QUESTION BANK (SCIENCE)

CLASS- X

CHAPTER-2 (chemistry)

1. Which one of the given is incorrect?
   a. Acids turns blue litmus paper red
   b. Aqueous solutions of acids conduct electricity
   c. Acids react with certain metals to form hydrogen gas
   d. None of these

2. Which one of the given acids is used in the treatment of bone marrow and scurvy diseases?
   a. Acetic acid
   b. Hydrochloric acid
   c. Ascorbic acid
   d. Nitric acid

3. Which of the given is used as an antacid?
   a. Sodium hydrogencarbonate
   b. Calcium hydroxide
   c. Magnesium hydroxide
   d. All the these

4. In which one of the given reactions a salt is reacting with a base?
   a. $NaOH + HCl \rightarrow NaCl + H_2O$
   b. $Cu(OH)_2 + H_2SO_4 \rightarrow CuSO_4 + 2H_2O$
   c. $KOH + HCl \rightarrow KCl + H_2O$
   d. $6NH_4OH + Al(SO_4)_3 \rightarrow 2Al(OH)_3 + 3(NH_4)_2SO_4$

5. Which one of the following is formed when calcium hydroxide reacts with carbon dioxide?
   a. Hydrogen gas
   b. Water
   c. Salt
   d. Both B and C

6. Which of the following phenomena occurs when acid is mixed with water
   (A) Neutralization
   (B) Dilution
   (C) Ionization
   a. Only (B) is correct
   b. (A) & (B) are correct

c. (B) & (C) are correct
d. Only (C) is correct

7. Due to excess passing of CO_2 through an aqueous solution of slaked lime, its milkiness fades because
   a. Calcium carbonate is produced
   b. Calcium bi-carbonate is produced
   c. Calcium oxide is produced
   d. Due to the production of more heat

8. During the preparation of HCl gas on a humid day, the gas is usually passed through the guard tube containing $CaCl_2$. The purpose of using $CaCl_2$ is
   a. To add moisture to the gas (HCl)
   b. To absorb HCl gas
   c. To absorb moisture from HCl gas
   d. To Use it as a catalyst

9. Common salt beside being used in the kitchen can also be used as the raw material for the production of
   (A) Baking powder
   (B) Washing soda
   (C) Black ash
   (D) Slaked lime
   a. (B) and (C)
   b. (A) and (C)
   c. (A) and (B)
   d. (B) and (D)

10. Phenolphthalein's colour in basic medium is ____but in acid it is _____.
    a. Pink, Colourless
    b. Yellow, Pink
    c. Pink, Orange
    d. Blue, Red

11. You are given 3 unknown solutions with pH value as 6,8 & 9.5 respectively. Which solution will contain maximum OH^- ion?
    a. Solution sample-1
    b. Solution sample-2
    c. Solution sample-3
    d. Data are insufficient

12. Which of the following acid(s) never forms acidic salt?
    (A) HCl
    (B) H_3PO_4
    (C) H_2SO_4
    (D) H_2CO_3
    a. (A) only
    b. (D) only
    c. (A) and (D) both
    d. (A) and (C) both

13. Which of the following acids are edible
    (A) Citric acid
    (B) Tartaric acid
    (C) Hydrochloric acid
    (D) Carbonic acid
    a. (A) and (B) are correct
    b. (A), (B) and (D) are correct
    c. (A), (B) and (C) are correct
    d. All are correct

14. Methyl orange is
    (a) Pink in acidic medium, yellow in basic medium
    (b) Yellow in acidic medium, pink in basic medium
    (c) Colourless in acidic medium, pink in basic medium
    (d) Pink in acidic medium, colourless in basic medium.

15. Which of the following salts has no water of crystallization?
    (a) Blue vitriol
    (b) Washing soda
    (c) Baking soda
    (d) Gypsum

16. The difference of molecules of water in gypsum and POP is
    (a)5/2
    (b) 2b
    (c) 3/2
    (d) ½

17. 10 ml of solution of NaOH is found to be completely neutralised by 8ml of a given solution of HCl. If we take 20ml of same solution of NaOH, the amount of HCl solution required to neutralise it will be-

    (a) 4ml

(b) 8ml

(c)12ml

(d)16ml

18. A sample of soil is mixed with water and allowed to settle. The clear supernatant solution turns the pH paper yellowish-orange. Which of the following would change the colour of this pH paper to greenish -blue?

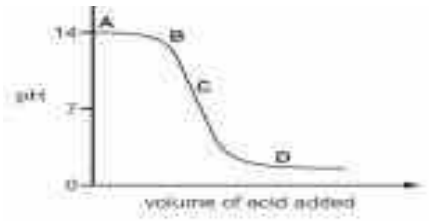
(a)Lemon juice

(b)vinegar

(c)Common salt

(d)An antacid.

19. The graph given below depicts a neutralization reaction (acid + alkali → salt + water). The pH of a solution changes as we add excess of acid to an alkali.



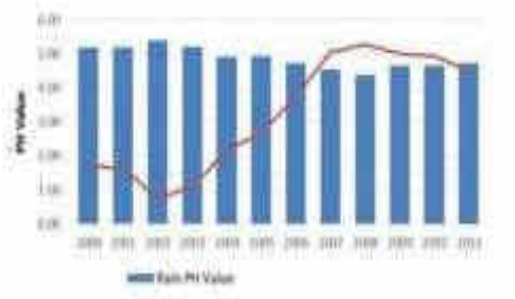
Which letter denotes the area of the graph where both acid and salt are present?

a. A
b. B.
c. C.
d. D.

20. Which of the given options correctly represents the Parent acid and base of Calcium Carbonate?

OPTION	PARENT ACID	PARENT BASE
A	HCl	NaOH
B	H_2CO_3	$Ca(OH)_2$
C	H_3PO_3	$CaSO_3$
D	H_2SO_4	$CaSO_4$

21. In which year is concentration of hydrogen ion the highest?



a. 2002
b. 2008
c. 2011
d. 2005

22. Vinay observed that the stain of curry on a white shirt becomes reddish-brown when soap is scrubbed on it, but it turns yellow again when the shirt is washed with plenty of water. What might be the reason for his observation?

i. Soap is acidic in nature

ii. Soap is basic in nature

iii. Turmeric is a natural indicator which gives reddish tinge in bases

iv. Turmeric is a natural indicator which gives reddish tinge in acids

The correct option is-

A. i and ii

B. ii and iii

C. i and iv

D. ii and iv

Question No. 23 to 27 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

23 **Assertion :** When acid rain flows into the river, it lowers the pH of the river water.
Reason : The survival of aquatic life in such river becomes difficult.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. Both A and R is false

24. **Assertion :** On adding H_2SO_4 to water the resulting aqueous solution get corrosive.
Reason : Hydronium ions are responsible for corrosive action.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is False but R is true

25. **Assertion :** Plaster of Paris is used by doctors by setting fractured bones.
Reason : When Plaster of Paris is mixed with water and applied around the fractured limbs, it sets into a hard mass.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is False but R is true

26. **Assertion**: Fresh milk in which baking soda is added, takes a longer time to set as curd.

Reason: Baking soda decreases the pH value of fresh milk to below 6

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is False but R is true

27. **Assertion:** Decomposition of vegetable matter into compost is an endothermic reaction.

Reason: Decomposition reaction involves breakdown of a single reactant into simpler products.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is False but R is true

28. The table given below shows the reaction of a few elements with acids and bases to evolve Hydrogen gas

Element	Acid	Base
A	×	×
B	✓	✓
C	✓	×
D	✓	✓

Which of these elements form amphoteric oxides

a. A and D

b. B and D

c. A and C

d. B and D

29. Sodium hydrogen carbonate when added to acetic acid evolves a gas. Which of the following statements are true about the gas evolved?

1. It turns lime water milky.
2. It extinguishes a burnings splinter.
3. it dissolves in a solution of sodium hydroxide.
4. It has a pungent odour.

(a) 1 and 2
(b) 1, 2 and 3
(c) 2, 3 and 4
(d) 1 and 4

30. Which of the following phenomena occur, when a small amount of acid is added to water?

1. Ionization
2. Neutralization
3. Dilution
4. Salt formation

(a) 1 and 2
(b) 1 and 3
(c) 2 and 3
(d) 2 and 4

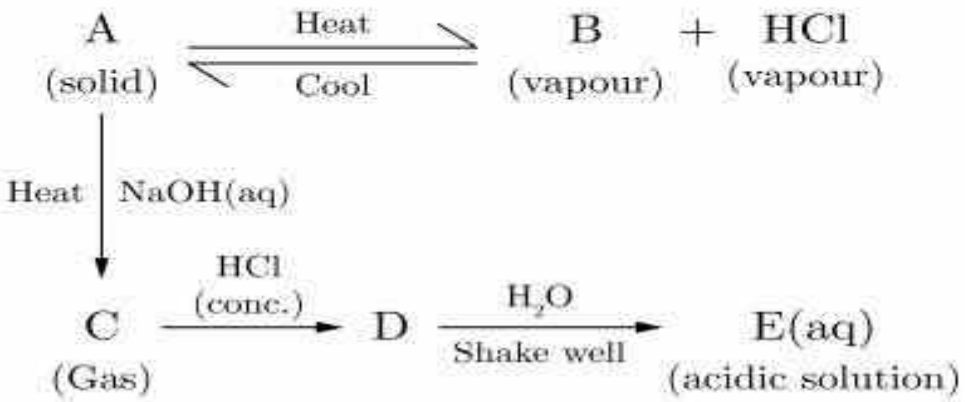
31. Which of the following are correctly matched?

1.	Acid + salt	metal + hydrogen
2.	Acid + metal carbonate	salt + carbon dioxide + water
3.	Metal oxide + acid	salt + water

(a) 1 and 2
(b) 2 and 3
(c) 1 and 3
(d) 1, 2 and 3

32. An element X reacts with dilute H_2SO_4 as well as with NaOH to produce salt and $H_2(g)$. Hence, it may be concluded that :
1. X is an electro-positive element.
2. oxide of X is basic in nature.
3. oxide of X is acidic in nature.

33. The schematic diagram is given below :



Which of the following is an incorrect statement?
(a) A and E are chemically same.
(b) A and D are chemically same.
(c) D and E are chemically same.
(d) C and E are chemically same.

34. A solution in test tube '*A*' turns red litmus blue, evolves hydrogen gas on reaction with zinc and does not react with sodium carbonate. Whereas, solution in test tube '*B*' turns blue litmus red, liberates hydrogen gas on reaction with zinc and evolves carbon dioxide gas with sodium carbonate. Identify '*A*' and '*B*'.

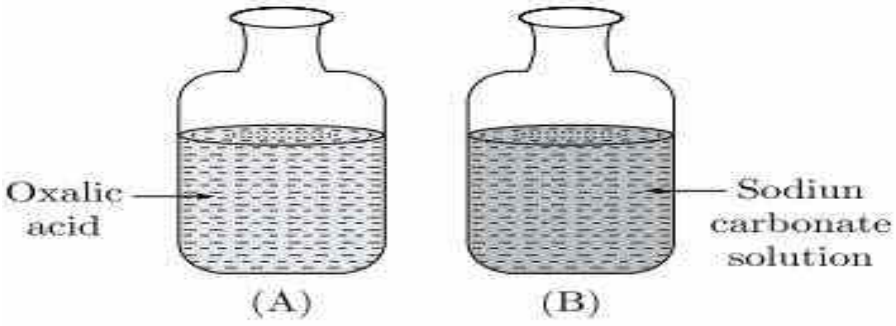
(a) '*A*' is an acid, '*B*' is a base.

(b) '*A*' is a base, '*B*' is an acid.

(c) Both '*A*' and '*B*' are bases.

(d) Both '*A*' and '*B*' are acids.

35 When pH strip is dipped in each bottle, the colour shown by bottle *A* and *B* will be respectively:



(a) orange, blue

(b) blue, orange

(c) green, blue

(d) blue, green

36. In a locality, hard water, required for an experiment, is not available. However, the following salts are available in the school laboratory:

1. Sodium sulphate
2. Calcium sulphate
3. Magnesium chloride
4. Sodium chloride
5. Calcium chloride
6. Potassium sulphate

Which of the above may be dissolved in water to obtain hard water for the experiment?

(a) 2, 3 and 5
(b) 1, 2 and 5
(c) 1, 2, 4 and 6
(d) 3 and 5 only

37. A student prepared 20% sodium hydroxide solution in a beaker containing water. The observations noted by him are given below.

I. Sodium hydroxide is in the form of pellets.
II. It dissolves in water readily.
III. The beaker appears cold when touched from outside.
IV. Red litmus paper turns blue when dipped into the solution.

The correct observations are:

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

38. An acid (P) with sodium hydrogen carbonate is used in making the cakes fluffy and spongy. It is due to the release of (Q) gas in the reaction. Here, P and Q are

(a) P : Tartaric acid : Q : CO_2

(b) P : Succinic acid : Q : H_2

(c) P : Tartaric acid : Q : O_2

(d) P : Oxalic acid : Q : CO_2

39. A student takes about 6 ml of distilled water in each of the four test tubes A, B, C and D, then dissolves in equal amount four different salts name sodium chloride in A Potassium Chloride in B, Calcium Chloride in C and magnesium chloride in D. He then adds 10 drop of soap solution to each test tube and shakes its contents. The test tube(s) in which he would observe a good amount of lather is:

(a) A and B

(b) Only A

(c) C and D

(d) Only B

40. The pH of a solution is 4.5. What should be the change in the hydrogen ion concentration of the solution, if its pH is to increased to 6.

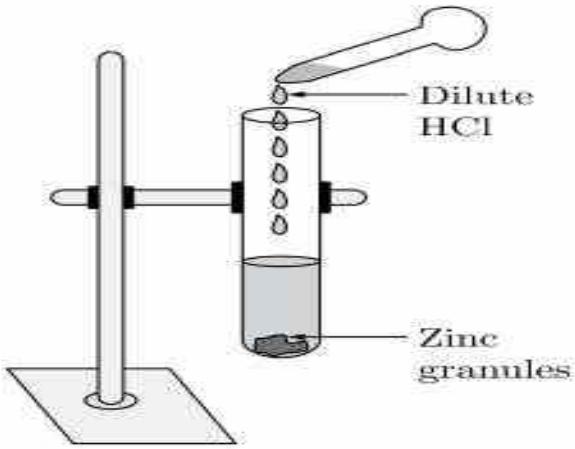
(a) increases by 10 times

(b) doubled

(c) halved

(d) decreases to 1/10 of its original concentration

41. A student added dilute HCl to Zn granules taken in a test tube as shown in figure. The correct observation would be:



(a) no change
(b) evolution of gas
(c) Zn granules turned green
(d) formation of a precipitate

42. Salt of a strong acid and strong base is neutral with a pH value of 7. NaCl common salt is formed by a combination of hydrochloride and sodium hydroxide solution. This is the salt that is used in food. Some salt is called rock salts bed of rock salt were formed when seas of bygone ages dried up. The common salt thus obtained is an important raw material for various materials of daily use, such as sodium hydroxide, baking soda, washing soda, bleaching powder.

1. Which of the following does not form an acidic salt?

a. Phosphoric acid

b. Carbonic acid

c. Hydrochloric acid

d. Sulphuric acid

2. Which of the following salts has no water of crystallization?

a. Blue vitriol

b. Washing soda

c. Baking soda

d. Gypsum

3. The formula of baking soda is

a. K_2CO
b. $KHCO_3$
c. $NaHCO_3$
d. Na_2CO_3

4. Which of the following is treated with chlorine to obtain bleaching powder?

a. $CaSO_4$
b. $Ca\ (OH)_2$
c. $Mg\ (OH)_2$

d. KOH

5. Which of the following salt is used for removing the permanent hardness of water

a. Washing soda

b. Baking soda

c. Bleaching powder

d. NaOH

43. The acids are sour in taste while bases are bitter in taste. Tasting a substance is not a good way of finding out if it is an acid or a base. Acids and bases can be better distinguished with the help of indicators. Indicators are substances that undergo a change of colour with a change of acidic, neutral or basic medium. Many of these indicators are derived from natural substances such as extracts from flower petals and barrier. Some indicators are prepared artificially. For example, methyl orange and phenolphthalein

1. When a few drops of phenolphthalein is added to a solution having pH 8.5, then the colour

(a) changes to blue

(b) changes to red

(c) changes to pink

(d) does not change

2. Which of the following statement(s) is incorrect about the litmus paper?

(a) It is a most commonly used indicator.

(b) In acidic solution, blue litmus paper turns red.

(c) In neutral solution, no colour change is observed.

(d) Litmus solution is a yellow dye, which is extracted from the lichen plant.

3. Which solution will change blue litmus to red?

(a) NaOH(aq)

(b) NH_4OH (aq)

(c) KCl(aq)

(d) H_2SO_4 (aq)

4. Which of the following solutions will turn phenolphthalein pink?

(a) HCl(aq)

(b) CO_2 (aq)

(c) KOH (aq)

(d) H_2SO_4

44. Baking soda is also called sodium bicarbonate. This is the major constituent of baking powder. Sodium chloride is used as one of the raw materials in the production of baking soda. Baking soda is commonly used to make crispy pakoras, etc., in the kitchen. It is also added for faster cooking. It is also used in the preparation of effervescent drinks and fruit salts and it is used as an antacid, it neutralises excess acid in the stomach

1. The chemical name of baking soda is

(a) sodium hydrogen carbonate

(b) sodium hydroxide

(c) sodium carbonate decahydrate

(d) calcium oxychloride

2. Which of the following statements is correct regarding properties of baking soda?

(a) It is a yellow crystalline substance.

(b) It is non-corrosive in nature.

. (c) It reacts with acids evolving hydrogen gas

(d) All are correct

3. The temperature above which sodium bicarbonate decomposes to give sodium carbonate is

(a) 283 K

(b) 309 K

(c) 373 K

(d) 575 K

4. The chemical formula of baking soda is

(a) $NaHCO_3$

(b) NaOH

(c) Na_2CO_3 $ 10H_2O

(d) $CaOCl_2$

45. A student takes three solutions P Q, and R and make the reaction of all these solution with phenolphthalein indicator and methyl orange indicator. He get the following result:

Solutions	Colour change with phenolphthalein indicator	Colour change with methyl orange indicator
P	Pink	Yellow
Q	Colourless	Orange
R	Colourless	Red

1. The acidic solution is

(a) P

(b) Q

(c) R

(d) None of these

2. Solutions P and Q could be

(a) HCl and NaOH

(b) NaOH and NaCl

(c) CH_3COOH and CH_3COONa

(d) HCl and Na_2CO_3

3. When solution P added to the China rose indicator, the colour of the solution P changes to

(a) Green

(b) Dark red

(c) Pink

(d) Colourless

4. The solution which give pink colour after reaction with phenolphthalein indicator is

(a) P

(b) Q

(c) R

(d) None of these

5.When drops of tomato juice are dropped on litmus paper than litmus paper will turn

(a) red

(b) yellow

(c) green

(d) blue

46.For making baking powder, which is a mixture of baking soda (sodium hydrogen carbonate) and a mild edible acid such as tartaric acid. When baking powder is heated or mixed in water, the Sodium salt of acid, Carbon dioxide produced during the reaction causes bread or cake to rise making them soft and spongy. Sodium hydrogen carbonate is also an ingredient in antacids. Being alkaline, it neutralises excess acid in the stomach and provides relief. It is also used in soda-acid fire extinguishers.

1. Which of the following compound is used in soda-acid fire extinguishers?

(a) Plaster of Paris

(b) Baking soda

(c) Washing soda

(d) Bleaching powder

2. ..... is the chemical name of baking soda.

(a) Calcium hydrogen carbonate

(b) Sodium hydrogen carbonate

(c) Calcium carbonate

(d) Sodium carbonate

3. Baking powder is a mixture of the following compounds:

(a) Bleaching powder and citric acid

(b) Baking soda and oxalic acid

(c) Washing soda and citric acid

(d) Baking soda and tartaric acid

4. Which ingredient is used in anta-acids which gives relief in stomach by neutralising excess acid?

(a) Calcium hydroxide

(b) Sodium carbonate

(c) Aluminium hydroxide

(d) Sodium hydrogen carbonate

5. What is the nature of baking soda?

(a) It is amphoteric

(b) It is acidic

(c) It is alkaline

(d) It is neutral

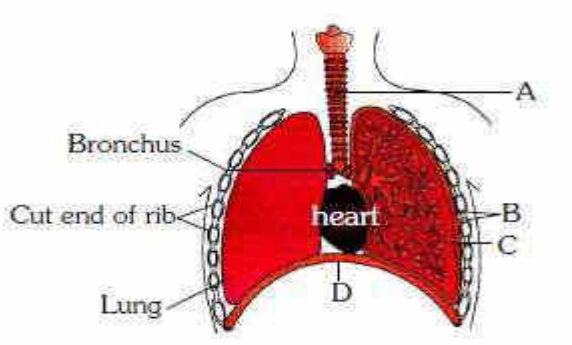
BIOLOGY QUESTION BANK- II

Chapter: Life Processes

Topic: Respiration and Excretion

RESPIRATION:

Q1.Carefully study the diagram of the human respiratory system with labels A, B, C and D. Select the option which gives correct identification and main function and /or characteristic.



a) A - Trachea: It is supported by bony rings for conducting inspired air.
b) B - Ribs: When we breathe out, ribs are lifted.
c) C - Alveoli: Thin-walled sac like structures for exchange of gases.
d) D - Diaphragm: It is pulled up when we breathe in.

Q2. What is common between extensive network of blood vessels around walls of alveoli and in glomerulus of nephron?

a) Thick walled arteries richly supplied with blood
b) Thin walled veins poorly supplied with blood
c) Thick walled capillaries poorly supplied with blood.
d) Thin walled capillaries richly supplied with blood

Q3. The respiratory pigment in human beings is-
(a) carotene
(b) chlorophyll
(c) haemoglobin
(d) mitochondria

Q4. Vocal cords occur in-
a) pharynx

b) glottis
c) bronchial tube
d) larynx

Q5. Which of the following structures is involved in gaseous exchange in woody stem of a plant?
a) Stomata
b) Lenticel
c) Guard cell
d) Epidermis

Q6. Which substances are produced by anaerobic respiration in yeast?

	Carbon dioxide	**Alcohol**	**Lactic Acid**	**Water**
a)	{	{	#	#
b)	{	#	{	#
c)	#	{	#	{
d)	#	#	{	{

Key { = produced, #= not produced.

Q7. Which cell organelle is involved in breakdown of glucose to produce energy for metabolic activities?

a) Mitochondria
b) Chloroplast
c) Endoplasmic reticulum
d) Golgi body

Q8. During vigorous physical exercise, lactic acid is formed from glucose inside the muscle cells because-

a) there is lack of oxygen
b) there is lack of water
c) there is excess of carbon dioxide
d) none of the above

Q9. The following changes take place in an athlete's body during a 100m race. Which change occurs first?

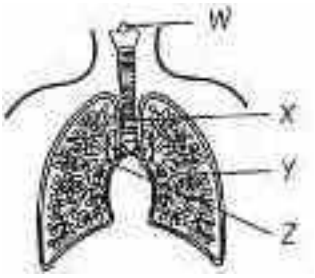
a) Increased availability of oxygen to muscles

b) Increased breathing rate

c) Increased carbon dioxide concentration in the blood

d) Increased production of carbon dioxide by muscles

Q10. The diagram shows parts of the human respiratory system.



What are *W*, *X*,*Y* and *Z* ?

	Bronchus	**Bronchiole**	**Larynx**	**Trachea**
a)	*W*	*X*	*Z*	*Y*
b)	*X*	*Z*	*Y*	*W*
c)	*Y*	*W*	*X*	*Z*
d)	*Z*	*Y*	*W*	*X*

Q11. What are the products obtained by anaerobic respiration in plants?

a) Lactic acid + Energy

b) Carbon dioxide + Water + Energy

c) Ethanol + Carbon dioxide + Energy

d) Pyruvate

Q12. The breakdown of pyruvate to give carbon dioxide, water and energy takes place in

(a) cytoplasm

(b) mitochondria

(c) chloroplast

(d) nucleus

13. Glycolysis process occurs in which part of the cell during respiration?

a) Cytoplasm

b) Nucleus
c) Mitochondria
d) Chloroplast

14. Name the substances whose build up in the muscles during vigorous physical exercise may cause cramps?
a) Ethanol + Carbon dioxide + Energy
b) Lactic acid + Energy
c) Carbon dioxide + Water + Energy
d) Pyruvate

15. Assertion (A) and Reason (R) type question:

This question consists of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

Assertion : in the daytime, CO_2 generated during respiration is used up for photosynthesis.

Reason : There is no CO_2 release during day.

a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true and R is not the correct explanation of A
c) A is true but R is false
d) A is False but R is true

Excretion

16. The function of the glomerulus and Bowman's capsule of the nephron is to-

a) reabsorb water into the blood
b) eliminate ammonia from the body
c) reabsorb salts and amino acids
d) filter the blood and capture the filtrate

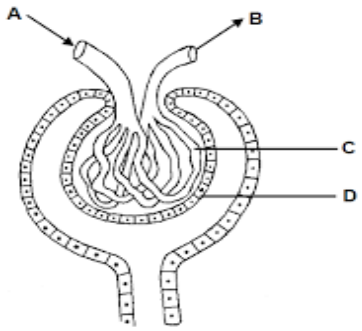
17.Choose the incorrect pair:

a) Ultra filtration - Glomerulus
b) Concentration of urine - Collecting duct
c) Transport of urine - Ureter
d) Storage of urine - Urinary bladder

18.Flame cells are the excretory structures in-

a) Arthropods
b) Platyhelminthes
c) Annelids
d) Crustaceans

19. Identify part C in the given diagram.



Malpighian body of a human nephron

a) Afferent arteriole

b) Glomerulus

c) Loope of Henle

d) Collecting duct

20. Which of the following plant excretory product is used in manufacturing of varnishes, glazing agents, etc?

a) Tannin
b) Resins
c) Essential oil
d) Rubber

21. What is the term used when vessels open and let more blood through?

a) Vasoconstriction
b) Vasodilatation
c) Increased permeability
d) None of these

22. Example(s) of liquid waste product in plants is/are-

a) Rubber
b) clove oil
c) gum
d) All of these

23.Which one of the following is also known as antidiuretic hormone(ADH)?

a) Oxytocin
b) Vasopressin
c) Adrenaline
d) Calcitonin

24.Choose the correct path of urine in our body.

a) kidney → ureter → urethra → urinary bladder
b) kidney → urinary bladder → urethra → ureter
c) kidney → ureters → urinary bladder → urethra
d) urinary bladder → kidney → ureter → urethra

25. Assertion (A) and Reason (R) type question

This question consists of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

Assertion : Plants excrete various waste products during their life processes.

Reason : They produce urea just like humans.

a) Both A and R are true and R is the correct explanation of A
b) Both A and R are true and R is not the correct explanation of A
c) A is true but R is false
d) A is False but R is true

CASE BASED QUESTION

Read the given paragraph and answer the questions given below.

The hemodialysis unit is also known an artificial kidney. It acts as artificial kidney by eliminating urea from the blood of the patients caused due to failure of the kidney. Blood is drained from the artery and pumped into the dialyzing unit after addition of heparin. The unit has a looped cellophane tube that is girdled by a dialyzing fluid which has a similar composition as plasma minus the nitrogenous waste. The cellophane membrane of the tube is permeable

through which molecules pass based upon the concentration gradient. The concentration of the nitrogenous waste is higher in the patient's blood as compared to the dialyzing fluid. Thus the nitrogenous waste from the blood is diffused out and collected into the dialyzing fluid. The cleaned blood is pumped back to the body via a vein after supplementing with anti-heparin.

Q26.Which of the following pairs is correct?

a) Hemodialysis – Removal of urine

b) Hemodialysis – Removal of urea from blood

c) Hemodialysis – Removal of R.B.C

d) Hemodialysis - Removal of W.B.C

Q27. Basic principal of hemodialysis is:

a) Diffusion
b) Convection
c) Conduction
d) none of these

Q28.Which anticoagulant is used during dialysis?

a) Heparin
b) Citrate
c) LMWH
d) All of these

Q29.Dialyzing unit (artificial kidney) contains a fluid which is almost same as plasma except that is has:

a) high glucose
b) high urea
c) no urea
d) high uric acid

Q30. Which substances out of the following in the dialysis fluid should be at a lower concentration than in the blood of patient?

a) Glucose and urea
b) Glucose and amino acids

c) Salts and urea
d) Glucose and salts

==========

ANSWER KEY

RESPIRATION:

Q1 c) (iii) Alveoli: Thin-walled sac like structures for exchange of gases.

Q2 d) Thin walled capillaries richly supplied with blood

Q3. c) haemoglobin

Q4. d) larynx

Q5 b) Lenticel

Q6. a) During anaerobic respiration in yeast, following equation shows the products synthesised: $C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

Q7 a) Mitochondria

Q8 a) there is lack of oxygen

Q9 d) Increased production of carbon dioxide by muscles

Q10. d) Larynx is at the beginning of trachea. After trachea, bronchi are found which further branch into bronchioles

Q11. c) Ethanol + Carbon dioxide + Energy

Q12. b) mitochondria

13. a) Cytoplasm

14 b) Lactic acid + Energy

15 a) Both A and R are true and R is the correct explanation of A.

Excretion

16.d) filter the blood and capture the filtrate

17. b) Concentration of urine-Collecting duct

Concentration of urine takes place in Henle's loop not in collecting duct.

18 b) Platyhelminthes

Flame cells are the excretory organs of organisms belonging to phylum Platyhelminthes.

19. b) Glomerulus

20. b) Resins

Resins are used in manufacturing of varnishes, glazing agents, etc.

21. b) Vasodilatation

22. d) All of these

All of these given options are examples of liquid waste products in plants.

23.b) Vasopressin

24. c) kidney → ureters → urinary bladder → urethra

25. c) A is true but R is false.

PARAGRAH BASED QUESTION

Q26. b) Hemodialysis – Removal of urea from blood

Q27. a) diffusion

Q28 a) heparin

Q29.c) no urea

Q30. c) Salts and urea

==========

Question Bank - Physics
Human eye and colourful world

1. Consider the following statements about dispersion by glass prism :
   1. Splitting of light into its componentcolours is called dispersion.

2. Isaac Newton was the first to observe dispersion

Choose the correct option from the codes given below:

(a) Only 1

(b) Only 2

(c) Both 1 and 2

(d) Neither 1 nor 2

In an experiment, Pooja used a equilateral triangular glass prism and projected a narrow beam of white light source from one side of the surface of the prism. She placed a screen on the other side and saw many colours appearing as patches on the screen. But when she used a red light source, she could only see a red patch on the screen. Similarly she used a blue and green light source and could only see one colour patch on both occasions.

2. The phenomenon that she was trying to demonstrate was:

A. Dispersion

B. Reflection

C. Refraction

D. Scattering.

3. The reason why she could no see any other colour when the red light was used was because:

A. Red colour does not refract in prism.

B. Red colour is monochromatic.

C. The prism was defective.

D. The prism is opaque to red colour.

4. which of the following can be the correct explanation that Pooja can give to her friends to explain this phenomenon?

A. Different lights travel faster in the glass prism at different rates.

B. Any light would disperse in the prism.

C. Enough data is not available to make a scientific explanation in this case.

D. Different wavelengths travel at different speeds in the glass.

5. She also could relate to another natural phenomenon that we observe on a rainy humid day as the sun comes out. What could be that phenomenon?

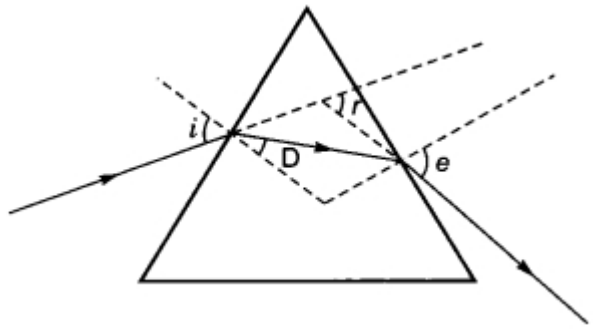
A. Lightning.

B. Blueness of the sky.

C. Rainbow.

D. Scattering of light.

6. After tracing the path of a ray of light through a glass prism a student marked the angle of incidence (∠i), angle of refraction (∠r), angle of emergence (∠e) and the angle of deviation (∠D) as shown in the diagram. The correctly marked angles are:



(a) ∠i and ∠r
(b) ∠i and ∠e
(c) ∠i, ∠e and ∠D
(d) ∠i, ∠r and ∠e

Read the following and answer any four questions from (i) to (v).

The spreading of light by the air molecules is called scattering of light. The light having least wavelength scatters more. The sun appears red at sunrise and sunset, appearance of blue sky it is due to the scattering of light. The colour of the scattered light depends on the size of particles. The smaller the molecules in the atmosphere scatter smaller wavelengths of light. The amount of scattering of light depends on the wavelength of light. When light from sun enters the earth's atmosphere, it gets scattered by the dust particles and air molecules present in the atmosphere. The path of sunlight entering in the dark room through a fine hole is seen because of scattering of the sun light by the dust particles present in its path inside the room.

7. To an astronaut in a spaceship, the colour of earth appears
(a) red
(b) blue

(c) white
(d) black

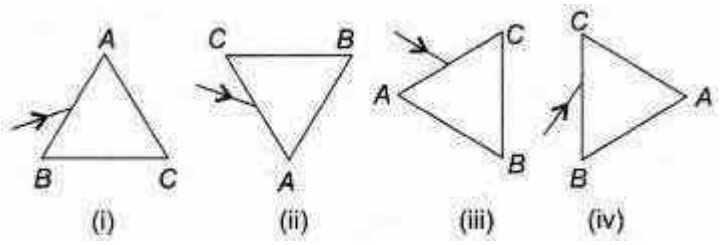
8. At the time of sunrise and sunset, the light from sun has to travel.
(a) longest distance of atmosphere
(b) shortest distance of atmosphere
(c) both (a) and (b)
(d) can't say

9. The colour of sky appears blue, it is due to the
(a) refraction of light through the atmosphere
(b) dispersion of light by air molecules
(c) scattering of light by air molecules
(d) all of these.

10. At the time of sunrise and sunset
(a) Blue colour scattered and red colour reaches our eye
(b) Red colour scattered and blue colour reaches our eye
(c) Green and blue scattered and orange reaches our eye
(d) None of these

11. The danger signs made red in colour, because
(a) the red light can be seen from farthest distance
(c) both (a) and (b)
(b) the scattering of red light is least
(d) none of these

12. A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in below Figure. In which of the following diagrams, after dispersion, the third colour from the top of the spectrum corresponds to the colour of the sky**?**



A. (i)

B. (ii)

C. (iii

D. (iv)

13. If a beam of red light and a beam of violet light are incident at the same angle on the inclined surface of a prism from air medium and produce angles of refraction r and v respectively, which of the following is correct?

A. r = v

B. r > v

C. r = 1/v

D. r < v

Question No. 14 to 17 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true and R is not the correct explanation of A

C. A is true but R is false

D. A is False but R is true

14.**Assertion**: Sky appears blue in the day time.

Reason: White light is composed of seven colours.

15**.Assertion (A):** A white light on passing through prism splits into its component colours as such that the red light emerges nearest to the base of theprism.
Reason (R): Wavelength of red light is more thanother component colours and hence, red light deviates least.

16. **Assertion**- Dispersion of light is the phenomenon of combining of light of various colours to get white light.

Reason- In a prism all colours faces different deviations.

17. **Assertion**: Twinkling of stars is due to the fact that refractive index of the earth's atmosphere fluctuates.

Reason: Dispersion is due to Tyndall effect.

18.Out of all colours making the white light, which one will deviate the most while it passes through a prism?

A. Red.

B. Violet.

C. Blue.

D. Green.

19. At noon the sun appears white as

(a) light is least scattered

(b) All the colours of the white light are scattered away

(c) Blue colour is scattered the most

(d) red colour is scattered the most

20. Which of the following phenomena of light are involved in the formation of a rainbow?

(a) Reflection, refraction and dispersion

(b) Refraction, dispersion and total internal reflection

(c) Refraction, dispersion and internal reflection

(d) Dispersion, scattering and total internal reflection

21. The clear sky appears blue because

(a) blue light gets absorbed in the atmosphere

(b) Ultraviolet radiations are absorbed in the atmosphere

(c) Violet and blue lights get scattered more than lights of all other colours by the atmosphere

(d) Light of all other colours is scattered more than the violet and blue colour lights by the atmosphere

22. Which of the following statements is correct regarding the propagation of light of different colours of white light in air?

(a) Red light moves fastest

(b) Blue light moves faster than green light

(c) All the colours of the white light move with the same speed

(d) Yellow light moves with the mean speed as that of the red and the violet light

23. The danger signals installed at the top of tall buildings are red in colour. These can be easily seen from a distance because among all other colours, the red light

(a) is scattered the most by smoke or fog

(b) is scattered the least by smoke or fog

(c) is absorbed the most by smoke or fog

(d) moves fastest in air

24.Which of the following phenomena contributes significantly to the reddish appearance of the sun at sunrise or sunset?

(a) Dispersion of light

(b) Scattering of light

(c) Total internal reflection of light

(d) Reflection of light from the earth

25. The bluish colour of water in the deep sea is due to

(a) the presence of algae and other plants found in water

(b) reflection of sky in water

(c) scattering of light

(d) absorption of light by the sea

26. One cannot see through fog because :

(a) light suffers total internal reflection at the droplets of fog.

(b) light is scattered by the droplets of fog.

(c) the refractive index of fog is infinity.

(d) fog absorbs light.

27. The phenomenon of scattering of light by the colloidal particles is called

(a) Dispersion of light

(b) Tyndall effect

(c) Atmospheric scattering

(d) Atmospheric refraction

28. Which light is easily scattered?

(a) Long wavelength light

(b) Short wavelength light

(c) Sunlight

(d) Coherent light

29. On a clear day, the sky appears to be bluer towards the zenith (overhead) than it does toward the horizon. This occurs because:

(a) the atmosphere is denser higher up than it is at the earth's surface.

(b) the temperature of the upper atmosphere is higher than it is at the earth's surface.

(c) the sunlight travels over a longer path at the horizon, resulting in more absorption.

(d) None of the above.