SCIENCE & TECHNOLOGY

M.M. : 80

CLASS-VIII

ANNUAL EXAMINATION (FEB.-MAR. 2022)

Marking Scheme/Hints to Solution

Note : Any other relevant answer, not given herein but given by the candidate, be suitably awarded.

S. No.	Value Points/Key Points	Marks Allotted to each value point/key point	Total Marks
	Section-A		
1.	Water lowers down the ignition temperature and helps to extinguish the fire.	1	1
	OR		
	Ignition temperature of green leaves is higher than dry leaves (due to presence of moisture) so they catch fire with difficulty.	1	
2.	Melamine can tolerate heat better / fire resistant so it is used for making kitchenware.	1	1
3.	False	1	1
4.	Violet colour of light travels with minimum speed and red colour travels with maximum speed.	1	1
5.	Towel, dry marble floor, wet marble floor.	1	1
6.	This is because the force of friction (between the shoes and the ground) increases with the help of spikes.	1	1
	OR		

	Friction depends on nature of the surface in contact / force pressing two surfaces together.		
7.	Streamlined shape helps to reduce the fluid friction / to increase the speed of the body moving through fluid.	1	1
8.	Principle – Electromagnetic induction (E.M.I.) In 1831	½+½	1
9.	Oxygen gas – anode / positive electrode Hydrogen gas – Cathode / negative electrode	½+½	1
	OR		
	Chemical energy is transformed into electrical energy.	1	
10.	Bacteria – Clostridium / staphylococci Fungus – Aspergilus	½+½	1
11.	The disagreeable odour or taste due to decomposition of oils or fats is called rancidity.	1	1
12.	Ringworm / Athetes foot	1	1
	OR		
	Microorganisms produce ethanol by fermentation of sugars. / methane gas in biogas reactors.	1	
13.	X – Viviparous animal	1	1
14.	(iii) Assertion is true but reason is false.	1	1

15.	(iv) Assertion is false but Reason is true.	1	1
	OR		
	(iv) Assertion is false but Reason is true.	1	
16.	(i) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.	1	1
	Case-Study Based Questions		
17.	1. (c) testosterone	1	4
	2. (c) male	1	
	3. (b) Metamorphosis	1	
	4. (a) one X and one Y	1	
	5. (b) Oil glands during puberty (Any four)	1	
18.	1. (d) Nylon	1	4
	2. (d) monomers	1	
	3. (c) PVC	1	
	4. (d) Non-biodegradable	1	
	5. (a) Reduce, Reuse, Recycle, Recover (Any four)	1	
19.	1. (a) frequency	1	4
	2. (c) 60 vibrations per minute	1	
	3. (c) Noise pollution	1	
	4. (c) Sound travel faster in air, slower in iron	1	
	5. (c) vocal cords (any four)	1	

20.	1. (c) Retina	1	4
	2. (b) behind the retina	1	
	3. (c) The lens becomes thicker or thinner according to the position of the object	1	
	4. (b) lens	1	
	5. (c) Real and inverted	1	
	(Any four)		
	Section-B		
21.	1. Tissues	½×4	2
	2. Nucleoplasm		
	3. Chloroplast		
	4. Cell membrane		
	OR		
	1. Due to presence of cell wall	1	
	2. Because the majority of the cells are too small to be seen by the naked eyes.	1	
22.	(a) protozoan	½×4	2
	(b) soil		
	(c) typhoid / cholera		
	(d) virus		
23.	On the basis of occurrence	½+½	
	1. Natural sources		
	2. Synthetic sources		2
	On the basis of availability	½+½	
	1. renewable sources		
	2. non-renewable sources		

24.	• They can be transported easily through a pipeline. • They can be lighted quickly. • They have high calorific value. • Their combustion can readily be controlled. • They burn without any smoke and ash. (any 2 points)	1 1	2
25.	Advantages of the friction (any one) (a) Due to friction, we are able to walk. (b) We are able to write because of the friction between the tip of the pen and paper. (any other relevant point) Disadvantages of friction (any one) (a) Because of friction, the tyres and soles of shoes wear out. (b) Friction produces heat between different parts of the machines. This can damage the machines. (any other relevant point)	1+1	2
26.	1. Shape 2. Muscular / contact force 3. Friction 4. Opposite **OR**	½×4	2

Balanced force	Unbalanced force
The forces acting on an object that are equal in magnitude and opposite in direction are called balanced forces.	The forces acting on an object that are unequal in magnitude are called unbalanced forces.
Net force acting on the object is zero.	Net force acting on the object is non-zero.
There is no change in state of the object.	There is change in state of the object.

1+1

(any 2)

Section-C

27. Structure of nucleus–

- The nucleus is a dense structure bound by a nuclear membrane. 1
- The protoplasm of the nucleus is called nucleoplasm. 1
- It has thread like network called chromatin. 1 3

28. (a) 1. sodium / potassium ½+½ 3

2. oxygen

(b) 1. Zinc is less reactive than calcium, because of which it is unable to displace Ca from $CaSO_4$ hence no reaction takes place. ½+½

2. Magnesium is more reactive than Copper hence it displaces copper from Copper Sulphate to form Magnesium Sulphate. So, reaction takes place.

OR

	(a) 1. Gunmetal	½	
	2. Iodine	½	
	(b) Mestallurgy – The sequence of processes used to extract a metal in its pure form from its ore is called metallurgy.	1	
	Steps involved (any 2)		
	Concentration of ore / Reduction / Refining of metal	½+½	
29/	(a) sebum	½×6	3
	(b) Testosterone		
	(c) sex chromosomes		
	(d) Insulin		
	(e) menarche		
	(f) Uterus		
30.	Types of coal– Peat / Lignite / Bituminous / Anthracite (any 2)	½+½	3
	Various types of coal differ from each other due to–		
	(a) the content of volatile material	1	
	(b) percentage of carbon, moisture and other elements.	1	
31.	Non-Luminous Zone : It posses the highest temperature among all the zones. The colour of this zone is blue.	1	
	Luminous zone : The temperature in this zone is moderate hot. The colour of this zone is yellow.	1	3
	Dark zone : The temperature of this zone is least hot. It is black in colour.	1	

32.

	Electrode connected to positive terminal battery/anode	Electrode connected to negative terminal of the battery/cathode		
Electrolysis of water	Graphite	Graphite	1	3
Electroplating of copper on zinc	Copper	Zinc	1	
Electric refining of copper	Impure copper	Pure copper	1	

33. (a) Blunt blades have larger area compared to the sharp-edged blades, so the applied force produces a lower pressure in case of blunt blades. ½+½

(b) The pressure inside our body is same as that of the external air pressure. Therefore, we do not experience its effect. ½+½ 3

(c) As pressure of liquid increases with the increasing depth so specially designed suits protect scuba divers from the huge pressure of the water underneath. ½+½

Section-D

34. (a) External fertilization and external development– frogs ½×6 5

Internal fertilization and external development – hen

Internal fertilization and internal development – human beings

(b) 1. Uterus – Attachment of growing embryo takes place to the walls of uterus. 1

2. Ovaries – They control the production of ova / responsible for production of estrogen and progesterone. 1

OR

(a) Asexual reproduction– the production of young ones by a single parent without the formation and fusion of gametes is called asexual reproduction. 1

1. Plasmodium – multiple fission ½×4
2. Bacteria – binary fission
3. Yeast – budding
4. Amoeba – binary fission

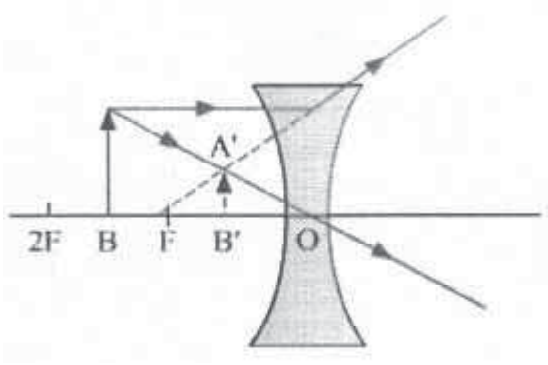
(b) 1. Zygote contains nuclear part of the father and of the mother that is why a child has some characteristics of the father and some characteristics of the mother. 1

2. The fertilization in human females is known as internal fertilization as fusion of sperm and ovum/fertilization takes place inside the body of female. 1

35.

Property	Metal	Non-metal	
Reaction with water	Metals react with water to liberate hydrogen gas.	Non-metals do not react with water.	1
Reaction with acid	Most metals react with acid to form metal salt and hydrogen gas.	Non-metals generally do not react with acids.	1
Reaction with oxygen	Metals react with oxygen to form metallic/ basic oxide.	Non-metals react with oxygen to form non metallic/ acidic oxide.	1
Sonorosity	Metals are sonorous.	Non-metals are non-sonorous.	1
Tensile strength	Metals have high tensile strength.	Non-metals do not have tensile strength.	1

5

36.	(a) 1. Medium Y is optically denser.	½	
	2. The light will bend more in medium Y.	½	
	3. The speed of light decreases as it goes from X to Y.	½	
	4. The ray of light bends away from normal while going from medium Y to medium X.	½	5
	(b) 	2	
	Note :		
	½ for drawing (concave lens, P, F and C)		
	½ for correct formation & position of object and image		
	½ for putting arrows		
	½ for drawing light rays		
	Nature of image – virtual and erect	½×2	
	Size of image – diminished		
	Alternative question for visually challenged students		
	1. The optical centre of a lens is the point on its principal axis through which a ray of light can pass without deviation.	1½	
	2. The line joining the centres of the two spheres C_1–C_2 of which the lenses form a part is called the principal axis of the lens.	1½	
	OR		

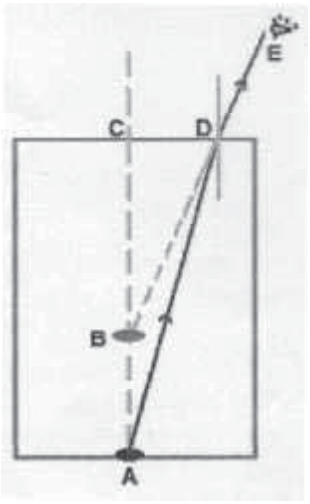
(a)

Concave Lens	Convex Lens
It is thinner in the middle and thicker at the edges.	A converging (convex) lens is thicker in the middle and thinner at the edges.
Image formed is always virtual in nature.	Nature of the image depends on where the object is placed.

1×2

(b) Let there be a coin at the bottom of a beaker filled with water. Now, rays of light from point A on the coin will bend away from the normal as they emerge from a denser medium to a lighter medium i.e. from water to air. These rays will then appear to have came from the point B that is exactly above A. Thus, B is the virtual image of A. 1½

In the same way, each point on the dipped coin will have a corresponding virtual image above it. Due to this phenomenon, the coin appears at a point higher than where it actually placed.



1½

- Note – Drawing of correct ray diagram with proper direction of light rays is for half mark.
- Minimum two labellings are required and each labelling is for half mark.
- If direction of ray of light is not marked and there is correct diagram with two labellings then half mark should be deducted.

Alternative question for visually challenged students

1.	Dispersion – the phenomenon of splitting of white light into its seven constituent colors after passing through a prism is called dispersion.	1
2.	Speed of light in air : 3 lakh km/s	1
	Speed of light in glass : 2 lakh km/s	1