



SHRI VIDHYABHARATHI MAT. HR.SEC.SCHOOL

**SAKKARAMPALAYAM , AGARAM (PO), ELACHIPALAYAM
TIRUCHENGODE(TK), NAMAKKAL (DT) ,PIN-637202**

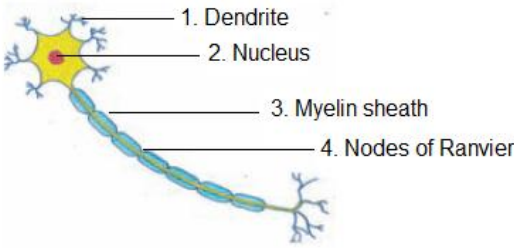
Cell : 99655-31727, 94432-31727

COMMON HALF YEARLY EXAMINATION - DEC- 2018

SSLC - SCIENCE - ANSWER KEY

MARKS : 75

Q.NO	SECTION - I	MARKS
1.	a) Africa	1
2.	c) Virus	1
3.	c) Thyroid gland	1
4.	d)Sexual reproduction	1
5.	a) Incisors	1
6.	a) transport of water	1
7.	b) Compact Fluorescent Light	1
8.	a) Helium-oxygen	1
9.	b) Lactic acid	1
10.	b) Stainless steel	1
11.	a) CH ₂	1
12.	a) Positive	1
13.	c) Force	1
14.	d) Coal	1
15.	a) Crystalline lens	1

Q.NO	SECTION - II	MARKS 20x2=40
16.	a) Vaccine - Microbes b) Natural gas - Fuel c) Citric acid - Organic acid d) Monoclonal antibodies - Medicines e) Vitamins - Metabolism	2
17.	Phenotype: The expression of morphological characters is called Phenotype Example : Plant height : Tall / Dwarf Flower colour : Violet / White Genotype : The expression of gene or genetic makeup of an individual responsible for a particular trait is called Genotype. Example : The gene responsible for tallness = TT (or) Tt The gene responsible for dwarfness = tt	1 1
18.	a) Amylase b) Pancreas	1 1
19.	1. Three kinds of vaccinations produced against bacterial diseases is called triple antigen. 2. It is commonly referred as DPT. Diseases prevented : (DPT) Diphtheria, Pertussis, Tetanus.	1 1
20.		½ ½ ½ ½
21.	The outer coats of coconut are modified to enable them to float. The mesocarp of coconut is fibrous and is easily carried away by water current.	2
22.	Whales - Limbs Polar Bear - Thick skin Kangaroo - Abdominal poucher Herbivorous Mammals - Cellulose	½ ½ ½ ½
23.	Red Blood Cells Advantages : 1. The place of nucleus is occupied by the haemoglobin 2. They are concerned with the carrying of respiratory gases.	1 1
24.	b) Kidneys maintain the chemical composition of blood	2
25.	a) 180 liters b) 1 or 2 liters	1 1
26.	a) (ii) Carbon-di-oxide b) (ii) Alveoli	1 1
27.	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
28.	Removal of grass from grass land would affect both land and water ecosystem as there will be no food for organisms and also disturb the balance in nature.	2

29.	Natural Gas: methane (> 90%) ethane, propane, butane, pentane	2																												
30.	<ul style="list-style-type: none"> ❖ Bioremediation is a technique which is used to clean up the environment using microorganisms. ❖ Nitrosomonas europaea can be used to treat sewage, freshwater, walls of buildings and the surface of monuments especially in polluted areas. 	1 1																												
31.	<ul style="list-style-type: none"> ❖ Wind turbines release of less carbon-di-oxide to the atmosphere, consume less energy. ❖ Wind is a more efficient power source than solar compared to solar panels, atomic energy. ❖ Less green house gas emission. 	1 1																												
32.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">The given</th> <th style="width: 25%;">Dispersed phase</th> <th style="width: 25%;">Dispersion medium</th> </tr> </thead> <tbody> <tr> <td>a) Cheese</td> <td>liquid</td> <td>solid</td> </tr> <tr> <td>b) Soda water</td> <td>gas</td> <td>liquid</td> </tr> <tr> <td>c) Smoke</td> <td>solid</td> <td>gas</td> </tr> <tr> <td>d) Sugar solution</td> <td>solid</td> <td>liquid</td> </tr> </tbody> </table>	The given	Dispersed phase	Dispersion medium	a) Cheese	liquid	solid	b) Soda water	gas	liquid	c) Smoke	solid	gas	d) Sugar solution	solid	liquid	1/2 1/2 1/2 1/2													
	The given	Dispersed phase	Dispersion medium																											
	a) Cheese	liquid	solid																											
	b) Soda water	gas	liquid																											
	c) Smoke	solid	gas																											
d) Sugar solution	solid	liquid																												
33.	<p>Difference between true solution and colloidal solution</p> <p>(Any four points)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">S.No.</th> <th style="width: 30%;">Property</th> <th style="width: 30%;">True solution</th> <th style="width: 30%;">Colloidal Solution</th> </tr> </thead> <tbody> <tr> <td>i</td> <td>Particle size in Å</td> <td>1 Å to 10 Å</td> <td>10Å to 2000 Å</td> </tr> <tr> <td>ii</td> <td>Appearance</td> <td>Transparent</td> <td>Translucent</td> </tr> <tr> <td>iii</td> <td>Visibility of particles</td> <td>Not visible even under ultra microscope</td> <td>Visible under ultra microscope</td> </tr> <tr> <td>iv</td> <td>Nature</td> <td>Homogeneous</td> <td>Heterogeneous</td> </tr> <tr> <td>v</td> <td>Diffusion of particles</td> <td>Diffuses rapidly</td> <td>Diffuses slowly</td> </tr> <tr> <td>vi</td> <td>Scattering effect</td> <td>Does not scatter light</td> <td>Scatters light</td> </tr> </tbody> </table>	S.No.	Property	True solution	Colloidal Solution	i	Particle size in Å	1 Å to 10 Å	10Å to 2000 Å	ii	Appearance	Transparent	Translucent	iii	Visibility of particles	Not visible even under ultra microscope	Visible under ultra microscope	iv	Nature	Homogeneous	Heterogeneous	v	Diffusion of particles	Diffuses rapidly	Diffuses slowly	vi	Scattering effect	Does not scatter light	Scatters light	4x 1/2 = 2
S.No.	Property	True solution	Colloidal Solution																											
i	Particle size in Å	1 Å to 10 Å	10Å to 2000 Å																											
ii	Appearance	Transparent	Translucent																											
iii	Visibility of particles	Not visible even under ultra microscope	Visible under ultra microscope																											
iv	Nature	Homogeneous	Heterogeneous																											
v	Diffusion of particles	Diffuses rapidly	Diffuses slowly																											
vi	Scattering effect	Does not scatter light	Scatters light																											
34.	<p>Given:</p> <p>Gram molar mass of oxygen = 32.</p> <p>Density of oxygen = 1.429g/litre.</p> <p>Solution:</p> <p>Gram molar volume = $\frac{\text{molecular mass of Oxygen}}{\text{density of Oxygen}}$</p> <p>∴ Gram molar volume of Oxygen = $\frac{32}{1.429}$</p> <p style="text-align: center;">= 22.4 Litre at STP.</p>	1 1/2 1/2																												
35.	<ul style="list-style-type: none"> ❖ Blue colour of the copper sulphate solution changes into green colour and the iron nail acquires a brownish colour. It is a noticeable change. ❖ Iron is more reactive than copper. ❖ $\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$ ❖ Iron displaces copper from CuSO_4 solution. 	1/2 1/2 1/2 1/2																												
36.	<p>a) Because, powdered magnesium offers a large surface area for the reaction to occur at a faster rate.</p> <p>b) Copper sulphate acts as a catalysts and speeds up the reaction.</p>	1 1																												

37.	<p>(any two points)</p> <p>1. Pig iron is used in making pipes, stoves, radiators, railing, man hole covers and drain pipes.</p> <p>2. Steel is used in the construction of buildings, machinery, transmission and T.V. towers.</p> <p>3. Wrought iron is used in making spring, anchors and electromagnets.</p>	1 1 1
38.	a) Assertion and reason are correct and relevant to each other.	2
39.	a) Graphite is a good conductor of electricity since it has free electrons in it. b) Vander Waals force	1 1
40.	<p>Mass (m) = 65kg Acceleration (a) = 0.3ms⁻² } Force = ? F= m x a F=65x0.3 F=19.5N } </p>	1 1
41.	Positive, Negative	1 1
42.	<p>Match it:</p> <p>a) Electric current - (iv) Ampere b) Potential difference - (i) Volt c) Resistor - (ii) ohm d) Electric charge - (iii) coloumb</p>	1/2 1/2 1/2 1/2
43.	<p>Copper rod 4 1 Zinc rod 2 Dilute H₂SO₄ 3 Glass vessel</p>	1/2 1/2 1/2 1/2
44.	<p>1. Use of alternative energy sources</p> <p>2. In industries, use of electric filters to remove the pollutants.</p> <p>3. Planting of trees</p>	1 1/2 1/2
45.	<p>a) The band of the coloured component of a light beam is called its spectrum.</p> <p>b) Violet, Indigo, Blue, Green, Yellow, Orange and Red</p>	1 1
46.	<p>a) The direction of propagation of light in the second medium changes.</p> <p>b) The direction changes based on the type of medium.</p>	1 1
47.	<p>a) Identify the error and draw the correct ray diagram:</p> <p>b) Write the justification for your corrections: A ray passing through the principal focus of a concave mirror after reflection will emerge parallel to the principal axis.</p>	1 1

Q.NO	SECTION - III	MARKS 4x5=20																				
48	<p>a) Effects of hand washing</p> <ol style="list-style-type: none"> 1. It kills all the germs that causes disease. 2. It prevents the spreading of disease. 3. It helps us to lead a healthy life. <p>b). Frequency in washing our hands :</p> <ol style="list-style-type: none"> 1. Strictly before and after food 2. After using the toilet 3. After playing 4. After visiting public places 	<p style="text-align: center;">3</p> <p style="text-align: center;">2</p>																				
49	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Major parts</th> <th style="width: 25%;">sub divisions</th> <th style="width: 50%;">Functions</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Forebrain</td> <td>Cerebrum</td> <td>Intersensory associations, memory, communication, consciousness, intelligence, imagination reasoning, hearing, speaking, seeing, tasting and smelling</td> </tr> <tr> <td>Thalamus</td> <td>A major conducting centre for sensory and motor signalling</td> </tr> <tr> <td>Hypothalamus</td> <td>Controls body temperature, urge to eat and drink, regulation of sexual behaviour and expresses emotional reactions</td> </tr> <tr> <td>Midbrain</td> <td>Corpora quadrigemina</td> <td>Controls and regulates visual reflexes and optical orientation.</td> </tr> <tr> <td rowspan="3">Hindbrain</td> <td>Cerebellum</td> <td>Regulates and coordinates the group movements of voluntary muscles as in walking or running</td> </tr> <tr> <td>Pons</td> <td>Controls sleep and respiratory centers</td> </tr> <tr> <td>Medulla oblongata</td> <td>Regulation of heart beat, blood vessel contraction, breathing</td> </tr> </tbody> </table>	Major parts	sub divisions	Functions	Forebrain	Cerebrum	Intersensory associations, memory, communication, consciousness, intelligence, imagination reasoning, hearing, speaking, seeing, tasting and smelling	Thalamus	A major conducting centre for sensory and motor signalling	Hypothalamus	Controls body temperature, urge to eat and drink, regulation of sexual behaviour and expresses emotional reactions	Midbrain	Corpora quadrigemina	Controls and regulates visual reflexes and optical orientation.	Hindbrain	Cerebellum	Regulates and coordinates the group movements of voluntary muscles as in walking or running	Pons	Controls sleep and respiratory centers	Medulla oblongata	Regulation of heart beat, blood vessel contraction, breathing	<p style="text-align: center;">1</p> <p style="text-align: center;">½</p> <p style="text-align: center;">½</p> <p style="text-align: center;">1</p> <p style="text-align: center;">1</p> <p style="text-align: center;">½</p> <p style="text-align: center;">½</p>
Major parts	sub divisions	Functions																				
Forebrain	Cerebrum	Intersensory associations, memory, communication, consciousness, intelligence, imagination reasoning, hearing, speaking, seeing, tasting and smelling																				
	Thalamus	A major conducting centre for sensory and motor signalling																				
	Hypothalamus	Controls body temperature, urge to eat and drink, regulation of sexual behaviour and expresses emotional reactions																				
Midbrain	Corpora quadrigemina	Controls and regulates visual reflexes and optical orientation.																				
Hindbrain	Cerebellum	Regulates and coordinates the group movements of voluntary muscles as in walking or running																				
	Pons	Controls sleep and respiratory centers																				
	Medulla oblongata	Regulation of heart beat, blood vessel contraction, breathing																				
50	<p>Asexual reproduction takes place by means of spores.</p> <p>Types:</p> <p>1. Aplanospores:</p> <ul style="list-style-type: none"> ❖ In algae, the protoplast of the vegetative cells contract and produce ovoid bodies surrounded by a thin wall. ❖ These thin walled non-motile spores are called aplanospores. ❖ New filaments are formed by the germination of these spores 	<p style="text-align: center;">1</p> <p style="text-align: center;">1</p>																				

	<p>2. Zoospores:</p> <ul style="list-style-type: none"> ❖ A zoospore is a motile asexual spore that uses a flagellum for locomotion ❖ These spores are created by some algae, bacteria and fungi to propagate themselves. <p>3. Akinetes:</p> <ul style="list-style-type: none"> ❖ In algae, the vegetative cells secrete thick additional wall layers. ❖ During adverse conditions, food materials are filled up in cells. ❖ During favourable conditions they develop into new filaments. <p>4. Conidia:</p> <ul style="list-style-type: none"> ❖ Conidia are uninucleate, non-motile, asexual spores produced by the fungus like penicillium. 	<p>1</p> <p>1</p> <p>1</p>
51	<p>a) removal of trees and vegetation would affect both land and water eco-systems, as there will be no food for organisms. Killing animals and polluting land, air and water also disturb the balance in nature.</p> <p>b) (i) Grass→ Grasshopper→Frog→ Snake→ Eagle (ii) Algae→Small animals→Fish →Big fish</p> <p>c) Marshall McLuhan.</p>	<p>2</p> <p>1</p> <p>1</p> <p>1</p>
52	<p>Isotopes ⇒ These are the atoms of same element with same atomic number (Z) but different mass number (A). Example ($_{17}\text{Cl}^{35},_{17}\text{Cl}^{37}$)</p> <p>Applications of Avogadro's Law</p> <ol style="list-style-type: none"> 1. It is used to determine the atomicity of gases. 2. It is helpful in determining the molecular formula of gaseous compounds. 3. It establishes the relationship between the vapour density and molecular mass of a gas. 4. It gives the value of molar volume of gases at STP. Molar Volume of a gas at STP=22.4 lit (or) 22400 cm³. 5. It explains Gay Lussac's Law effectively. 	<p>2</p> <p>3</p>
53	<p>Characteristics of Homologous series:</p> <ul style="list-style-type: none"> ❖ Each member of the series differs from the preceding or succeeding member by a common difference of CH₂ and by a molecular mass of 14 amu (amu = atomic mass unit). ❖ All members of each homologous series contain same elements and same functional groups. ❖ All members of each homologous series have same general molecular formula. e.g. Alkane = C_nH_{2n+2} Alkene = C_nH_{2n} Alkyne = C_nH_{2n-2} ❖ The members in each homologous series show a regular gradation in their physical properties with respect to increase in molecular mass. ❖ The chemical properties of the members of each homologous series are similar. ❖ All members of each homologous series can be prepared by using same general method. 	<p>½</p> <p>½</p> <p>1</p> <p>1</p> <p>1</p>

54	<p>Chandrayaan Achievements:</p> <ul style="list-style-type: none"> ❖ The discovery of wide-spread presence of water molecules in lunar soil. Chandrayaan's Moon Mineralogy Mapper has confirmed that moon was once completely molten. ❖ The terrain mapping camera on board Chandrayaan-1 has recorded images of the landing site of the US space-craft Apollo-15, Apollo-11. ❖ More than 40,000 images have been transmitted by Chandrayaan camera in 75 days. ❖ The Terrain Mapping Camera acquired images of peaks and craters. The moon consists mostly of craters. ❖ Chandrayaan-1 has discovered large caves on the lunar surface that can act as human shelter on the moon. 	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
55	<p>Height (h_1) = 5cm Object (u) = -10cm Radius of curvature (R) = -30cm</p> <p>$R = 2f$ $f = \frac{R}{2}$ $f = \frac{-30}{2} = -15\text{cm}$</p> <p>Position of the image: $\frac{1}{f} = \frac{1}{v} + \frac{1}{u}$ $\frac{1}{v} = \frac{1}{f} - \frac{1}{u}$ $\frac{1}{v} = \frac{1}{-15} - \frac{1}{-10}$ $\frac{1}{v} = \frac{10 - 15}{-150}$ $\frac{1}{v} = \frac{-5}{-150}$ $\frac{1}{v} = \frac{1}{30}$ $\frac{1}{v} = \frac{1}{30}$ $\frac{1}{1} = \frac{1}{1}$ V=30cm</p> <p>(i) Fin the nature, position and size of the image. Nature : Virtual and erect Size : Enlarged position of the image is behind the mirror at the distance of 30cm size of the image.</p> <p>$m = \frac{h'}{h} = \frac{v}{u}$ $m = \frac{h_2}{h_1} = \frac{v}{u}$ $m = \frac{-v}{u}, m = \frac{h_2}{h_1}$ $\frac{h_2}{h_1} = \frac{-v}{u}$</p>	<p>concave mirror condition: All = (-) h = (+) u, f, r, v = (-)</p> <p>1</p> <p>1</p> <p>concave mirror condition: All = (-) h = (+) u, f, r, v = (-)</p>

$$\frac{h_2}{5} = \frac{-30}{-10}$$

$$\frac{h_2}{5} = 3$$

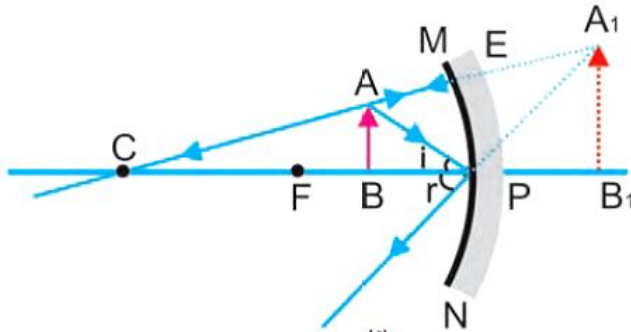
$$\frac{h_2}{5} = 3$$

$$h_2 = 3 \times 5$$

$$h_2 = 15\text{cm}$$

1

(ii) Draw the ray diagram to represent the above case



1

P. SITHESWARAN, M.Sc., B.Ed., P. YUGAMANI, M.Sc., B.Ed.,
G. HARI HARAN M.Sc., B.Ed., M. POONGODI, B.Sc., B.Ed.,

DEPARTMENT OF SCIENCE

SHRI VIDHYABHARATHI MATRIC HR.SEC.SCHOOL

SAKKARAMPALAYAM , AGARAM (PO) ELACHIPALAYAM

TIRUCHENGODE(TK), NAMAKKAL (DT) PIN-637202

Cell : 9585218526, 9688678584

www.nammakalvi.org