points

The amount of oxygen in arterial blood on 95 to 99 percent saturation is

1. A. 19.6ml/100 ml blood
2. B. 25 ml/100 ml blood
3. C. 30 ml/100 ml blood

4. D. 20 ml/100 ml blood

Correct

Answer = A

41. Question1 points

Oxygen use by the tissues during exercise is

1. A. 19.6ml/100 ml blood
2. B. 5 ml/100 ml blood
3. C. 15 ml/100 ml blood
4. D. 20 ml/100 ml blood

Correct

Answer = C

42. Question1 points

Carbonic anhydrase is found in:

1. A. R.B.C
2. B. Parabronchi
3. C. Pleura
4. D. None of these

Correct

Answer = A

43. Question1 points

A single Hemoglobin can carry:

1. A. 1 molecule of oxygen
2. B. 2 molecules of oxygen
3. C. 3 molecules of oxygen
4. D. 4 molecules of oxygen

Correct

Answer = D

44. Question1 points

The space inside the chest cavity during inspiration is:

1. A. Decreased
2. B. Increased
3. C. Remains same
4. D. First increased then decreased

correct

Answer = A

45. Question1 points

Which is not true about human lungs?

1. A. They are opened sacs
2. B. They are closed sacs
3. C. They are spongy in nature
4. D. They are placed in chest cavity

Correct

Answer = A

46. Question1 points

Intercostal muscles are found in:

1. A. Ribs
2. B. Pharynx
3. C. Lungs
4. D. Both B and C

Correct

Answer = A

47. Question1 points

The wall of chest cavity is composed of:

1. A. Intercostal muscles
2. B. Ribs
3. C. Both A and B
4. D. Diaphragm

Correct

Answer = C

48. Question1 points

What is the length of the windpipe?

1. A. 12 cm
2. B. 15cm
3. C. 18 cm
4. D. 20 cm

Correct

Answer = A

49. Question1 points

The epiglottis, a flap of tissues covers the:

1. A. Pharynx
2. B. Larynx
3. C. Glottis
4. D. Nasal cavity

correct

Answer = C

50. Question1 points

How many pair of ribs are present in chest wall?

1. A. 10
2. B. 11
3. C. 12
4. D. 13

Correct

Answer = C

51. Question1 points

During the process of carbon dioxide transport, formation of bicarbonate ion occurs in

1. A. RBCs

2. B. Interstitiam

3. C. Plasma

4. D. None

Correct

Answer = A

52. Question1 points

Which of the following is the key function of pleural cavity?

1. A. Reduces friction between membranes

2. B. Slide easily on one another

3. C. Allows membrane to adhere on one another

4. D. All of these are correct

Correct

Answer = D

53. Question1 points

Most carbon dioxide is transported in the form of:

1. A. Carboxyhemoglobin

2. B. Plasma proteins

3. C. Bicarbonate ions

4. D. In dissolved form

Correct

Answer = C

54. Question1 points

The function of vocal cords is to help in:

1. A. Voice production
2. B. Energy production
3. C. Glucose production
4. D. Air production

Correct

Answer = A