

**SSLC HALF YEARLY EXAMINATION 2018 - 19**

**SCIENCE - KEY ANSWERS**

TIME ALLOWED : 2 ½ Hrs

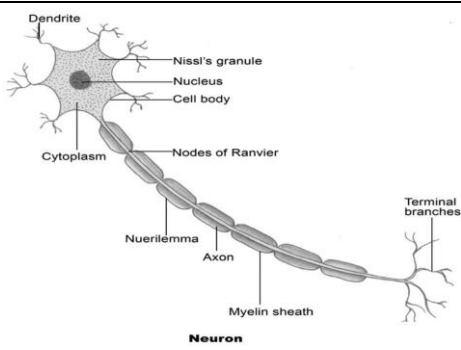
MAX. MARKS : 75

**SECTION – I**

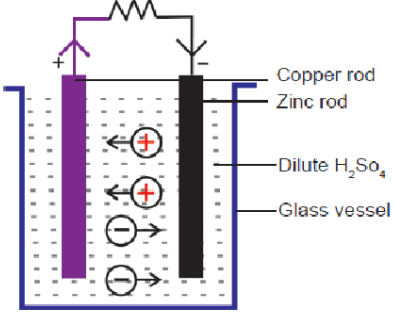
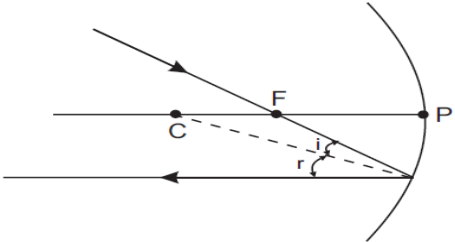
CHOOSE THE CORRECT ANSWER

Q.No.	ANSWER	MARK	Q.No.	ANSWER	MARK
1	a.Africa	1	9	b. Lactic Acid	1
2	c.Virus	1	10	b. stainless steel	1
3	c.Thyroid Gland	1	11	a. CH <sub>2</sub>	1
4	d.Sexual Reproduction	1	12	a. Positive	1
5	a.Incisors	1	13	c. Force	1
6	a.Transport of water	1	14	d. Coal	1
7	b.Compact Fluorescent Light	1	15	c. Iris (ciliary muscles)	1
8	a.Helium -Oxygen	1			

**SECTION –II – ( 40 MARKS )**

Q.No.	Answer	Division of mark	Total mark
16	i. Vaccine - Microbes ii. Natural Gas - Fuel iii. Citric Acid - Organic acids iv. Monoclonal Antibodies - Medicines v. Vitamins - Metabolism	2	2
17.	Phenotype : Expression of morphological characters as tall or dwarf plant, violet or white flower is called Phenotype. Genotype : The expression of gene (or genetic make up) of an individual for a particular trait is called Genotype.	1 1	2
18.	a) <b>Amylase</b> is derived from amyloproteins of bacteria. b) Insulin dependent diabetes is caused by the degeneration of beta cells of <b>pancreas</b> due to a defective gene.	1 1	2
19.	<b>DPT</b> is known as Triple Antigen. The three diseases which, can be prevented by using triple antigen are 1. Diphtheria, 2. Pertussis and 3. Tetanus	½ ½ ½ ½	2
20.	Neuron 	Diagram 1 Parts 1	2
21.	The mesocarp of coconut is fibrous and helps in dispersal of the fruit by water (Hydrochory) It helps the fruit to float in water and easily carried away by water currents.	2	2
22.	Whales -Limbs Polar Bear - Thick Skin Kangaroo - Abdominal Pouch Herbivorous Mammals - Cellulose	½ ½ ½ ½	2
23.	Red blood cells are without nuclei. <u>The advantage of Non-Nucleated condition of RBCs.:</u> RBCs contain the red pigments haemoglobin which helps in carrying oxygen throughout the body. As an adaptation to accommodate greater amount of Haemoglobin, RBCs do not have nucleus.	½ 1½	2
24.	ii) Kidneys maintain the chemical composition of blood. Reason: The principal excretory organs of our body are the kidneys. Kidneys remove nitrogenous waste products such as urea, uric acid, creative etc from the blood. Thus they maintain the chemical composition of the blood. So kidneys are called master chemistry of our body	½ 1½	2

25.	a) Normally, in a healthy adult, the initial filtrate in the kidneys is about <b>180 L</b> daily. b) However, the volume actually excreted is only <b>a litre or two</b> per day	1 1	2																		
26.	a) When air is blown from mouth into a test tube containing lime water the lime water turns milky due to <b>Carbon di oxide</b> . b) During respiration exchange of gases takes place in <b>alveoli</b> .	1 1	2																		
27.	If we touch the touch-me-not plant at one point, all the leaflets show the folding movement. This indicates that the stimulus at one point is communicated. The folding effect of touch-me-not plant is caused by a change in the turgidity of the leaflets brought about by the movement of water into and out of the parenchymatous cells of the pulvinus or swollen leaf base.	2	2																		
28.	If grasses are removed from the grass land eco-system, there will be no food for organisms of primary consumers. Consequently, it will affect the secondary consumers and tertiary consumers. Removal of any organism from the ecosystem will disturb the balance in nature.	2	2																		
29.	a) Petroleum fuel is used in the production of fertilizers. b) The composition of natural gas is chiefly methane (> 90%) with traces of ethane and propane.	1 1	2																		
30.	<b>Bioremediation</b> is a technique which is used to clean up the environment using microorganisms. <b>Nitrosomonas europaea</b> can be used to treat sewage, freshwater, walls of buildings and the surface of monuments especially in polluted areas.	2	2																		
31.	<b>Wind energy is better than solar energy and atomic energy because</b> 1. Cost of fuel is negligible. 2. Wind energy is a green energy source and does not cause pollution. 3. Wind turbines can be built on existing farms or ranches. 4. Wind power is renewable and there is no way we can run out of it. 5. No emission of radiations and other side effects.	½ 1½	2																		
32.	<table border="0"> <thead> <tr> <th>Example</th> <th>Dispersed phase</th> <th>Dispersed medium</th> </tr> </thead> <tbody> <tr> <td>-----</td> <td>-----</td> <td>-----</td> </tr> <tr> <td>Cheese</td> <td>liquid</td> <td>Solid</td> </tr> <tr> <td>Soda water</td> <td>Gas</td> <td>liquid</td> </tr> <tr> <td>Smoke</td> <td>Solid</td> <td>Gas</td> </tr> <tr> <td>Sugar solution</td> <td>Solid</td> <td>Liquid</td> </tr> </tbody> </table>	Example	Dispersed phase	Dispersed medium	-----	-----	-----	Cheese	liquid	Solid	Soda water	Gas	liquid	Smoke	Solid	Gas	Sugar solution	Solid	Liquid	½ ½ ½ ½	2
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34.	<p style="text-align: center;"><b>GMM OF O<sub>2</sub></b></p> <p><b>GMV OF O<sub>2</sub></b> = <math>\frac{\text{-----}}{\text{DENSITY OF O}_2}</math></p> <p><b>Given,</b></p> <p style="padding-left: 40px;"><b>GMM OF O<sub>2</sub></b> = 32 g</p> <p style="padding-left: 40px;"><b>DENSITY OF O<sub>2</sub></b> = 1.429 g/ lit</p> <p style="padding-left: 40px;">32 g</p> <p><b>GMV OF O<sub>2</sub></b> = <math>\frac{\text{-----}}{1.429 \text{ g/ lit}}</math></p> <p style="padding-left: 40px;"><b>= 22.4 g/ lit</b></p>	1 1	2																		
35.	*Iron is more reactive than copper Fe + CuSO <sub>4</sub> -----→ FeSO <sub>4</sub> + Cu *In this displacement reaction, Iron displaces copper from CuSO <sub>4</sub> Solution. *Hence blue colour of the copper sulphate solution changes into green colour and the iron nail acquires a brownish colour	½ ½ ½ ½	2																		
36.	1) Powdered magnesium offers large surface area for the reaction to occur at a faster rate 2) Copper Sulphate acts as catalyst by altering the rate of the reaction without undergoing any change in mass	1 1	2																		
37.	1) Pig Iron is used in making pipes , stoves, radiators, railings, man hole covers and drain pipes 2) Steel is used in the construction of buildings, machinery, transmission and TV towers and in making alloys	1 1	2																		

38.	Assertion and reason are correct and relevant to each other	2	2
39.	i) Free of electrons ii) Vander Waals force	2	2
40.	Mass of Shopping cart (m) = 65 Kg Acceleration = $0.3 \text{ ms}^{-2}$ Force = ma Force exerted on the cart = $65 \times 0.3$ = $19.5 \text{ N}$ or $\text{Kg ms}^{-2}$	1 1	2
41.	Positive, Negative	1 + 1	2
42.	MATCH THE FOLLOWING 1. Electric current ----- Ampere 2. Potential difference ----- Volt 3. Resistor ----- Ohm 4. Electric charge ----- Coulomb	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	2
43.	Diagram:  1. Zinc rod 2. Dilute sulphuric acid 3. copper rod 4. Glass vessel	1 1	2
44.	1. Some well-known alternative fuels such as Bio diesel, bio alcohol, fuel cells, hydrogen and non- fossil natural gas can be used. 2. Solar energy, wind energy, ocean thermal energy and bio mass can also be used	1 1	2
45.	a) The band of the coloured component of a light beam is called spectrum b) VIBGYOR (i.e., Violet, Indigo, Blue, Green, Yellow, Orange and Red)	1 1	2
46.	1. Due to refraction 2. No change in direction.( It bend and goes in same direction)	1 1	2
47.	Ray diagram:  b. A ray passes through the principal focus of a concave mirror, after reflection will emerge parallel to the principal axis.	1 1	2

SECTION – III ( 20 MARKS)

Q.No.	Answer	Division of mark	Total mark
48.	<b><u>i. The effects of hand washing.</u></b> 1. It minimizes the growth of harmful bacteria and virus. 2. It limits the spread of infectious microbes. 3. It prevents the entry of disease causing germs into the body. <b><u>ii. The occasions in which we wash our hands.</u></b> 1. Before and after the food. 2. After using the toilet. 3. If we touch fomites of diseased person. 4. After playing and 5. After disposing sanitary products and garbage.	2 3	5
49.	The brain is the central information processing organ and acts as the command and control system. The human brain as in the case of other vertebrates, is divided into three major parts: a) Forebrain	1	5



51.	<p>a) <b>Harmful effect of human being on Ecosystem</b> : Human impact on the environment or anthropogenic impact on the environment includes changes to biophysical environments and ecosystems, biodiversity, and natural resources caused directly or indirectly by humans, including global warming, environmental degradation (such as ocean acidification), mass extinction and biodiversity loss, ecological crisis, and ecological collapse. The CO<sub>2</sub> emissions that come from burning fossil fuels are affecting the planet's ecosystem. The increase of CO<sub>2</sub> in the atmosphere traps heat that would otherwise escape into space, increasing the Earth's overall temperature.</p> <p>b) <b>Corrected food chains:</b>  i) Grass → Grasshopper → Frog → Snake → Eagle  ii) Algae → Small animals → Fish → Big Fish  c) The term global village was coined by <b>Marshall McLuhan</b>.</p>	2  2  1	5
52.	<p><b>Isotopes: These are the atoms of same element with same atomic number but different mass number.</b>  <b>Eg: <math>^{35}_{17}\text{Cl}</math>, <math>^{37}_{17}\text{Cl}</math></b>  <b>Applications of Avogadro's law</b></p> <ol style="list-style-type: none"> <li>1. It is used to determine the atomicity of gases</li> <li>2. It is helpful in determining the molecular formula of gaseous compounds</li> <li>3. It establishes the relationship between the vapour density and molecular mass of a gas</li> <li>4. It gives the value of molar volume of gases at STP. Molar volume of a gas at STP = 22.4 litres or 22400 cm<sup>3</sup></li> <li>5. It explains Gay Lussac's law effectively</li> </ol>	1  3 (Any 3)	5
53.	<p><b>Characteristics of Homologous series</b></p> <ol style="list-style-type: none"> <li>1. Each member of the series differs from the preceding or succeeding member by a common difference of CH<sub>2</sub> and by a molecular mass of 14 amu (amu = atomic mass unit).</li> <li>2. All members of each homologous series contain same elements and same functional groups.</li> <li>3. All members of each homologous series have same general molecular formula.  e.g. Alkane = C<sub>n</sub>H<sub>2n + 2</sub>  Alkene = C<sub>n</sub>H<sub>2n</sub>  Alkyne = C<sub>n</sub>H<sub>2n - 2</sub></li> <li>4. The members in each homologous series show a regular gradation in their physical properties with respect to increase in molecular mass.</li> <li>5. The chemical properties of the members of each homologous series are similar.</li> <li>6. All members of each homologous series can be prepared by using same general method.</li> </ol>	Any 5 points 5 marks	5
54.	<p>*The discovery of wide-spread presence of water molecules in lunar soil.</p> <ul style="list-style-type: none"> <li>• Chandrayaan's Moon Mineralogy Mapper has confirmed that moon was once completely molten.</li> <li>• European Space Agency payload Chandrayaan-1 imaging X-ray spectrometer (CIXS) detected more than two dozen weak solar flares during the mission.</li> <li>• The terrain mapping camera on board Chandrayaan-1 has recorded images of the landing site of the US space-craft Apollo-15, Apollo-11.</li> <li>• It has provided high-resolution spectral data on the mineralogy of the moon.</li> <li>• Lunar Laser Ranging Instrument (LLRI) covered both the Lunar Poles and additional lunar region of interest.</li> <li>• The X-ray signatures of aluminium, magnesium and silicon were picked up by the CIXS X-ray camera.</li> <li>• The Bulgarian payload called Radiation Dose Monitor (RADOM) was activated on the very same day of its launch and worked till the mission ended.</li> <li>• More than 40,000 images have been transmitted by Chandrayaan camera in 75 days.</li> <li>• The Terrain Mapping Camera acquired images of peaks and craters. The moon consists mostly of craters.</li> <li>• Chandrayaan beamed back its first images of the Earth in its entirety.</li> <li>• Chandrayaan-1 has discovered large caves on the lunar surface that can act as human shelter on the moon</li> </ul>	1  1  1  1  1	5

55.

**Ans:**  $h_1 = 5\text{cm}$   $u = -10\text{cm}$   $R = -30\text{cm}$   $R = 2f = f = R/2$ Therefore,  $f = -30/2 = -15\text{cm}$ 

1. Position of the object = between P and F

Nature : virtual , erect

Position of the image : Behind the mirror

Size: Enlarged

$$1/v + 1/u = 1/f$$

$$1/v = 1/f - 1/u$$

$$= 1/f - 1/-10$$

$$= 1/-15 + 1/10$$

$$= 30$$

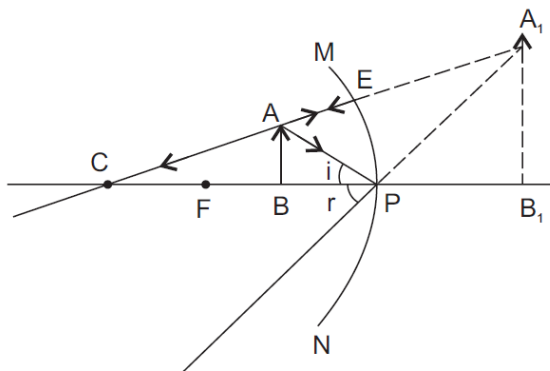
Position of the image is behind the mirror at the distance of 30cm.

Size of the image:

Magnification,  $m = -v/u$ Also  $m = h_2/h_1$ 

$$h_2/h_1 = -v/u$$

$$h_2/5 = -30/-10$$

therefore,  $h_2 = 3(5) = 15\text{ cm.}$ **RAY DIAGRAM:**

1

1

1

1

1

5

PREPARED BY

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