LIONS SCHOOL, MIRZAPUR

PRE-BOARD EXAMINATIONS 2021-22

TERM - 1

CLASS – X TIME-90 min.

SUBJECT-SCIENCE M.M-40

General Instructions:

1. The Question Paper contains three sections.
2. Section A has 24 questions. Attempt any 20 questions.
3. Section B has 24 questions. Attempt any 20 questions.
4. Section C has 12 questions. Attempt any 10 questions.
5. All questions carry equal marks.
6. There is no negative marking.

SECTION - A

Section – A consists of 24 questions. Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

1- Which of the following mirror is used by a dentist to examine a small cavity in a patient's teeth?

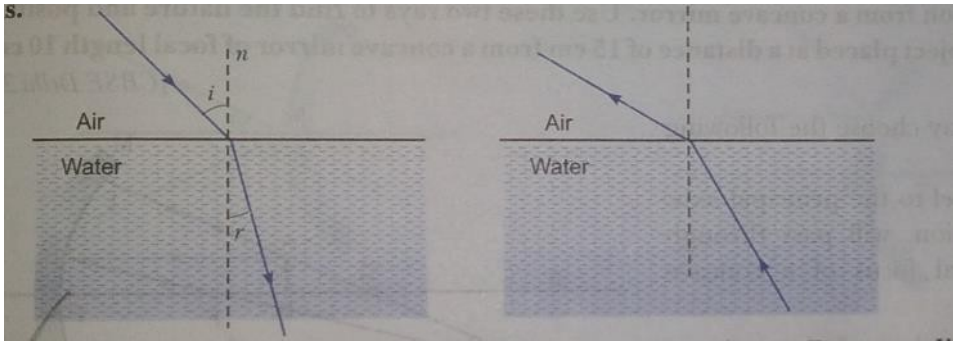
A. Convex mirror

B. Plane mirror

C. Concave mirror

D. Any spherical mirror

2- What is the refractive index if <i=30^0 & <r=45^0 given sin30=1/2 &sin 45 =1/$\sqrt{2}$



a)1.414

b)2

c)1

d)1.732

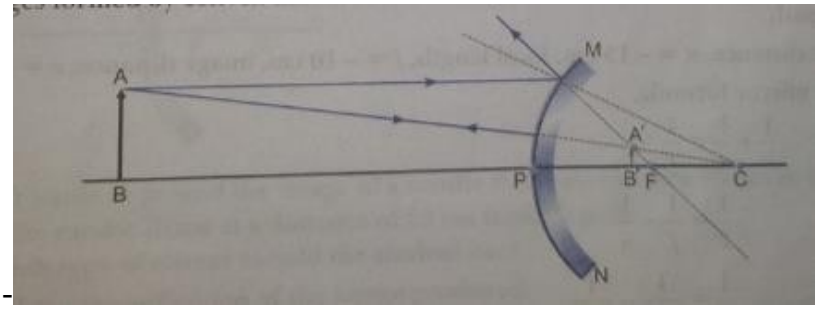
3- In the given diagram image formed is

a)real, erect and smaller than size of object

b) virtual, inverted and smaller than size of object

c) virtual, erect and smaller than size of object

d) real, inverted and larger than size of object

- 

4- **What type of image is formed:**

(i) in a plane mirror, and (ii) on a cinema screen?

a)real,real

b)virtual,real

c)virtual,virtual

d)no image formed in both cases

5- . Give the cartesian sign convention for:

(a) height of a real image, and (b) height of a virtual image.

a) Negative &positive
b) Positive & negative
c) Positive & positive
d) Negative & negative

6- What is the significance of +ve sign of magnification?

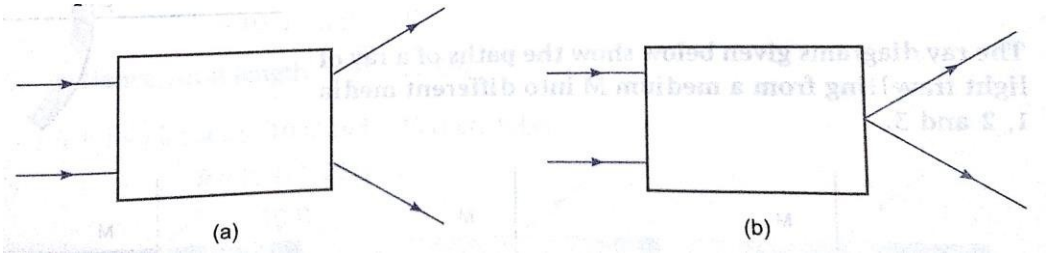
a)virtual & erect

b)real and inverted

c)real & erect

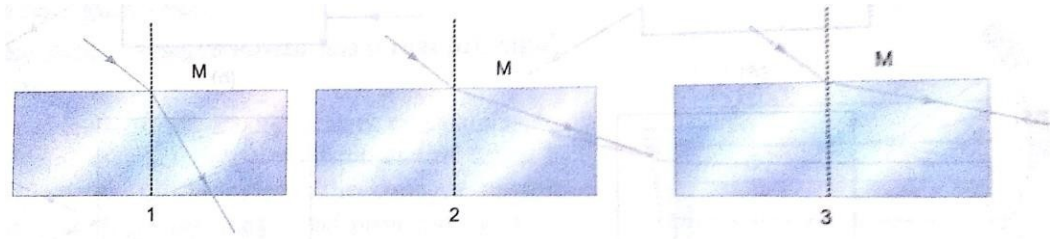
d)virtual & inverted

7- In the following figures, one lens is placed inside each box. State the nature of the lens.



a) diversing, conversing
b) conversing, diversing
c)diversing, diversing
d)conversing, conversing

8- The ray diagrams given below show the paths of a ray of light travelling from a medium M into different media 1, 2 and 3.



Which is correct

a) $\theta_1 < \theta_2 > \theta_3$

b) $\theta_1 > \theta_2 > \theta_3$

c) $\theta_1 > \theta_2 < \theta_3$

d) $\theta_1 < \theta_2 < \theta_3$

Q9. White silver chloride turns _____ in sun light.

$2AgCl \rightarrow 2Ag + Cl_2$

a. Grey
b. Brown
c. Blue
d. Green

Q10. Which of the following substance has the lowest pH value:-

a. Tomato juice
b. Vinegar
c. Washing soda
d. Blood

Q11. Which of the following element produces basic oxide on reaction with oxygen:-

a. Chlorine
b. Sulphur
c. Phosphorus
d. Magnesium

Q12. Addition of HCl in an aqueous solution of Lead nitrate gives a:-

a. Yellow precipitate
b. Brown precipitate
c. White precipitate
d. Black precipitate

Q13. Which natural indicator (acid-base) is used in kitchens of our home:-

a. Sodium chloride
b. Tea leaves
c. Sodium carbonate
d. Turmeric powder

Q14. What type of reaction is this

$MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + Cl_2$

a. Redox reaction
b. Displacement reaction
c. Double Displacement reaction
d. Decomposition reaction

Q15. Aluminum is used for making cooking utensils. Which of the following property is responsible for the same:-

a. Good thermal conductivity
b. Good electrical conductivity
c. Ductility
d. All of the above

Q16. Metals generally are:-

a. Reducing agent
b. Oxidizing agent
c. Both Reducing agent and Oxidizing agent
d. None of the above

Q17. Generally, non-metals are non-lustrous. Which of the following non-metal is lustrous:-

a. Sulphur
b. Oxygen
c. Nitrogen
d. Iodine

Q18. Chemical reaction between quick lime and water is characterized by:-

a. Evolution of H_2 gas
b. Formation of slaked lime
c. Change in temperature of the mixture
d. Change in color of product

19-Which of the following statement(s) is (are) true about respiration?
A) During inhalation, ribs move inward and the diaphragm is raised
B) In the alveoli, exchange of gases takes place i.e., oxygen from alveolar air diffuses into blood and carbon dioxide from blood into alveolar air sacs
C) Alveoli does not help in increasing surface area for exchange of gases
D) None

20-When air is blown from mouth into a test-tube containing lime water, the lime water turned milky due to the presence of-
(a) oxygen
(b) carbon dioxide
(c) nitrogen
(d) water vapour

21-Lack of oxygen in muscles often leads to cramps among cricketers. This results due to-
(a) conversion of pyruvate to ethanol

(b) conversion of pyruvate to glucose
(c) non conversion of glucose to pyruvate
(d) conversion of pyruvate to lactic acid

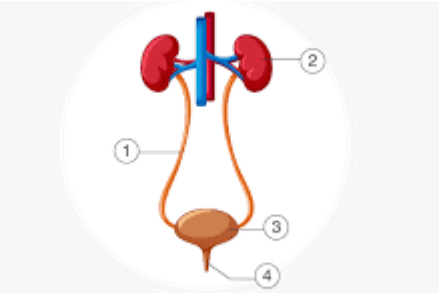
OR-

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

22- The procedure used for cleaning the blood of a person by separating urea from it is called:
(a) osmosis
(b) filtration
(c) dialysis
(d) double circulation

23- Which plant tissue transports water and minerals from the roots to the leaf?
(a) Xylem
(b) Phloem
(c) Parenchyma
(d) Collenchyma

24-. Identify and label the correct path of urine in the human body.



(a) Kidney → urinary bladder → urethra → ureter
(b) Urinary bladder → ureter → kidney → urethra
(c) Kidney → ureter → urethra → urinary bladder
(d) ureter→ Kidney → urinary bladder → urethra

SECTION- B

Section - B consists of 24 questions (Sl. No.25 to 48). Attempt any 20 questions from this section. The first attempted 20 questions would be evaluated.

25-If the power of a lens is - 10.0 D, then it means that the lens is a

A. concave lens of focal length -20 m

B. convex lens of focal length +20 cm

C. concave lens of focal length -10 cm

D. convex lens of focal length -10 m

26- Rays from Sun converge at a point 30 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object?

A. 60 cm in front of the mirror

B. 30 cm in front of the mirror

C. Between 30 cm and 60 cm in front of the mirror

D More than 60 cm in front of the mirror

27- If the real image of a candle flame formed by a lens is three times the size of the flame and the distance between lens and image is 20 cm, at what distance should the candle be placed from the lens?

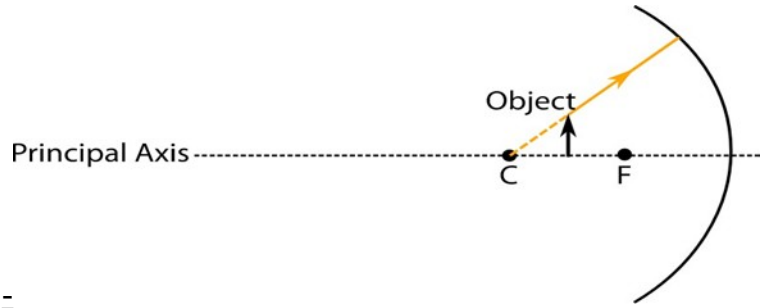
A. -20cm

B. -40 cm

C. -40/3 cm

D. -20/3 cm

28-



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While looking at the above diagram,Jayant concluded the following-

i. the image of the object will be a virtual one and passes through center of curvature.

ii. the reflected ray will travel along the same path as the incident ray but in opposite direction.

iii. the image of the object will be inverted.

iv. this is a concave mirror and hence the focal length will be

negative. Which one of the above statements are **correct**?

A. i and ii

B. i and iii

C. ii, iii and iv

D. i, ii, iii and iv

29- The refractive index of crown glass is 1.5 and that for water is 1.33 with respect to air. What is the refractive index of the flint glass with respect to water?

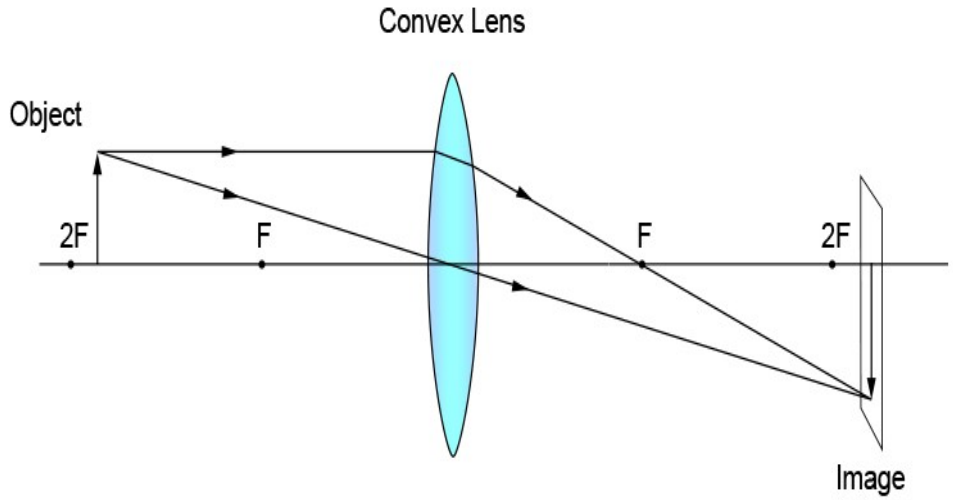
A. 0.6

B. 1.125

C. 0.17

D.8/9

30-



The above lens has a focal length of 20 cm. The object of height 2 mm is placed at a distance of 2F from the pole. Find the height of the image.

A. 1 cm

B. 2 mm

C. 1 cm

D. 4 mm

31- Red colour is used as danger signal because it appears from a long distance during foggy days.The phenomena behind this is

a)atmospheric refraction

b)scattering of light

c)refraction

d)Total internal reflection

Q32. Which of the following statement about the given reaction are correct:-

$3Fe + 4H_2O \rightarrow Fe_3O_4 + 4H_2O$

i. Iron metal is getting oxidized
ii. Water is getting reduced
iii. Water is acting as reducing agent
iv. Water is acting as oxidizing agent

a. i, ii & iii
b. iii & iv
c. i, ii & iv
d. ii & iv

Q33. Common salt beside being used in kitchen can also be used as raw material for making:-

i. washing soda

ii. bleaching powder
iii. baking soda
iv. slaked lime

a. i & ii
b. i, ii & iv
c. i & iii
d. i, iii & iv

Q34. Which of the following are exothermic processes:-

i. reaction of water with quick lime
ii. dilution of an acid
iii. evaporation of water
iv. sublimation of camphor

a. i & ii
b. ii & iii
c. i & iv
d. iii & iv

Q35. Which of the following metal catches fire on reaction with water:-

a. sodium
b. potassium
c. magnesium
d. a & b

Q36. Basic radical is:-

a. positively charged ion
b. negatively charged ion
c. neutral atom
d. none of the above

Q37. The metal used to build bridge is:-

a. gold
b. silver
c. platinum
d. iron

Question No. 38 to 42 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

38-Assertion:Sun rise & sun set is with 2 minute difference than its actual time..

Reason: White light is composed of seven colors.

39- Assertion:- In human beings, excretory products in the form of soluble nitrogen compounds are removed by the nephrons in the kidneys.

Reason: -Plants use a variety of techniques to get rid of waste material. For example, waste material may be stored in the cell-vacuoles or as gum and resin, removed in the falling leaves, or excreted into the surrounding soil.

Q40. Assertion A: metals are lustrous, malleable, ductile and good conductor of heat and electricity, they are solid at room temperature except mercury

Reason R: metals can form positive ion by loosing electron to non-metal.

Q41. Assertion A: copper sulphate crystals turn white on heating.

Reason R: copper sulphate contains water of crystallization.

Q42. Assertion A: tooth decay start when pH of mouth is below 5.5.

Reason R: the strength of an acid or alkali is measured by scale of pH.

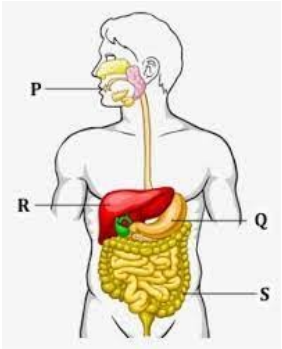
43-. Name a circulatory fluid in the human body other than blood.
(a) Platelets
(b) RBC
(c) Lymph
(d) Plasma

44-Identify the option that indicates the correct answer of column I-

Column I	Column II
Region of digestive system	Digestive juice
(A) Mouth	(i) Pancreatic juice
(B) Stomach	(ii) Intestinal juice
(C) Duodenum	(iii) Gastric juice
(D) Small intestine	(iv) Saliva

45- The enzyme responsible for the digestion of proteins in the small intestine is:
(a) Pepsin
(b) Trypsin
(c) Amylase
(d) Lipase
46-Which chamber of human heart contains oxygenated blood?
a-left atrium and left ventricle
b- left atrium and right ventricle
c- right atrium and left ventricle
d- right atrium and right ventricle

47- Identify the option that indicates the correct names in location P,Q,R, and S .



A. (i)-salivary gland (ii)- stomach iii- liver iv- large intestine

B. (i)-salivary gland (ii)- stomach iii- liver iv- small intestine

C., (i)-salivary gland (ii)- kidney iii- liver iv- large intestine

D., (i)-Pancreas (ii)- stomach iii- liver iv- large intestine

48 - Opening and closing of stomatal pore depends on:

A. Atmospheric pressure

B. oxygen concentration around stomata

C. carbon dioxide concentration around stomata

D. water content in the guard cells

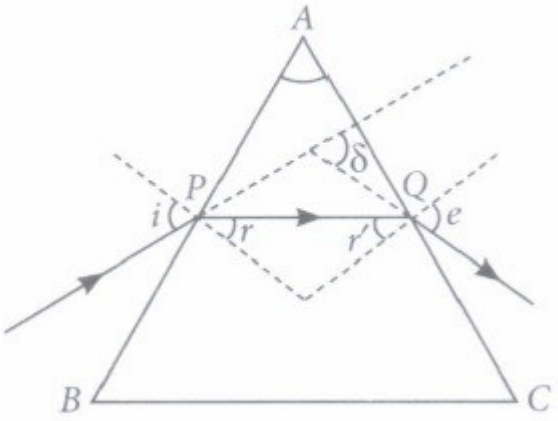
SECTION – C

Section- C consists of three Cases followed by questions. There are a total of 12 questions in this section. Attempt any 10 questions from this section. The first attempted 10 questions would be evaluated

Case STUDY

- A prism is a transparent refracting medium bounded by two plane surfaces inclined to each other at a certain angle. The refraction of light through a prism follows the laws of refraction. In the prism, refraction takes place on its refracting surface it means when the light enters the prism and when the light leaves the prism. The refraction through a prism is shown. Here, A is the angle of

prism, ∠∠i is the angle of incidence of the face AB and ∠∠e is the angle of emergence at other face AC.



The incident ray suffers a deviation or bending through an angle δ due to the refraction through prism. This angle is called angle of deviation as shown in figure.
∠i + ∠e = ∠δ + ∠A

49- The angle between the two refracting surfaces of a prism is called

(a) angle of prism **(b) angle of incidence**

(c) angle of deviation **(d) angle of emergence**

50- The angle between the incident ray and the emergent ray is called

(a) angle of emergence **(b) angle of deviation**

(c) angle of incidence **(d) none of these**

51- The angle of deviation depends on

(a) refractive index of prism **(b) angle of incidence**

(c) both (a) and (b) **(d) none of these**

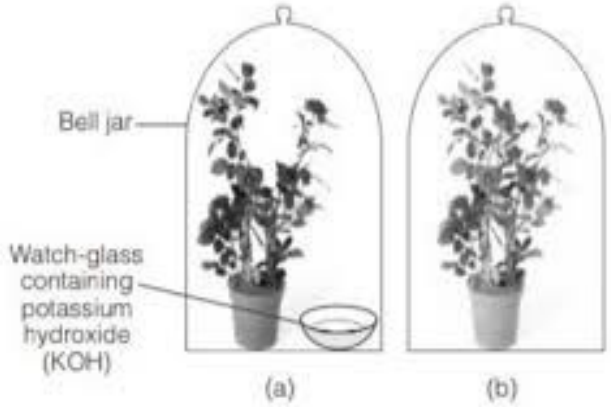
52- The rectangular surfaces of a prism are known as

(a) reflecting surfaces **(b) dispersing surfaces**

(c) refracting surfaces **(d) none of these.**

CASE

The Figure shown below represents an activity to prove the requirements for photosynthesis. During this activity, two healthy potted plants were kept in the dark for 72 hours. After 72 hours, KOH is kept in the watch glass in setup X and not in setup Y. Both these setups are air tight and have been kept in light for 6 hours. Then, Iodine Test is performed with one leaf from each of the two plants X and Y.



-53- Which of the following statements shows the correct results of Iodine Test performed on the leaf from plant X and Y respectively?

- A. Blue - black colour would be obtained on the leaf of plant X and no change in colour on leaf of plant Y.

-B. Blue - black colour would be obtained on the leaf of plant Y and no change in colour on leaf of plant X.

-C. Red colour would be obtained on the leaf of plant X and brown colour on the leaf of plant Y.

- D. Red colour would be obtained on the leaf of plant Y and brown colour on the leaf of plant X.

54- Which of the following steps can be followed for making the apparatus air tight?

i. placing the plants on glass plate
ii. using a suction pump.
iii. applying Vaseline to seal the bottom of jar.
iv. creating vacuum

A. i and ii

B. ii. and iii

C. i. and iii

D. ii. and iv

55- The function of potassium Hydroxide is to-

A. release Oxygen.

B. absorb Carbon dioxide.

C. release Moisture.

D. absorb Sunlight.

56-Before iodine test the leaf should be –

a- Dried in Sun
b- Wet in Water
c- Decolorised in alcohol
d- Covered by glycerine

The Salt Story ***From: The New Indian Express 9 March 2021*** The salt pans in Marakkanam, a port town about 120 km from Chennai are the third largest producer of salt in Tamil Nadu. Separation of salt from water is a laborious process and the salt obtained is used as raw materials for manufacture of various sodium compounds. One such compound is Sodium hydrogen carbonate, used in baking, as an antacid and in soda acid fire extinguishers. The table shows the mass of various compounds obtained when 1litre of sea water is evaporated

COMPOUND	**FORMULA**	**MASS OF SOLID PRESENT /g**
Sodium Chloride	NaCl	28.0
Magnesium Chloride	MgCl2	8.0
Magnesium Sulphate	MgSO4	6.0
Calcium Sulphate	CaSO4	2.0
Calcium Carbonate	CaCO3	1.0
TOTAL AMOUNT OF SALT OBTAINED		45.0

57-Which compound in the table reacts with acids to release carbon dioxide?
A. NaCl
B. CaSO4
C. CaCO3
D. MgSO4
58-How many grams of Magnesium Sulphate are present in 135g of solid left by evaporation of sea water?
A. 6g
B. 12g
C. 18g
D. 24g
59-What is the saturated solution of Sodium Chloride called?
A. Brine
B. Lime water
C. Slaked lime
D. Soda water
60-What is the pH of the acid which is used in the formation of common salt?
A. Between 1 to 3
B. Between 6 to 8
C. Between 8 to 10
D. Between 11 to 13