



Chapter

13

Gaseous Exchange

TOPIC WISE MULTIPLE CHOICE QUESTIONS INTRODUCTION & GASEOUS EXCHANGE IN PLANTS

MCQs

- (1) Exchange of respiratory gases during respiration is carried out by:
 - (a) Diffusion
 - (b) Active transport
 - (c) Both "a" & "b"
 - (d) Osmosis
- (2) What is true about photorespiration?
 - (a) No ATP produced
 - (b) Light dependent process
 - (c) CO₂ is released
 - (d) All of these
- (3) Oxygenase site of Rubisco is involved in:
 - (a) Formation of glucose
 - (b) Production of ATP
 - (c) Addition CO₂ to RuBP
 - (d) Addition O₂ to RuBP
- (4) Photorespiration uses:
 - (a) ATP
 - (b) NADPH
 - (c) CO₂ & H₂O
 - (d) Both "a" & "b"
- (5) Which of the following is more in water than air?
 - (a) Oxygen
 - (b) Rate of diffusion
 - (c) Density
 - (d) None of these
- (6) There are _____ stomata per square centimeter of leaf of tobacco plant
 - (a) 8000
 - (b) 2000
 - (c) 12000
 - (d) 4000
- (7) In most plants photorespiration reduces the rate of photosynthesis by:
 - (a) 40%
 - (b) 25%
 - (c) 50%
 - (d) 10%
- (8) The oxygen content in air is _____ per liter.
 - (a) 20ml
 - (b) 50ml
 - (c) 200ml
 - (d) 10ml
- (9) The water is _____ times viscous than air.
 - (a) 50
 - (b) 8000
 - (c) 200
 - (d) 10
- (10) There are _____ stomata per square centimeter of leaf of tobacco plant.
 - (a) 8000
 - (b) 2000
 - (c) 12000
 - (d) 4000
- (11) In most plants photorespiration reduces the rate of photosynthesis by:
 - (a) 40%
 - (b) 25%
 - (c) 50%
 - (d) 10%

FAST PAPERS MCQs

- (12) During photorespiration glycine is converted into serine in organelle: (GRW 2017)
 - (a) Peroxisomes
 - (b) Mitochondria
 - (c) Chloroplast
 - (d) Golgi bodies

- (13) During photorespiration glycine after its formation diffuse into: (MTN 2017, LHR 2019)
 (a) Ribosome (b) Mitochondria
 (c) Peroxisome (d) Glyoxisome
- (14) Oxygen contents of fresh air are. (DGK 2019)
 (a) 200ml/litre (b) 100ml/litre
 (c) 10ml/litre (d) 150ml/litre
- (15) Oxygen diffuses how many times more quickly in air than in water: (LHR 2021)
 (a) 8 times (b) 80 times
 (c) 300 times (d) 8000 times
- (16) During photorespiration, glycine is converted into serine in the: (RWP 2021)
 (a) Mitochondria (b) Ribosome
 (c) Golgi bodies (d) Chloroplast

**RESPIRATORY ORGANS IN REPRESENTATIVE ANIMALS
 (RESPIRATION IN HYDRA & RESPIRATION IN EARTHWORM)**

KIPS MCQs

- (17) In most animals the epithelium which separates air and blood is _____ cell/s thick.
 (a) 1 (b) 2
 (c) 3 (d) 4b
- (18) Gaseous exchange in hydra occurs through:
 (a) Ectoderm (b) Endoderm
 (c) Mesoglea (d) Both ectoderm & endoderm
- (19) Exchange of gases in earthworm mainly occurs though:
 (a) Skin (b) Vocal cords
 (c) Lungs (d) Gills

PAST PAPERS MCQs

- (20) In earthworm exchange of gases mainly takes place through: (GRW 2018)
 (a) Gills (b) Lungs
 (c) Skin (d) Ostia
- (21) Blood is not involved in transport of gas in: (BWP 2019)
 (a) Fish (b) Insects
 (c) Frog (d) Man

RESPIRATION IN COACKROACH & RESPIRATRIION IN FISH

KIPS MCQs

- (22) Which of the following has/have specialized respiratory system?
 (a) Earthworm (b) Cockroach
 (c) Hydra (d) Both "b" & "c"
- (23) In cockroach, _____ spiracles are present in thoracic and abdominal region respectively.
 (a) 2 & 3 (b) 8 & 2
 (c) 4 & 6 (d) 4 & 16
- (24) In cockroach, blood takes part in the transport of:
 (a) Food (b) CO₂
 (c) O₂ (d) All of these

- (25) Air is directly supplied by _____ to living tissues in cockroach.
 (a) Spiracles (b) Tracheoles
 (c) Alveoli (d) Plasma
- (26) Cartilaginous fishes lack:
 (a) Gills (b) Gill slits
 (c) Bronchial cavity (d) Both "b" & "c"
- (27) In fishes oxygenated blood is carried to:
 (a) Heart (b) Various parts of body
 (c) Gills (d) Both "b" & "c"
- (28) In fishes deoxygenated blood from various parts of body enters:
 (a) Heart (b) Gills
 (c) Gill slits (d) Operculum
- (29) What is the functional demarcation of spiracles in cockroach?
 (a) 2 & 8 pairs (b) 3 & 7 pairs
 (c) 4 & 6 pairs (d) None of these
- (30) Gills are placed in bronchial cavities in:
 (a) Cartilaginous fishes (b) Bony fishes
 (c) Both of these (d) None of these
- (31) RBCs are not involved in transport of oxygen in:
 (a) Human (b) Earthworm
 (c) Cockroach (d) Both 'b' & 'c'
- (32) The respiratory organs in fish are:
 (a) Lungs (b) Air sacs
 (c) Gills (d) Tracheae
- (33) In cockroach when abdomen expands then the spiracles that open are:
 (a) 4 (b) 5
 (c) 6 (d) 8

PAST PAPERS MCQs

- (34) Spiracles are found in: (LHR 2017)
 (a) Fish (b) Cockroach
 (c) Leech (d) Earthworm
- (35) The number of Pairs of spiracles in abdominal segments of cockroach are: (GRW 2019)
 (a) 02 (b) 12
 (c) 08 (d) 10
- (36) Spiracles are found in: (FSD 2019)
 (a) Hydra (b) Cockroach
 (c) Birds (d) Fishes
- (37) Number of spiracles in cockroach is: (FSD 2019)
 (a) 4 pairs (b) 6 pairs
 (c) 10 pairs (d) 8 pairs

RESPIRATION IN FROG & RESPIRATION IN BIRDS

KIPS MCQs

- (38) In frog inhalation occurs when:
 (a) Floor of buccal cavity is raised (b) Diaphragm contracts
 (c) Intercostal muscles contract (d) All of these

- (39) Parabronchi of birds are comparable to _____ of mammals.
 (a) Air sacs (b) Alveoli
 (c) Bronchi (d) Trachea
- (40) Counter current exchange mechanism is seen in _____ of birds:
 (a) Air sacs (b) Alveoli
 (c) Parabronchi (d) All of these
- (41) In birds, air sacs are inflated when ribs move:
 (a) Forward & downward (b) Forward and upward
 (c) Backward & upward (d) Backward & Downward
- (42) A parabronchus is:
 (a) Open from two ends (b) Small blood vessel
 (c) Leads to alveoli (d) is found in all vertebrates
- (43) The respiratory system is most efficient in:
 (a) Man (b) Bird
 (c) Fish (d) Snake

PAST PAPERS MCQs

- (44) In the lungs of birds tiny thin walled ducts for constant ventilation are called: (LHR 2017)
 (a) Gill rakers (b) Parabronchi
 (c) Larynx (d) Pharynx
- (45) Parabronchi are found in the lungs of: (GRW 2014, DGK 2014, 15, 17)
 (a) Amphibians (b) Reptiles
 (c) Birds (d) Mamamls
- (46) Most elaborate and efficient respiratory system is present in: (GRW 2019)
 (a) Man (b) Fish
 (c) Birds (d) Reptiles
- (47) Respiratory system is most efficient in: (RWP 2017, RWP 2019, LHR 2019, SGD 2021, FSD 2022)
 (a) Man (b) Bird
 (c) Fish (d) Frog
- (48) The bird's lungs have thin-walled ducts called _____. (RWP 2022)
 (a) Alveoli (b) Bronchi
 (c) Peri- bronchi (d) Parabronchi

RESPIRATION IN MAN

KIPS MCQs

- (49) Air from nasal cavities moves into:
 (a) Larynx (b) Glottis
 (c) Pharynx (d) Oesophagus
- (50) What is true about larynx?
 (a) Voice box (b) Cartilaginous structure
 (c) Surrounding upper end of trachea (d) All of these
- (51) When food moves into oesophagus, larynx is?
 (a) Fully open (b) Partially closed
 (c) Completely closed (d) Sometimes closed
- (52) A branch of right bronchus in the right lung with a diameter of more than 1mm is:
 (a) A smaller bronchus (b) Bronchiole
 (c) Alveolus (d) Parabronchus

- (53) **Cartilage is not found in the walls of:**
 (a) Trachea (b) Bronchi
 (c) Bronchioles (d) Both "b" & "c"
- (54) **Functional unit of lungs in human is:**
 (a) Alveolus (b) Air sac
 (c) One lung (d) All
- (55) **What is true about the respiratory system?**
 (a) Lungs are muscular structures (b) Alveolus consists of many air sacs
 (c) Air sacs consist of alveoli (d) Lungs are placed in abdominal cavity
- (56) **Counter current exchange is not present in:**
 (a) Fishes (b) Parabronchi
 (c) Alveoli (d) None of these
- (57) **The structure in the mouth that prevents food from entering the nasal cavities is the:**
 (a) Epiglottis (b) Soft palate
 (c) Tongue (d) Pharynx
- (58) **The complex cartilaginous structure at the upper end of the trachea is called:**
 (a) Larynx (b) Alveoli
 (c) Bronchiole (d) Lung

PAST PAPERS MCQs

- (59) **Which is correct order of parts of air passage ways in man? (DGK 2019)**
 (a) Nostrils, Nasal cavity, Pharynx, Larynx
 (b) Nasal cavity, Nostrils, Pharynx, Larynx
 (c) Nasal cavity, Pharynx, Nostrils, Larynx
 (d) Nostrils, Pharynx, Larynx, Nasal cavity
- (60) **Which help in voice production when vibrated by air? (SWL 2021)**
 (a) Spinal cord (b) Vocal cord
 (c) Trachea (d) Bronchi
- (61) **Diameter of bronchiole is:**
 (a) 1 mm (b) 1 cm
 (c) 1dm (c) 1 m
- (62) **Each air sac consists of several microscopic single layered structured called: (BWP 2021)**
 (a) Trachea (b) Alveoli
 (c) Bronchi (c) Bronchioles
- (63) **Site of gaseous exchange in human is:**
 (a) Alveoli (b) Bronchi
 (c) Glottis (c) Trachea

ENTRY TEST BASED MCQs

- (64) **Respiratory tubules are termed as bronchioles when they attain the diameter of _____ or lesser.**
 (a) 1.2cm (b) 1mm
 (c) 1cm (d) 1.2mm

(65) Label the part 'Y' in the following diagram:

(MDCAT 2017)



- (a) Pleura
(c) Diaphragm

- (b) Chest cavity
(d) Intercoastal muscle

(66) Site of gaseous exchange in humans is:

(MDCAT 2017-Retake)

- (a) Trachea
(c) Alveoli

- (b) Bronchus
(d) Nose

MECHANISM OF VOLUNTARY AND INVOLUNTARY REGULATION OF BREATHING IN MAN

KIPS MCQs

(67) During rest, breathing occurs rhythmically at the frequency of _____ times/minute.

- (a) 5-10
(c) 15-20
- (b) 10-15
(d) 20-25

(68) What is true about lungs?

- (a) Spongy in nature
(c) Push air out
- (b) pull air in
(d) All of these

(69) When the muscles of diaphragm contract, its shape becomes?

- (a) Flat
(c) Less domelike
- (b) More dome like
(d) Deep

(70) Walls of chest cavity are composed of:

- (a) Ribs
(c) Diaphragm
- (b) Intercostal muscles
(d) Both "a" & "b"

(71) During expiration ribs move:

- (a) Upward
(c) Both "a" & "b"
- (b) Forward
(d) Downwards

(72) What is correct arrangement (dorsal to ventral) in man?

- (a) Trachea, oesophagus, spinal column
(c) Spinal column, trachea, oesophagus
- (b) Oesophagus, trachea, spinal column
(d) Spinal column, oesophagus, trachea

(73) Respiratory distress syndrome is caused because of:

- (a) Decreased surface tension in alveoli
(c) Increase in elasticity
- (b) Insufficient surfactant
(d) Damage of alveolar walls

PAST PAPERS MCQs

(74) All of the following contain cartilage except:

(FSD 2017)

- (a) Larynx
(c) Bronchioles
- (b) Trachea
(d) Bronchi

(75) Respiratory distress syndrome is common in:

(MTN 2019)

- (a) All new borns
(c) Adults
- (b) Premature infants
(d) Old age people

ENTRY TEST BASED MCQs

- (76) During breathing air from pharynx enters to: (MDCAT 2018)
 (a) Alveoli (b) Bronchi
 (c) Bronchioles (d) Trachea
- (77) During inspiration the space inside the chest cavity increases due to. (MDCAT 2019)
 (a) Increased pressure
 (b) Relaxation of the external intercostal muscle
 (c) The relaxation of the muscle of the diaphragm
 (d) The contraction of the muscles of the diaphragm

TRANSPORT OF RESPIRATORY GASES
(TRANSPORT OF OXYGEN)

KIPS MCQs

- (78) In lungs:
 (a) Oxygen tension is 60 mm Hg (b) Blood is almost completely oxygenated
 (c) Blood gets 20ml O₂/100 (d) Both "a" & "b"
- (79) In lung if the O₂ pressure is increased up to 200mm Hg, then 100 ml of blood will absorb _____ ml of O₂.
 (a) 19.6 (b) 39.2
 (c) 20 (d) 54
- (80) O₂ carrying capacity of blood will increase with:
 (a) Rise in temperature (b) Low muscular activity
 (c) Increased muscular activity (d) Decrease in pH
- (81) Amount of Oxygen bound to haemoglobin will decrease with:
 (a) Decrease in pH (b) Increase in H⁺
 (c) Decrease in H⁺ (d) Both "a" & "b"
- (82) More oxygen will bind to haemoglobin at:
 (a) High pH (b) Low pH
 (c) High concentration of CO₂ (d) Both "b" & "c"
- (83) In conditions of shock, what is more important regulatory agent for breathing?
 (a) Reduced pO₂ in arterial blood (b) Reduced pO₂ in venous blood
 (c) Decreased pCO₂ in venous blood (d) Increased pO₂ in arterial blood

PAST PAPERS MCQs

- (84) In human beings, the respiratory pigment is: (BWP 2017)
 (a) Myoglobin (b) Bilirubin
 (c) Haemoglobin (d) Haemocyanin
- (85) When an oxygen tension is 115mm mercury, how much haemoglobin is saturated in percentage? (FSD 2021)
 (a) 92% (b) 94%
 (c) 96% (d) 98%

ENTRY TEST BASED MCQs

- (86) Gaseous exchange in animals takes place with the help of process called as: (2017-Retake)
 (a) Active transport (b) Cyclosis
 (c) Phagocytosis (d) Diffusion
- (87) Low partial pressure of oxygen in tissues favours _____ of oxyhaemoglobin. (MDCAT 2017)
 (a) Dissociation (b) Stability
 (c) Formation (d) Transformation

TRANSPORT OF RESPIRATORY GASES (TRANSPORT OF CARBON DIOXIDE)

KIPS MCQs

- (88) Plasma proteins carry _____ % of CO₂ to the lungs:
 (a) 5 (b) 20
 (c) 25 (d) 70
- (89) CO₂ moves to the lungs with the help of:
 (a) Plasma (b) Na⁺
 (c) K⁺ (d) All of these
- (90) What is more important as a regulator of normal alveolar ventilation?
 (a) CO₂ (b) Oxygen
 (c) N₂ (d) All of these
- (91) CO₂ moves by means of:
 (a) RBCs (b) Plasma
 (c) Plasma protein (d) All of these
- (92) The difference of carbon dioxide between the arterial blood and venous blood is:
 (a) 54ml (b) 50ml
 (c) 4ml (d) 8ml

PAST PAPERS MCQs

- (93) Arterial blood contains carbon dioxide about _____. (GRW 2021)
 (a) 50 ml/100 ml (b) 52 ml/ 100 ml
 (c) 54 ml / 100 ml (d) 60 ml / 100 ml
- (94) Venous blood contains carbon dioxide about _____. (GRW 2021)
 (a) 50 ml / 100 ml (b) 60 ml / 100 ml
 (c) 54 ml / 100 ml (d) 64 ml / 100 ml
- (95) Above 70% of CO₂ is transported in form of:
 (a) HCO₃⁻ (b) CO₃⁻²
 (c) Carboxhemoglobin (d) Oxyhemoglobin

RESPIRATORY DISORDERS

KIPS MCQs

- (96) The chances of lung cancer are _____ times more in those person who smoke than those who do not.
 (a) 5 (b) 10
 (c) 15 (d) 100
- (97) In emphysema:
 (a) Volume of affected alveoli increases (b) Number of alveoli decreases
 (c) Both "a" and "b" (d) Volume of affected alveoli decreases

PAST PAPERS MCQs

- (98) Emphysema is a disease caused by the breakdown of: (SWL 2017)
 (a) Lungs (b) Trachea
 (c) Bronchi (d) Alveoli
- (99) Smoker's cough cause: (LHR 2022)
 (a) Asthma (b) Emphysema
 (c) Cancer (d) Tuberculosis
- (100) Breakdown of alveoli of lungs is called: (BWP 2022)
 (a) Asthma (b) Emphysema
 (c) Tuberculosis (d) Lung cancer

ENTRY TEST BASED MCQs

- (101) W.O.F is a respiratory disorder related to malnutrition: (MDCAT 2017)
 (a) Cancer (b) Emphysema
 (c) Asthma (d) Tuberculosis
- (102) Breakdown of thin wall of alveoli occurs in: (MDCAT 2017-Retake)
 (a) Emphysema (b) T.B
 (c) Cancer (d) Asthma
- (103) Gradual breakdown of the alveolar wall leads to which type of disease in a smoker: (MDCAT 2018)
 (a) Asthma (b) Coronary heart disease
 (c) Bronchitis (d) Emphysema
- (104) The low levels of surfactant produced by alveolar epithelium causes: (MDCAT 2018)
 (a) Emphysema (b) Respiratory distress syndrome
 (c) Bronchitis (d) Asthma
- (105) A disease caused by gradual breakdown of the thin walls of alveoli is _____. (MDCAT 2019)
 (a) Tuberculosis (b) Emphysema
 (c) Asthma (d) Bronchitis

ROLE OF RESPIRATORY PIGMENTS & LUNG CAPACITIES**KIPS MCQs**

- (106) The affinity of myoglobin to combine with oxygen is:
 (a) Two times lesser than haemoglobin (b) Three times lesser than haemoglobin
 (c) Equal to haemoglobin (d) Higher than haemoglobin
- (107) Myoglobin consists of just one polypeptide chain associated with an iron-containing ring structure which can bind with:
 (a) One molecule of oxygen (b) Two molecules of oxygen
 (c) Three molecules of oxygen (d) Four molecules of oxygen
- (108) Which of the following is incorrect about diving mammals?
 (a) Volume of blood is twice in relation to body weight
 (b) High concentration of myoglobin
 (c) Heart beat slows down to one tenth
 (d) Heart and brain can withstand anoxia
- (109) Exhaled air contains _____ percentage CO₂.
 (a) 0.04 (b) 4
 (c) 79 (d) 15
- (110) The amount of air that is normally inspired and expired is called:
 (a) Tidal volume (b) Inspiratory volume
 (c) Residual volume (d) Vital capacity
- (111) The amount of air that remains within the lungs after forceful expiration is:
 (a) Tidal volume (b) Total lung capacity
 (c) Residual volume (d) Zero
- (112) Which is not associated with diving reflex?
 (a) Heart beat slowly to one tenth of normal
 (b) Less blood is supplied to heart and brain to conserve oxygen
 (c) Myoglobin bind extra O₂
 (d) Skin and digestive system receive very little blood

- (113) Haemoglobin in man increases the oxygen carrying capacity of the blood to about:
 (a) 25 times (b) 30 times
 (c) 75 times (d) 90 times

PAST PAPERS MCQs

- (114) Myoglobin is protein pigment present in: (SGD 2017)
 (a) Red blood cell (b) Nerve cell
 (c) Liver cell (d) Muscle cell
- (115) Myoglobin occurs in. (MTN 2017)
 (a) Red Blood Cells (b) White Blood Cells
 (c) Plasma (d) Muscle Fibers
- (116) Respiratory pigment present in muscles is called: (LHR 2021)
 (a) Myoglobin (b) Haemoglobin
 (c) Heamocyanin (c) Globulin
- (117) How many polypeptide chains are present in myoglobin? (MTN 2021)
 (a) 1 (b) 2
 (c) 3 (c) 4

ANSWER KEY

(Topic-Wise Multiple Choice Questions)

1	a	21	b	41	b	61	a	81	d	101	d
2	d	22	b	42	a	62	b	82	a	102	a
3	d	23	a	43	b	63	a	83	a	103	d
4	c	24	d	44	b	64	b	84	c	104	b
5	c	25	b	45	c	65	c	85	d	105	b
6	c	26	c	46	c	66	c	86	d	106	d
7	b	27	d	47	b	67	c	87	d	107	a
8	c	28	c	48	d	68	a	88	a	108	d
9	a	29	c	49	c	69	c	89	d	109	b
10	a	30	b	50	d	70	d	90	a	110	a
11	c	31	d	51	b	71	d	91	d	111	c
12	b	32	d	52	a	72	d	92	c	112	b
13	b	33	c	53	c	73	b	93	a	113	c
14	a	34	b	54	b	74	c	94	c	114	d
15		35	c	55	c	75	b	95	a	115	d
16	a	36	b	56	c	76	d	96	b	116	a
17	b	37	c	57	b	77	d	97	c	117	a
18	d	38	a	58	a	78	b	98	a		
19	a	39	d	59	a	79	a	99	c		
20	c	40	c	60	b	80	c	100	b		

INTRODUCTION & GASEOUS EXCHANGE IN PLANTS**KIPS QUESTIONS**

Q:1 Compare photorespiration with Calvin cycle.

Ans:

Photorespiration	Calvin Cycle
Oxygen is fixed.	Carbon dioxide is fixed.
Rubisco oxygenase is involved.	Rubisco carboxylase is involved.
It decreases plant growth.	It promotes plant growth.

Q:2 Discuss the disadvantages of water as a respiratory medium.

Ans: More dense:

Breathing or ventilation of water is far more difficult than the ventilation of air. Because water is 8000 times more dense than air.

More viscous:

In terms of viscosity the water is 50 times more viscous, which makes it more difficult for exchange of gases, as compared to air.

Q:3 Define photorespiration. State the names of its products.

Ans: Photorespiration:

Photorespiration is a light dependent process in plants in which the oxygen is absorbed and carbon dioxide is released.

Products:

These are carbon dioxide and serine.

Q:4 Differentiate between organismic and cellular respiration.

Ans: Organismic respiration:

It is also known as breathing or ventilation during which the moist surface absorbs oxygen from the surrounding and carbon dioxide is removed. Organismic respiration in fact provides the basis of cellular respiration.

Cellular respiration:

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.

PAST PAPER QUESTIONS

- Q:5** Define Photorespiration. Name any two organelles involved in it. (BWP 2017)
- Q:6** Differentiate between stomata and lenticels. (DGK 2017)
- Q:7** What is photorespiration? Name the organelles involved in it. (SGD 2017)
- Q:8** Why air is better respiratory medium than water? (LHR 2017, GRW 2017, SWL 2017)
- Q:9** Why photorespiration occurs in plants? (LHR 2019)
- Q:10** Air is better respiratory medium than water. How? (DGK 2019)
- Q:11** Why ventilation in water is far more difficult than air? (GRW 2019)
- Q:12** Describe the role of Mitochondria in Photorespiration. (BWP 2019)
- Q:13** How aquatic plants obtain their oxygen? (LHR 2021)
- Q:14** Why air is better respiratory medium than water? Give two reasons. (MTN 2021)
- Q:15** Write disadvantages of gas-exchange in water. (DGK 2021)
- Q:16** Define/What is photorespiration? (RWP 2017, FSD 2019, RWP 2019, RWP 2021)
- Q:17** In plants, how respiration occurs in presence of light? (GRW 2022, RWP 2022)
- Q:18** Define photorespiration and its consequences. (SWL 2019, FSD 2022)

RESPIRATORY ORGANS IN REPRESENTATIVE ANIMALS**KIPS QUESTIONS**

Q:19 Enlist properties of respiratory surface.

Ans: Some of the properties of respiratory surface are given below:

- (1) It provides large surface area and moisture
- (2) It is always thin.
- (3) There is concentration gradient of gases across it.
- (4) It is richly supplied with blood capillaries.

PAST PAPER QUESTIONS

Q:20 State names of four properties of respiratory surfaces. (SWL 2019)

Q:21 Enlist properties of respiratory surface in animals. (SWL 2017, BWP 2019)

Q:22 Give two properties of respiratory surfaces in animal. (LHR 2021)

Q:23 Mention two properties of respiration surface.

Q:24 Name properties of respiratory surfaces in animals. (DGK 2021)

Q:25 Write four properties of respiratory surface in animals. (RWP 2019, RWP 2021)

(RESPIRATION IN HYDRA & RESPIRATION IN EARTHWORM)**PAST PAPER QUESTIONS**

Q:26 Give the respiratory role of skin of earthworm. (DGK 2017)

RESPIRATION IN COCKROACH & RESPIRATION IN FISH**KIPS QUESTIONS**

Q:27 What is a spiracle? Give total number of spiracles in cockroach.

Ans: Spiracle:

The spiracles are paired apertures in Cockroach present on the lateral sides of the body through which the main tracheal trunk communicates to the outside.

Number:

There are ten pairs of spiracles in Cockroach: two pairs in the thorax and eight pairs in the abdomen.

PAST PAPER QUESTIONS

Q:28 How expiration occurs in Cockroach? (MTN 2017)

Q:29 What do you know about Spiracles? (MTN 2017)

Q:30 Define swim bladder. Give its function. (BWP 2017)

Q:31 What are Spiracles? Give their function. (BWP 2017)

Q:32 What are spiracles? (LHR 2017, LHR 2019, BWP 2019)

Q:33 Write two adaptations of gills as a site for exchange. (DGK 2022)

Q:34 What the role spiracles play in cockroach respiration? (TSD 2022)

Q:35 Differentiate between spiracles and tracheoles. (SWL 2017, BWP 2022)

RESPIRATION IN FROG & RESPIRATION IN BIRDS**KIPS QUESTIONS**

Q:36 Describe the mechanism of inspiration in frog during pulmonary respiration.

Ans: Inspiration:

Intake of fresh air into the lungs is known as inhalation or inspiration.

Mechanism in Frog:

In frog the air enters through the nostrils when the nostrils are open, the mouth is closed. After entry of air the nostrils close, the floor of buccal cavity is raised and the air is pushed into the lungs.

Q:37 What is the number and function of air sacs in birds?

Ans: Number:

There are about 9 air sacs in birds.

Function:

They acts as bellows and supplement lungs in gaseous exchange. They also make birds light weight.

Q:38 What are parabronchi?

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

PASSAGE QUESTIONS

- Q:39 Enlist types of respiration in frog. (LHR 2017, LHR 2022)
- Q:40 What is pulmonary respiration and cutaneous respiration? (RWP 2017)
- Q:41 Distinguish between cutaneous and pulmonary respiration. (GRW 2017)
- Q:42 Give role of parabronchi in the respiration of birds. (DGK 2017)
- Q:43 Write different ways of respiration in frog. (LHR 2017)
- Q:44 What do you mean by pulmonary respiration and cutaneous respiration? (GRW 2018)
- Q:45 What are Parabronchi? (SGD 2017, GRW 2018, LHR 2019)
- Q:46 How significant parabronchi are in respiration of birds? (GRW 2019)
- Q:47 Define cutaneous and pulmonary respiration. (DGK 2019)
- Q:48 What are parabronchi? Give their function. (FSD 2019)
- Q:49 During **breathing no stale of air remains in the lungs of:** (SGD 2019)
 (a) Mammals (b) Amphibian (c) Birds (c) Reptiles
- Q:50 What are parabronchi and their role? (DGK 2022)
- Q:51 What is the function of parabronchi in birds? (FSD 2022)
- Q:52 Why pulmonary and cutaneous respiration are necessary for frog? (BWP 2022)
- Q:53 What respiratory system is birds is more efficient and elaborate? (SDG 2022)

RESPIRATION IN MAN

KIPS QUESTIONS

Q:54 What are vocal cords?

Ans: 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.

Q:55 Differentiate between bronchi and bronchiole.

Ans:

BRONCHI	BRONCHIOLE
Bronchi are the main branches of trachea. Each bronchus on entering the lungs divides and subdivides progressively into smaller bronchi.	When the smaller bronchi attain a diameter of one mm or less then they are called bronchioles.
Cartilage plates are present.	Cartilage is not present.

Q:56 What are Diaphragm and Pleura?

Ans: Diaphragm

Floor of the chest is called diaphragm. It is a sheet of skeletal muscles.

Pleura

Lungs are covered by a double-layered membranous sac called pleura, it is present in chest cavity.

Q:57 What is an alveolus? Give its function.

Ans: Alveolus:

Microscopic grape-like structures present in human lungs. These are structural units.

Function:

These are the sites of gaseous exchange;

PAST PAPER QUESTIONS

- Q:58 Name different parts of air passage way of man. (RWP 2017)
- Q:59 What is epiglottis? Mention its function? (DGK 2017)
- Q:60 Describe the role of Nasal cavity in man. (SGD 2017)
- Q:61 What are Vocal Cords? Give their function. (MTN 2017)
- Q:62 Define larynx. (LHR 2021, SWL 2021)
- Q:63 What is larynx or voice box? (LHR 2018, SWL 2019, LHR 2021, SGD 2022)
- Q:64 Define trachea. (GRW 2021)
- Q:65 Define Alveoli. (SWL 2021)
- Q:66 What is pleura? (MTN 2021)
- Q:67 Give internal structure of nasal cavity. (MTN 2021)
- Q:68 What are Alveoli? (RWP 2017, BWP 2021)
- Q:69 Differentiate between Bronchi and Bronchioles. (RWP 2017, LHR 2018, BWP 2021)
- Q:70 What are bronchi and bronchioles? (SGD 2019, FSD 2021)
- Q:71 Differentiate between Diaphragm and Pleura. (MTN 2017, LHR 2021, LHR 2022)
- Q:72 How O₂ in the air reaches capillaries surrounding alveoli in the lungs? (DGK 2022)
- Q:73 Differentiate between respiratory system of birds and man. (MTN 2022)
- Q:74 Why air sacs and alveoli are considered necessary for respiration in man? (BWP 2022)
- Q:75 Name the process by which oxygen passes from an alveolus in the lungs into the blood. (SGD 2022)

MECHANISM OF VOLUNTARY AND INVOLUNTARY REGULATION OF BREATHING IN MAN**KIPS QUESTIONS**

Q:76 Define breathing.

Ans: 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.

Q:77 What is respiratory distress syndrome?

Ans: Respiratory distress syndrome is a disease of premature infants with a gestation age of less than 7 months. The disease cause collapsing of lungs. The disease is because enough mixture of lipoprotein molecules which form a layer on the surface of alveolar epithelium and help reduce the surface tension is not produced by the secretory cells of the alveolar epithelium.

Q:78 Describe briefly the events of expiration in man.

Ans: During expiration:

- The muscles of the ribs are relaxed and the ribs move downward and inward. In this way from the side of chest cavity the space becomes less.
- The muscles of diaphragm also relax, becoming more domelike and the chest cavity is also reduced from the floor as well.
- The chest cavity is reduced.
- Pressure is exerted on the lungs.
- The air inside the lungs moves out. This is called expiration.

Q:79 Differentiate between inspiration and expiration.

Ans:

Inspiration	Expiration
Taking in of air is called inspiration or inhalation. Different steps occurring during inspiration are as follows; i) Muscles of ribs contract and elevate the ribs upward and forwards. ii) Diaphragm contracts and becomes less domelike. iii) Downward movement of diaphragm and outward and upward movement of the ribs, causes increase in volume of chest cavity and reduces pressure. iv) With decrease in pressure, air rushes into the lungs from outside and volume of lungs is increased.	Removal of air from lungs to outer environment is called expiration or exhalation. Different steps occurring during inspiration are as follows; i) Muscles of ribs are relaxed and the ribs move downward and inward. ii) Diaphragm also relaxes becoming more domelike. iii) Inward movement of muscles and upward movement of diaphragm cause decrease in volume of chest cavity and increased pressure on lungs. iv) With increase in pressure, air rushes out of the lungs and volume of lungs is decreased.

PAST PAPER QUESTIONS

- Q:80** What is mechanism of exhalation in man? (FSD 2017)
Q:81 Differentiate between inspiration and expiration. (DGK 2017)
Q:82 Define Breathing. Give its frequency. (MTN 2017)
Q:83 What is diaphragm? In which group of animals, it is found? (LHR 2018)
Q:84 What is mechanism of inhalation of air in man? (SWL 2017, GRW 2019)
Q:85 What is the role of diaphragm in breathing? (MTN 2019)
Q:86 Give a brief description of respiratory distress syndrome. (FSD 2019)
Q:87 What is diaphragm? (LHR 2021)
Q:88 How inspiration occurs in human? (GRW 2021)
Q:89 How expiration occurs in human? (GRW 2021)
Q:90 What is Diaphragm? Write its function. (MTN 2021)
Q:91 Mention change in chest cavity that cause expiration. (MTN 2021)
Q:92 What is respiratory distress syndrome?
 (LHR 2017, GRW 2017, LHR 2019, RWP 2019, RWP 2021, SWL 2022)
Q:93 Write mechanism of inspiration in man. (DGK 2021)
Q:94 How the volume of chest cavity is increased during inspiration? (MTN 2022)
Q:95 What is respiratory distress syndrome?
 (LHR 2017, GRW 2017, LHR 2019, RWP 2019, RWP 2021, SWL 2022)
Q:96 Why lungs collapse if gestation age is less than seven months? (GRW 2022, RWP 2022)

TRANSPORT OF RESPIRATORY GASES

(TRANSPORT OF OXYGEN)

KIPS QUESTIONS

Q:97 What is the effect of concentration of CO₂ on oxygen carrying capacity of haemoglobin?

Ans: Increase in CO₂ concentration decreases oxygen carrying capacity of haemoglobin.

Q:98 What is the effect of temperature on oxygen carrying capacity of hemoglobin?

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

PAST PAPER QUESTIONS

- Q:99** How carbon dioxide affect the combining capacity of haemoglobin with oxygen? (DGK 2017)
- Q:100** What are the important factors which affect the capacity of hemoglobin to combine with oxygen? (LHR 2018)
- Q:101** How do carbon dioxide and temperature affect the capacity of haemoglobin to combine with oxygen? (SWL 2021)
- Q:102** Give effect of temperature on O₂ carrying capacity of hemoglobin. (RWP 2021)
- Q:103** Has pH any effect on the blood when oxygen combines with haemoglobin? (SWL 2022)

TRANSPORT OF RESPIRATORY GASES**(TRANSPORT OF CARBON DIOXIDE)****PAST PAPER QUESTIONS**

- Q:104** Write at least two different states of CO₂ transportation in blood. (DGK 2017)
- Q:105** Describe the CO₂ concentration in artery and venous blood of man. (LHR 2017)
- Q:106** Where carbonic anhydrase enzyme is present? Give its role. (GRW 2017)
- Q:107** What is the concentration of carbon dioxide in arterial and venous blood? (FSD 2017)
- Q:108** Write down Carbon Dioxide Concentration in Arterial and Venous Blood. (MTN 2017)
- Q:109** How haemoglobin helps in transport of Oxygen? (MTN 2017)
- Q:110** Give percentage of CO₂ in arterial and venous blood. (LHR 2018, SGD 2019)
- Q:111** How pH effects the capacity of haemoglobin to combine with oxygen? (GRW 2019, MTN 2019)
- Q:112** How much Carbon dioxide is present in venous and arterial blood? (MTN 2019)
- Q:113** What is the effect of Carbon dioxide on the transport of Oxygen in blood? (MTN 2019)
- Q:114** Write down about the concentration of carbon dioxide in arterial and venous blood. (GRW 2021)
- Q:115** What is the capacity of haemoglobin to pick lose O₂ – during breathing? (DGK 2021)
- Q:116** Give carbon dioxide concentration in arterial and venous blood. (FSD 2021)
- Q:117** How carbonic anhydrase helps to transport O₂ in the blood at tissue level? (BWP 2022)

RESPIRATORY DISORDERS**KIPS QUESTIONS****Q:118 What is asthma?**

Ans: Asthma is a serious respiratory disease associated with severe paroxysm of difficult breathing, usually followed by a period of complete relief, with recurrence of attack at more or less frequent intervals. Asthma is an allergic reaction to pollen, spores, cold, humidity, pollution etc which causes contraction of small bronchiole tubes. It results in the release of inflammatory chemicals such as histamines into the circulatory system that causes severe contraction of bronchioles.

Q:119 Give the causes of asthma.

Ans: It is an allergic reaction to pollen, spores, cold, humidity, pollution etc., which manifest itself spasmodic contraction (sudden involuntary muscular contraction) of small bronchiole tubes.

Q:120 Define emphysema.

Ans: Emphysema is the breakdown of alveoli. This respiratory problem is more common in smokers. The substances present in the smoke of the tobacco weaken the wall of alveoli causing smoker's cough which leads to bursting of some of alveoli. As a result absorbing surface of the lung is decreased and the affect cannot oxygenate his blood properly and least exertion makes him breathless and exhausted.

PAST PAPER QUESTIONS

- Q:121 Give two symptoms of emphysema. (RWP 2017)
- Q:122 What is Emphysema? Give its effects. (DGK 2017)
- Q:123 What is Asthma? Write their causes. (FSD 2017)
- Q:124 Define Emphysema. (MTN 2017)
- Q:125 Relate lung cancer with smoking. (MTN 2017)
- Q:126 What are the symptoms of emphysema? (GRW 2018)
- Q:127 Briefly describe tuberculosis. (GRW 2019)
- Q:128 What is pulmonary tuberculosis? Write down its cause. (MTN 2017, MTN 2019)
- Q:129 Give symptoms and causes of tuberculosis. (MTN 2019)
- Q:130 What are causes and symptom of pulmonary tuberculosis? (DGK 2019)
- Q:131 What are the symptoms of Asthma? (SWL 2019)
- Q:132 Write a short note on emphysema. (GRW 2019)
- Q:133 What is tuberculosis? (GRW 2021)
- Q:134 Define Carcinoma. (SWL 2021)
- Q:135 What is asthma? (LHR 2017, RWP 2017, LHR 2021, MTN 2021)
- Q:136 Define carcinoma. Give its causes. (DGK 2021)
- Q:137 What are the causes of asthma? (2019, SGD 2019, FSD 2021)
- Q:138 Define tuberculosis. Give its causes. (DGK 2021, RWP 2021)
- Q:139 Why the severe contraction of bronchioles occurs in asthma? (DGK 2022)
- Q:140 What is tuberculosis? Write its causative agent and its symptoms. (MTN 2022)
- Q:141 By listening “smoker’s cough”, which disease come in our mind? Elaborate. (SWL 2022)
- Q:142 Why the person suffering from emphysema becomes breathless and exhausted even at least exertional. (SGD 2022)

ROLE OF RESPIRATORY PIGMENTS & LUNG CAPACITIES**KIPS QUESTIONS**

Q:143 Write a short note on diving reflex.

Ans. Diving mammals have almost twice the volume of blood in relation to their body weight as compared to non-divers. Similarly most the diving mammals have high concentration of myoglobin in their muscles that can bind extra oxygen. This is why aquatic mammals can stay in the depth of the ocean for about two hours without coming up for air. When they dive into water:

- (1) The breathing stops, the rate of heart beat slows down to one tenth of the normal rate, the consumption of oxygen and energy is reduced.
- (2) The blood is redistributed but most of the blood goes to brain and heart.
- (3) Muscles shift from aerobic to anaerobic respiration.

Q:144 What is the effect of exercise on breathing?

Ans: Normally, at rest we inhale and exhale at 15-20 times per minute. During exercise the breathing rate may rise to 30 times per minute.

The increased rate and depth of breathing during exercise allows more oxygen to dissolve in blood and supply it to the active muscles. The extra carbon dioxide which the muscle puts into the blood is removed by deep and fast breathing. There is a little change in the composition of inhaled and exhaled air during rest or exercise in most of the air components.

PAST PAPER QUESTIONS

- Q:145** State myoglobin and its functions. (LHR 2017)
- Q:146** What is diving reflex? (FSD 2017, LHR 2018)
- Q:147** Give % age of O₂ and CO₂ inhaled and exhaled air (in an adult human). (RWP 2017)
- Q:148** What is the rate of breathing at rest and during exercise? (LHR 2018)
- Q:149** What happens when diving reflex is activated? (GRW 2019)
- Q:150** Describe lung capacities. (FSD 2019)
- Q:151** What is myoglobin? Give its role. (SGD 2019, FSD 2021)
- Q:152** Define breathing. (MTN 2019)
- Q:153** Give % age of oxygen and carbon dioxide in inhaled and exhaled air. (GRW 2019)
- Q:154** Give composition of breathed air in man. (GRW 2021)
- Q:155** What is the composition of inhaled and exhaled air, in breathing? (DGK 2021)
- Q:156** Differentiate between myoglobin and haemoglobin. (SGD 2017, BWP 2021)
- Q:157** What are Lung Capacities? (BWP 2021)
- Q:158** Differentiate between breathing and cellular respiration. (RWP 2019, RWP 2021)
- Q:159** Give two characteristics of diving mammals. (RWP 2021)
- Q:160** What is Myoglobin? How does it differ from haemoglobin? (MTN 2019, LHR 2022)
- Q:161** What changes occur in diving reflex? (LHR 2017, MTN 2022)
- Q:162** Write down the lung capacity of humans. (SWL 2022)
- Q:163** How muscles get their oxygen? (SWL 2022)
- Q:164** What is myoglobin? (GRW 2022, RWP 2022)
- Q:165** How air composition changes after breathing? (GRW 2022, RWP 2022)