

INDIAN SCHOOL AL WADI AL KABIR
DEPARTMENT OF SCIENCE 2021 - 22
Class-X-SCIENCE
MIDTERM QUESTION PAPER
SET II

S.NO

QUESTIONS

MARKS
ALLOTTE
D

PHYSICS

1

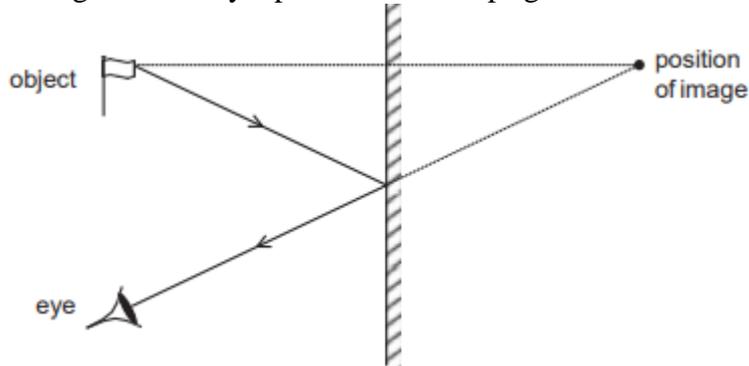
Light rays from sun converge at a point 10 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object?

- (a) 10 cm in front of the mirror
- (b) 20 cm in front of the mirror
- (c) Between 10 cm and 20 cm in front of the mirror
- (d) More than 20 cm in front of the mirror

1

2

The image formed by a plane mirror is upright.



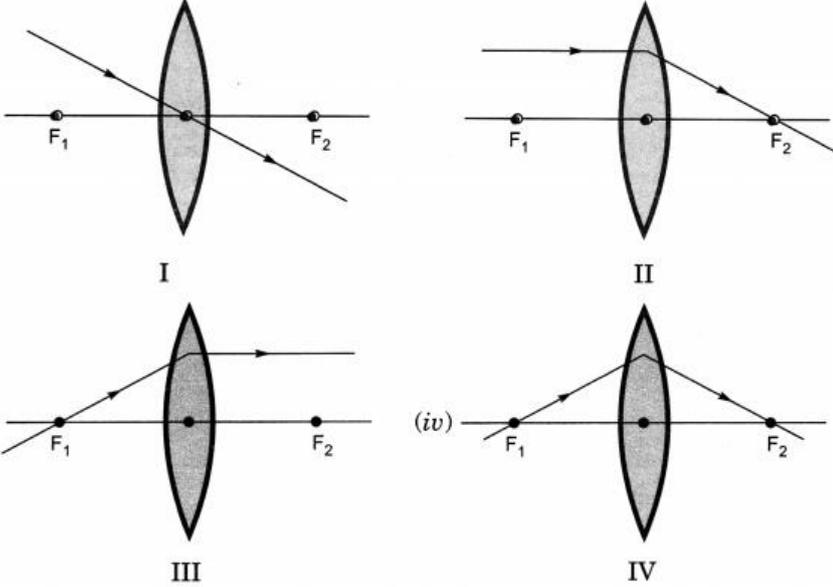
What are the other characteristics of the image?

	laterally inverted (left to right)	magnified (larger than the object)	virtual
A	no	yes	yes
B	yes	no	no
C	yes	no	yes
D	yes	yes	no

1

3

1

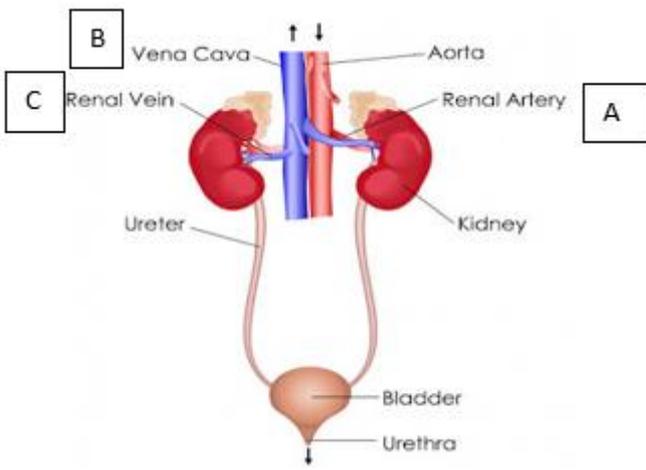
	<p>The diagrams showing the correct path of the ray after passing through the</p>  <p>(a) II and III only (b) I and II only (c) I, II and III (d) I, II and IV</p>	
4	<p>Assertion: Linear magnification of a mirror has no unit Reason: Linear magnification is the ratio of the height of the image to the height of the object</p>	1
5	<p>Assertion: In the case of concave mirror, the minimum distance between real object and its real image is zero Reason: If concave mirror forms virtual image of real object, the image is magnified.</p>	1
	<p>The relation between the distance of an object from the mirror (u) distance of the image from the mirror (v) and focal length (f) is known as the mirror formula. The formula is valid in all situations of mirror in all object positions. The size of the image formed by the mirror depends on the size of the object and the position of the object from the mirror. The image formed by the mirror can be smaller or bigger or same size of that of the object. The size of the image relative to the object is known as the linear magnification of the object. If magnification is negative the image is real and if it is positive the image is virtual</p>	
6	<p>What is the position of the image when the object is kept at 20 cm in front of a mirror of focal length 20 cm?</p> <p>(a) 20 cm (b) 40 cm (c) 10 cm (d) Infinity</p>	1
7	<p>Which of the following ray diagrams is correct for the ray of light incident on a concave mirror as shown in the diagram below</p>	1

	<p>Figure A Figure B Figure C Figure D</p> <p>(a) Figure A (b) Figure B (c) Figure C (d) Figure D</p>	
8	<p>If the magnification of the image is -2 the characteristic of the image is</p> <p>(a) Real and enlarged (b) virtual and diminished</p> <p>(c) virtual and inverted (d) real and diminished</p>	1
9	<p>The mirror formula holds for</p> <p>(a) Concave mirror (b) Convex mirror</p> <p>(c) Plane mirror (d) All of these</p>	1
10	<p>A parallel beam of light is made to fall on the concave mirror and an image is formed at 7.5 cm from the mirror. What is the focal length of the mirror?</p> <p>(a) 15 cm (b) 7.5 cm (c) 3.75 cm (d) 10 cm</p>	1
11	<p>An object 2 cm in size is placed 30 cm in front of a concave mirror of focal length 15 cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image?</p> <p>(a) -15 cm</p> <p>(b) $+15$ cm</p> <p>(c) -30 cm</p> <p>(d) $+30$ cm</p>	1
12	<p>A doctor has prescribed a corrective lens of power $+2$ D. Find the focal length of the lens.</p> <p>(a) $+0.5$ m</p> <p>(b) $+0.05$ m</p> <p>(c) $+50$ m</p> <p>(d) $+0.25$ m</p>	1
13	<p>A ray of light is incident on the interface separating diamond and water. Given that refractive indices of diamond and water with respect to air are 2.42 and 1.33 respectively. What is the speed of light in diamond if the speed of light in vacuum is 3×10^8 m/s?</p> <p>(a) 2.42×10^8 m/s</p> <p>(b) 1.24×10^8 m/s</p> <p>(c) 1.50×10^8 m/s</p> <p>(d) 3×10^8 m/s</p>	
CHEMISTRY		
14	<p>On heating crystals of ferrous sulphate product obtained are :</p> <p>a) Ferric oxide , Sulphur dioxide , Sulphur trioxide</p> <p>b) Ferric oxide, Ferrous sulphide , Oxygen</p>	1

	<p>c) Ferrous sulphide, Sulphur dioxide, Oxygen d) Ferric oxide, Sulphur trioxide, Oxygen</p>																
15	<p>Barium chloride on reacting with ammonium sulphate forms barium sulphate and ammonium chloride. Which of the following correctly represents the type of the reaction involved?</p> <p>(i) Displacement reaction (ii) Precipitation reaction (iii) Combination reaction (iv) Double displacement reaction</p> <p>(a) Only (i) (b) Only (ii) (c) Only (iv) (d) Both(ii) & (iv)</p>	1															
16	<p>The following reaction is used for the preparation of oxygen gas in the laboratory:</p> $2\text{KClO}_3(\text{s}) \xrightarrow{\text{Heat}} 2\text{KCl} + 3\text{O}_2(\text{g})$ <p>Which of the following statement about the reaction is correct?</p> <p>(a) It is a decomposition reaction and endothermic in nature. (b) It is a combination reaction. (c) It is a decomposition reaction and accompanied by release of heat. (d) It is a photochemical decomposition reaction and exothermic in nature.</p>	1															
17	<p>Assertion: White silver chloride turns grey in sunlight. Reason: Decomposition of silver chloride in presence of sunlight takes place to form silver metal and chlorine gas.</p>	1															
18	<p>Assertion: Chemical reaction changes the physical and chemical state of a substance. Reason: When electric current is passed through water (liquid), it decomposes to produce hydrogen and oxygen gases.</p>	1															
19	<p>Assertion: Phenolphthalein gives pink colour in basic solution. Reason: Phenolphthalein is a natural indicator.</p>	1															
20	<p>In the reaction of Carbon with Lead oxide</p> $2\text{PbO} + \text{C} \rightarrow 2\text{Pb} + \text{CO}_2$ <p>Which option in the given table correctly represents the substance oxidised and the reducing agent?</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Option</th> <th>Substance Oxidized</th> <th>Reducing Agent</th> </tr> </thead> <tbody> <tr> <td>(a)</td> <td>C</td> <td>C</td> </tr> <tr> <td>(b)</td> <td>PbO</td> <td>PbO</td> </tr> <tr> <td>(c)</td> <td>C</td> <td>PbO</td> </tr> <tr> <td>(d)</td> <td>PbO</td> <td>C</td> </tr> </tbody> </table>	Option	Substance Oxidized	Reducing Agent	(a)	C	C	(b)	PbO	PbO	(c)	C	PbO	(d)	PbO	C	1
Option	Substance Oxidized	Reducing Agent															
(a)	C	C															
(b)	PbO	PbO															
(c)	C	PbO															
(d)	PbO	C															
21	<p>Sodium metal reacts with water to form sodium hydroxide solution and hydrogen gas. Select the correct balanced equation for the reaction, including state symbols.</p>	1															

	a) $2\text{Na(s)} + 2\text{H}_2\text{O(l)} \rightarrow 2\text{NaOH(aq)} + \text{H}_2\text{(g)}$ b) $2\text{Na(g)} + 2\text{H}_2\text{O(l)} \rightarrow 2\text{NaOH(aq)} + \text{H}_2\text{(g)}$ c) $4\text{Na(s)} + \text{H}_2\text{O(l)} \rightarrow 2\text{NaOH(aq)} + \text{H}_2\text{(g)}$ d) $2\text{Na(s)} + 2\text{H}_2\text{O(l)} \rightarrow \text{NaOH(aq)} + 4\text{H}_2\text{(g)}$	
22	A student dropped a few pieces of marble in dilute hydrochloric acid contained in a test tube. Select the balanced equation for the reaction. a) $\text{CaCO}_3\text{(s)} + 2\text{HCl(aq)} \rightarrow \text{CaCl}_2\text{(aq)} + \text{CO}_2\text{(g)} + \text{H}_2\text{O(l)}$ b) $\text{CaCO}_3\text{(s)} + 2\text{HCl(aq)} \rightarrow \text{CaCl}_2\text{(aq)} + \text{CO}_2\text{(g)}$ c) $\text{CaCO}_3\text{(s)} + 2\text{HCl(aq)} \rightarrow \text{CaCl}_2\text{(aq)} + \text{H}_2\text{O(l)}$ d) $\text{CaCO}_3\text{(s)} + \text{HCl(aq)} \rightarrow \text{CaCl}_2\text{(aq)} + 2\text{CO}_2\text{(g)} + \text{H}_2\text{O(l)}$	1
	As a measurement of the acidity or alkalinity of a substance, pH is a very important tool for assessing its physical characteristics. But while the necessity of pH measurement is somewhat obvious in an industrial setting, its relevance to environmental matters might be not quite so clear. However, if effluents from industry are allowed to infiltrate natural bodies of water or soils, they can have a hugely detrimental impact on the plants and animals which live in those ecosystems. pH is a measurement of a substance's acidic levels. Running from a scale of 0 to 14, 7 is deemed to be neutral, while anything below that is acidic and anything above it alkali. The name pH comes from the "power of hydrogen", since the pH rating that a substance is given will depend upon the concentration of hydrogen ions in that substance. The more hydrogen ions, the lower the pH levels – and vice versa.	
23	On putting a few drops of a liquid on a pH strip, the colour of pH strip changed to green. The liquid is most probably a) Lemon juice b) Dil.HCl c) NaOH solution d) Water.	1
24	A few drops of liquid X were added to distilled water. It was observed that the pH of water is decreased .The liquid X is a) Lemon juice b) Sugar solution c) Common salt solution d) Baking soda solution	1
25	Which of the following gives the correct increasing order of acidic strength? (a) Water < Acetic acid < Hydrochloric acid (b) Water < Hydrochloric acid < Acetic acid (c) Acetic acid < Water < Hydrochloric acid (d) Hydrochloric acid < Water < Acetic acid	1
26	Fresh milk has a pH of 6. When it changes in to curd, its pH value -- ----- a) Increases b) Decreases	1

	<p>c) No change d) None of the above</p>	
27	<p>The graph given below depicts a neutralisation reaction (acid + alkali \rightarrow salt + water). The pH of a solution changes as we add excess of acid to an alkali.</p> <p>Which letter denotes the area of the graph where both acid and salt are present?</p> <p>a) A b) B c) C d) D</p>	1
BIOLOGY		
28	<p>Which of the following is not a characteristic of good respiratory surface?</p> <p>(a) Thin and moist (b) Large surface area (c) Close to oxygen and gas transport (d) Thick and dry surface</p>	1
29	<p>Carefully observe the randomly arranged different stages of Holozoic nutrition in Amoeba. Which of the following would you select as the correct sequence of these stages?</p> <p>(a) A, B, C, D, E (b) B, C, D, E, A (c) D, C, E, A, B (d) A, D, C, E, B</p>	1
30	<p>Which of the following is not a digestive enzyme contained in the pancreatic juice?</p> <p>i. Lipase ii. Hydrochloric acid iii. Mucus</p>	1

	<p>iv. Trypsin</p> <p>a) (i) and (ii)</p> <p>b) (i) and (iv)</p> <p>c) (ii) and (iii)</p> <p>d) (i) and (iii)</p>	
31	<p>The vein which brings clean blood from the lungs into the heart is known as:</p> <p>a) Pulmonary vein</p> <p>b) Hepatic vein</p> <p>c) Superior vena cava</p> <p>d) Pulmonary artery</p>	1
32	<p>In the figure given below, the structures associated with human kidneys are marked as A, B and C. The relative concentrations of urea in these structures is</p>  <p>a) C is sometimes higher than A</p> <p>b) B is always higher than C</p> <p>c) A is always higher than C</p> <p>d) A is always lower than both B and C</p>	1
33	<p>Assertion: Transpiration is a necessary evil.</p> <p>Reason: Transpiration causes loss of water but it also helps in transportation of water and minerals.</p>	1
34	<p>Assertion: In humans, haemoglobin is a respiratory pigment.</p> <p>Reason: Haemoglobin is a type of protein, which has high affinity with carbon dioxide.</p>	1
35	<p>Assertion: When air is passed through freshly prepared lime water, it turns milky.</p> <p>Reason: Air contains 78% of nitrogen and 21% of oxygen.</p>	1
	<p>A double-walled sac called the pericardium encases the heart, which serves to protect the heart and anchor it inside the chest. Between the outer layer, the parietal pericardium, and the inner layer, the serous pericardium, runs pericardial fluid, which lubricates the heart during contractions and movements of the lungs and diaphragm.</p>	

	<p>The heart's outer wall consists of three layers. The outermost wall layer, or epicardium, is the inner wall of the pericardium. The middle layer, or myocardium, contains the muscle that contracts. The inner layer, or endocardium, is the lining that contacts the blood.</p> <p>The tricuspid valve and the mitral valve make up the atrioventricular (AV) valves, which connect the atria and the ventricles. The pulmonary semi-lunar valve separates the right ventricle from the pulmonary artery, and the aortic valve separates the left ventricle from the aorta. The heartstrings, or chordae tendineae, anchor the valves to heart muscles.</p>	
36	<p>The function of pericardium is –</p> <p>a) Protection and lubrication b) Anchorage and protection c) Protection and contraction d) Anchorage and secretion</p>	1
37	<p>The heart's outer wall consists of –</p> <p>a) pericardium, myocardium and endocardium b) Epicardium, pericardium and endocardium c) Epicardium, myocardium and endocardium d) Epicardium, myocardium and endocardium</p>	1
38	<p>The Atrioventricular (AV) valves comprise of –</p> <p>a) Bicuspid valve and the Mitral valve b) Aortic valve and the Mitral valve c) Tricuspid valve and the Mitral valve d) Tricuspid and the pulmonary valve</p>	1
39	<p>The lining of the outer wall, that is in contact with the blood is –</p> <p>a) Endocardium b) Myocardium c) Epicardium d) Pericardium</p>	1
40	<p>What anchors the valves of the heart to the muscles of the heart?</p> <p>a) parietal pericardium b) serous pericardium c) aortic valve d) chordae tendineae</p>	1

DEPARTMENT OF SCIENCE

Class-X-2021-22

MIDTERM ANSWER KEY

SET II

1	2	3	4	5	6
b	c	c	a	b	d
7	8	9	10	11	12
d	a	d	b	c	a
13	14	15	16	17	18
b	a	d	a	a	b
19	20	21	22	23	24
c	a	a	a	d	a
25	26	27	28	29	30
a	b	d	d	c	c
31	32	33	34	35	36
a	c	a	c	b	b
37	38	39	40		
c	c	a	d		

CHECKED BY : HOD – SCIENCE