SSLC EXAMINATIONS, MARCH/APRIL – 2018
SCIENCE – KEY ANSWER

MAXIMUM MARKS :75

SECTION – I
(Marks : 15)

	Choose the correct answer :	**15x1=15**
1	Buried the dead	1
2	Rabies	1
3	Thyroid gland	1
4	Pollination	1
5	Cat	1
6	Annelids	1
7	Cholera	1
8	Non-aqueous solution	1
9	Malic acid	1
10	Chalcogen family	1
11	Ethyne	1
12	Thin wire	1
13	Four times that of its original value	1
14	Increased	1
15	Magnetic field	1

SECTION – II
(Marks : 40)

Note : Answer any twenty questions: 20x2=40

16 **Punnet square**:

♀ / ♂	R	r
R	RR	Rr
R	Rr	rr

1

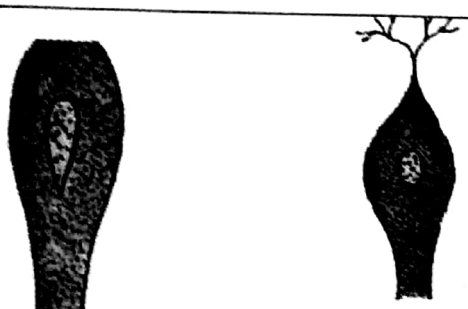
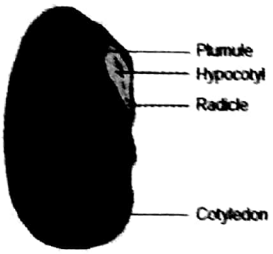
Characteristics of puppies:

- 3 Puppies will bark,
- 1 Puppy will be silent

Genotypic ratio = 1 : 2 : 1 (RR : Rr : rr)
Phenotypic ratio = 3 : 1 (Barking trait : Silent trait)

1

2

17	**Charles Darwin** **Principles** : (Any two) 1. Struggle for existence 2. Survival of the fittest. 3. Variation leads to genetic diversity (Evolution).	1 1/2 + 1/2	2
18	Monoclonal antibodies are the antibodies produced from cloned cells by hybridoma technology. **Uses** : It is used in treatment of cancer.	1 1	2
19	(a) Both (A) and (R) are true and (R) explains (A)		2
20	 a. unipolar b. bipolar	1 +1	2
21	 Diagram – 1 mark Parts – 1 mark		2
22	i). Epidermal Hair ii) Milk producing glands	1 1	2
23	a) Nephrons b) Kidney, Ureter, Urinary bladder, Urethra	1 1	2
24.	a) Heterodont dentition b) Incisors	1 1	2
25.	a) Fermentation b) Yeast	1 1	2
26.	Fishes take in water through their mouth and their gills, where the dissolved oxygen is absorbed by the blood. The amount of dissolved oxygen in the air is low compared to the amount of oxygen in the water. So it cannot survive for long when taken out of water		2
27	a) A- Xylem , B – Phloem b) Transpiration, Root pressure	1 1	2

<table>
<tr><td>28.</td><td>a) Carbon-di-oxide
b) A-Photosynthesis, B-Respiration,
C-Combustion, D-Decomposition</td><td>1
1</td><td>2</td></tr>
<tr><td>29.</td><td>"Energy Management" is a term that has a number of meanings, but we are mainly concerned with the one that relates to saving energy at business, public-sector / government organizations and homes.
(or)
Energy Management is the process of monitoring, controlling and conserving energy in any household or organization.</td><td></td><td>2</td></tr>
<tr><td>30.</td><td>a) Denmark
b) Methane</td><td>1
1</td><td>2</td></tr>
<tr><td>31.</td><td><table><tr><th>Source</th><th>A</th><th>B</th><th>C</th></tr><tr><td>Renewable</td><td>Hydrogen</td><td>Wind</td><td>Solar energy</td></tr><tr><td>Non-Renewable</td><td>Coal</td><td>Natural gas</td><td>Petroleum</td></tr></table></td><td></td><td>2</td></tr>
<tr><td>32.</td><td>Weight in percent = $\frac{Weight\ of\ the\ solute}{Weight\ of\ the\ solute + Weight\ of\ the\ solvent} x\ 100$
$= \frac{30}{30+70} x\ 100 = \frac{30}{100} x\ 100 = 30\ \%$</td><td>1
1</td><td>2</td></tr>
<tr><td>33.</td><td>a) Suspension
b) Opaque
c) Heterogeneous
d) More than 2000 Å</td><td>½ x 4</td><td>2</td></tr>
<tr><td>34.</td><td><table><tr><th>Element</th><th>Atomic mass</th><th>Molecular mass</th><th>Atomicity Number</th></tr><tr><td>Chlorine</td><td>35.5</td><td>71</td><td><u>2</u></td></tr><tr><td>Ozone</td><td><u>16</u></td><td>48</td><td>3</td></tr><tr><td>Sulphur</td><td>32</td><td><u>256</u></td><td>8</td></tr><tr><td>Nitrogen</td><td>14</td><td><u>28</u></td><td>2</td></tr></table></td><td>½ x 4</td><td>2</td></tr>
<tr><td>35.</td><td>Hydrochloric acid – strong acid
Acid which ionise completely in water are called strong acid</td><td>1
1</td><td>2</td></tr>
<tr><td>36.</td><td>a) Acidic in nature – Lemon juice, Tomato juice, Coffee
b) Basic in nature - Household ammonia</td><td>1
1</td><td>2</td></tr>
</table>

37.

	Ore	Formula
a)	Bauxite	$Al_2O_3.2H_2O$
b)	Cuprite	Cu_2O
c)	Haematite	Fe_2O_3
d)	Copper Pyrites	$CuFeS_2$

½ x 4 | 2

38. Yes, the reason satisfy the assertion | | 2

39.
a) Ethanol
b) Ethanol
c)Ethanoic acid
d) Ethanoic acid

½ x 4 | 2

40.
Moment of force = force x perpendicular distance = F x d | 1
For the spanner with a long handle 'd' is large. Therefore, the Moment of force is also large and hence it is easier to rotate the object. | 1 | 2

41

Acceleration due to gravity $g = \frac{GM}{R^2}$ | 1

$= (6.67 \times 10^{-11} \times 104) / 20^2$

$= (693.68 \times 10^{-11}) / 400$

$= 1.7342 \times 10^{-11}$ | 2

$= 1.73 \times 10^{-11}\ ms^{-2}$ | 1

42.

$\frac{1}{Rp} = \frac{1}{3+2} + \frac{1}{30} + \frac{1}{6+4}$ | 1

$= \frac{1}{5} + \frac{1}{30} + \frac{1}{10}$

$= 6 + 1 + \frac{3}{30}$

$= \frac{10}{30}$

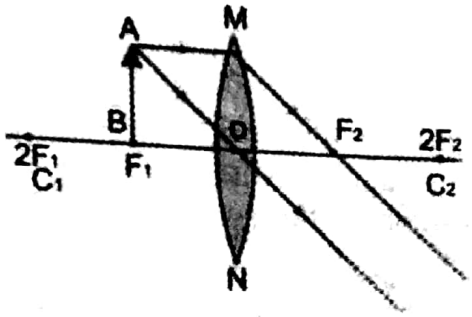
$= \frac{1}{3}$

$= 3\Omega$ (Answer = ½ mark, Unit = ½ mark) | 1 | 2

43.

+ve electrode	Lead acid accumulator	Lead dioxide
- ve electrode	lechlanche	Zinc

1
1 | 2

44.	a) Charge — I x t b) Work done — V x Q c) Heat energy — I^2 x R x T d) Potential difference — R x I			½ x 4	2
45.	a) Electro magnet b) Dioptre			1 1	2
46.					2
47.	Speed of light in air c = 3 x 10^8 m/s Refractive index of kerosene = μ = 1.47 $\mu = \frac{C}{V}$ $1.47 = \frac{3 X10^80\ m/s}{V}$ $v = \frac{3 x10\,8}{1.47}$ = 2.04 x 10^8 m/s			1 1	2

SECTION – III

(Marks : 20)

Note: Answer any four questions by choosing one question from each part			4x5=20
PART -I			
48.	a) Through air	1	
	b).(i) Persistent cough (ii) Loss of body weight (iii) Lungs infection (iv) Infection in bones, joint, lymph glands, alimentary track, liver, kidney, etc. (Any one)	1	
	c) Mycobacterium tuberculosis	1	
	d) Prevention; [Any three] • Keeping oneself healthy and avoiding unsanitary conditions, overcrowding and poor-ventilation. • Sunlight and fresh air are important agents that act as natural disinfectants, readily destroying the germs. • Isolation of the patients and frequent sterilization of articles used by them are also important. • Incineration (burning) of cloth / clothes containing droplets / the sputum of the patients can prevent infection. • Immunization with BCG vaccine is an effective measure to prevent this disease. • The patient should cover his/her mouth and nose while coughing and sneezing.	2	5

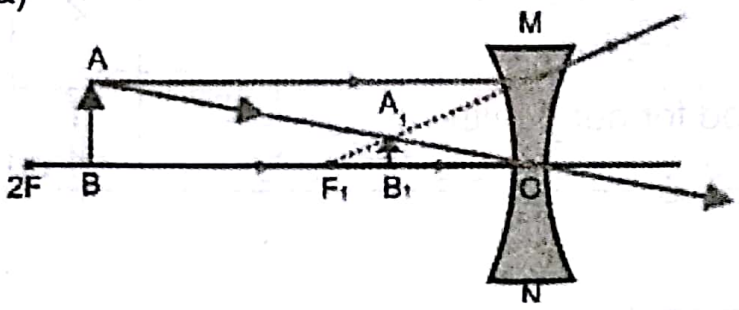
49.	Various parts of the brain Its functions		2 3	5

Major Parts	Sub Divisions	Functions
Fore brain	Cerebrum	Intersensory associations, memory communication, imagination reasoning, hearing, speaking, seeing, tasting, smelling etc
	Thalamus	A major conducting center for sensory and motor signaling
	Hypothalamus	Control body temperature, urge to eat and drink, regulation of sexual behavior, emotional reaction like excitement, anger, fear, pressure and motivation
Mid brain	Corpora Quadrigemina	Control and regulates visual reflexes and optical orientation
Hind brain	Cerebellum	Regulates and coordinates the movements of voluntary muscles as in walking or running
	Pons	It relays the information from the Cerebrum to the Cerebellum, Controls sleep and respiratory centers
	Medulla oblongata	Regulation of heart beat, blood vessel contraction, breathing

	PART – II		
50.	Two events 1. Pollination 2. Fertilization a) First event – Pollination is of two types. They are: 1. Self pollination (Definition) 2. Cross pollination (Definition) b) Advantage and disadvantage	1 2 2	5
51.	• No , this situation is not good for our health • Any four points	1 4	5

	PART – III		
52.	a) 7g of nitrogen Number of moles = $\frac{Given\ mass}{Atomic\ mass}$ = $\frac{7}{14}$ = 0.5 mole b)4.6 g of sodium Number of moles = $\frac{Given mass}{Atomic mass}$ = $\frac{4.6}{23}$ = 0.2 mole c) 40 g Calcium Number of moles = $\frac{Given mass}{Atomic mass}$ = $\frac{40}{40}$ = 1 mole d)14 g Lithium Number of moles = $\frac{Given mass}{Atomic mass}$ = $\frac{14}{7}$ = 2 mole e) 3.2 g sulphur Number of moles = $\frac{Given mass}{Atomic mass}$ = $\frac{3.2}{32}$ = 0.1 mole	1 1 1 1 1	5
53.	1. Organic compound A – Ethyl alcohol (Ethanol)- C_2H_5OH B – Dimethyl ether – CH_3-O-CH_3 2. Ethanol reacts with sodium metal to form Sodium ethoxide and hydrogen gas $2C_2H_5OH + 2\ Na \dashrightarrow 2C_2H_5ONa + H_2$ 3. Ethanol reacts with ethanoic acid in the presence of concentrated H_2SO_4 To form Ethyl ethanoate and water fruity flower $C_2H_5OH + CH_3COOH \xrightarrow{Con H_2SO_4} CH_3COOC_2H_5 + H_2O$ A – Ethyl alcohol (Ethanol)- C_2H_5OH B – Dimethyl ether – CH_3-O-CH_3 C - Ethyl ethanoate - $CH_3COOC_2H_5$	1 1 3	5

PART – IV

54.	Law – In the absence of external unbalanced force the total momentum of a system of objects remain unchanged.	2	
	Diagram	1	5
	Proof	2	
55.	a) 	1	
	To point out F	1	5
	Lens – Concave	1	
	b) Any two uses	2	

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