M.G RAYMOND & JOHNSON PRABHU ST.PAUL'SMAT.HR.SEC. SCHOOL, BLOCK-4, NEYVELI. <u>SSLC QUARTERLY EXAMINATION 2017 – 18</u> <u>SCIENCE - KEY ANSWERS</u>

TIME ALLOWED : 2 ½ Hrs

SECTION – I

MAX. MARKS : 75

CHOOSE	E THE CORRECT ANSWER				
Q.No.	ANSWER	MARK	Q.No.	ANSWER	MARK
1	Changes in the body cell	1	9	Sulphuric acid	1
2	Entamoeba histolytica	1	10	$365.25 \times 24 \times 60 \times 60 \times 3 \times 10^8 \text{ m}$	1
3	Relaxin	1	11	312	1
4	Anemochory	1	12	Spring balance	1
5	Carbon di oxide	1	13	8V	1
6	Colloidal solution	1	14	Electric energy	1
7	Suspension	1	15	Black	1
8	Displacement reaction	1			

SECTION –II – (40 MARKS)

Q.No.		Ans	swer		Division of mark	Total mark		
		Homo habilis			1/2			
		↓ Homo erectus			1/2			
16					72	2		
		Neanderthal man			1/2			
		Homo sapiens			1/2			
	Phenor	type :Expression of morphologica	al cl	naracters as tall or dwarf plant,				
	violet o	or white flower			1			
17.	is calle	d Phenotype.				2		
	Genoty	pe : The expression of gene (or g	gene	tic make up) of an individual for a	1			
	particu	lartrait is called Genotype.			-			
	Ν	Monoclonal antibodies are the an	ntibo	odies produced from cloned	1			
	18. c	ellsbyhybridoma technology.				2		
	Variatia	<u>Uses:</u> Monoclonal antibodies are	e nov	w used in treatment of cancer.	1			
	variatio	In may be defined as differences in $als of the same species (A) Intra s$	n m	e characteristics among the	1			
	different genera (P) Intergeneric variation or among the different species (C)							
	Interspecific variation							
19.	Types o	f Variations				2		
	a. Soma	tic Variation - It pertains to body	y ce	lls and it is not inherited.				
	b. Gern	inal Variation - It pertains to get	erm (cells or gametes and it is	1			
	inherital	ble. It leads to speciation and evol	lutic	on.				
	DPT is	known as Triple Antigen .			1			
20.	The thr	ee diseases which, can be prevent	ted	by using triple antigen are	-	2		
		1.Diphtheria, 2.Pertussis and 3.Te	etar	nus	1			
	Dis	eases that are transmitted by						
		houseflies		Causative pathogens	1			
21.	1.Amoebic dysentery (Amoebiasis)		E	ntamoebahistolytica– a	1	2		
			pr	otozoan parasite	1			
	2.TyphoidSalmonella typhi – Bacte		almonella typhi – Bacteria	Ĩ				
	No.	Night blindness		Colour blindness				
22	1 It is a vitamin deficiency			It is a hereditary or Genetic		2		
	1.	disease.		disorder.	1	-		
	2.	It is caused due to the deficience	cy	It is caused due to defective or				

	of Vitamin A		mutated gene.		
23.	THYROID GLAND VENTRAL VIEW		VOCAL CORD THYROID PARA THYROID TRACHEA	Diagram 1mark Parts 1 mark	2
24.	a) Autochory b) Anemocho c) Hydrochor d) Zoochory	ry 1 y 1	Balsam Tridax Lotus Kanthiun	1/2 1/2 1/2 1/2 1/2	2
25	No.Dry DehisceDehiscent fruits1.at maturity to di seeds.Legume – PeasDuit le Calati	nt Fruits split open sperse the	Dry Indehiscent FruitsIndehiscent fruits do not split open at maturity and the seeds are liberated by the decaying of pericarp.Achene - Clematis,Mirabilis	1	2
23.	2. (a)Septicidal cap Cotton (b) Loculicidal c Lady's finger	opis psule – capsule -	Caryopsis – Paddy Cypsela – Tridax Nut - Cashew nut	1	2
26.	Germination of Pollen Grain		Exine Tube Nucleus	Diagram 1mark Parts 1 mark	2
27.	Producers Consumers Decomposers	Shoe flowe Butterfly, O Nitrobacter	er Grasshopper, Calottes and Snakes ia	1/2 1 1/2	2
28.	a.fishb.camelc.frogd.birds		wingshind limbs with webfinshard skin	$\frac{1/2}{1/2}$ $\frac{1/2}{1/2}$ $\frac{1/2}{1/2}$	2
29.	Henry's Law Increase in pressure increase the mass of gas dissolved the pressure of the gas on the	ases the solu in a fixed vo the surface o	ability of gases. At a given temperature, plume of liquid is directly proportional to f the liquid. This is called Henry's Law.	2	2
30.	Brownian movement: The phenomenon by which motion is called Brownian	h the colloida 1 movement	al particles are in continuous random	2	2
31.	Tyndall Effect: The phen called Tyndall Effect. If solution, some of the ligh	omenon by a beam of t will be abs	which colloidal particles scatter light is light is allowed to pass through a true orbed and some will be transmitted. The	2	2

	1 is passed through a colloid, the light is scattered by the larger colloidal particles and the beam becomes visible. This effect is called TVNDALL EFFECT		
32.	Isobars - ${}_{18}\text{Cr}^{35}$, ${}_{17}\text{Cl}^{37}$ Isobars - ${}_{18}\text{Ar}^{40}$, ${}_{20}\text{Ar}^{40}$	1	2
33.	AtomMoleculesThe smallest particle of an element that can take part in a chemical reactionThe smallest particle of an element or a compound that can exist freely.An atom is a non bonded entity.A molecule is a bonded entity.An atom may or may not exist freely.An molecule can exist freely	1 1	2
34.	a)The PH of acid is <u>less</u> than 7.	1	2
35.	b) <u>Carbonic acid</u> is used in aerated drinks. $P^{OH} = -\log_{10}[OH^{-}]$ $P^{H} + P^{OH} = 14$ $= -\log_{10}[1.0 * 10^{-10}]$ $P^{H} = 14 - P^{OH}$ $P^{OH} = 10$ $= 14-10$; $P^{H} = 4$	1 1 1	2
36.	 A - CaCO₃ B - CO₂ a) slaked lime b) C - CaCl₂ (calcium chloride) D - H₂O (water) c) Basic 	1/2 1/2 1/2 1/2	2
37.	MassWeightFundamental quantity.Derived quantity.It is the amount of mattercontained in a body.It is the gravitational pull acting on the body.Its unit is kilogram.Its unit is newton.Remains the sameVaries from place to place	1	2
38.	Match 1.Force $-ma$ 2.momentum $-mv$ 3. Moment $-Fd$ 4.Gravity $-GM/R^2$	1/2 1/2 1/2 1/2	2
39.	i. This is because the turning effect of a body depends upon the perpendicular distance of the line of action of the applied force from the axis of rotation.ii. Longer the perpendicular distance, less is the force required to turn the body. Therefore spanner is provided with a long handle	1	2
40. 41.	Because to minimize the force of impact and to control the length of time it takes for his body to absorbs the incoming momentum of his opponent's fist.	2	2
	ii. Newton's third law of motion.	1	2
42.	 Nuclear fission: The process of breaking up of the nucleus of a heavier atom into two fragments with the release of large amount of energy is called nuclear fission. Nuclear Fusion Nuclear fusion is a process in which two or more lighter nuclei combine to form a heavier nucleus. 		2
43.	Fuse wire is made up of an alloy of <u>lead (37%) and tin (63%)</u> which has high resistance and <u>low melting point.</u>		2
44.	$a,i_1+2A=3A$ $b, 3A=1A+i_2$ $c, i_2=i_3+1.5A$ $i_1=3A-2A$ $i_2=3A-1A$ $2A=i_3+1.5A$ $i_1=1A$ $i_2=2A$ $2A-1.5A=i_3$ $0.5A=i_2$ $0.5A=i_2$	1	2
45.	 i. The wind speed should be higher than 15Km/hour to maintain the required speed of the turbine. ii The speed of the wind is not constant, so same amount of electricity cannot. 	1	

1			-
ļ	be produced all the time .		2
ļ	iii. The output of a single wind mill is quiet small and cannot be used for commercial		
]	purposes. Therefore, a number of wind mill are erected over a large area.		
	SECTION – III (20 MAKKS)	· · · · · · · · · · · · · · · · · · ·	
Q.No.	Answer	Divisi	Total
ļ	I	on of	mark
]		mark	
46.	Immunity: Immunity is the body's defense against or the specific resistance	ı	
ļ	exhibited towards infectious organisms.	· .	
ļ	Types of Immunity		
ļ	I.Natural or Innate Immunity: The natural or innate immunity enables an	ı	
ļ	individual to develop resistance to the disease, to which, the particular species is	ı	
ļ	immune.e.g. Plant diseases do not affect animals.	ı	
ļ	II Acquired or Specific Immunity: The resistance against some infectious	ı	
ļ	diseases developed by an individual during lifetime.on exposure to the	ı	
ļ	infactions is called acquired or specific immunity	ı	
ļ	A Active acquired immunity. This kind of immunity is developed by	ı	
ļ	<u>A. Active acquired minimuma.</u> This kind of minimumary is developed by	ı	
ļ	our body, during the first infection of any pathogen. The antibudies produced in	ı	
ļ	the blood remain for a long period and kill the similar pathogens, whenever they	i	
ļ	enter the body.	2	
ļ	1. Naturally Active Acquired immunity: If the antibody		
ļ	production is stimulated naturally after recovery from a disease, it	ı	
ļ	is called Naturally Active Acquired Immunity.	ı	
ļ	2.Artificially Active Acquired Immunity: If the antibody	ı	
ļ	synthesis is stimulated by administration of vaccines or any	ı	
ļ	otherman-made methods, the immunity thus gained is called	ı	
ļ	Artificially Active AcquiredImmunity. For example the polio	ı	
ļ	drops and the triple antigen injection given to the childin the	ı	
ļ	immunization program.	ı	5
ļ	B.Passive Acquired Immunity: In this type of immunity, a ready-made	ı	
ļ	antibody is introduced from outside, instead of stimulating the body to	ı	
ļ	produce antibody with antigenic stimulus.	ı	
ļ	1. Naturally Passive Acquired Immunity : If the readymade	ı	
ļ	antibody is taken from the mother's blood into the foetus, it is	ı	
ļ	called Naturally Passive Acquired Immunity.	ı	
ļ	2. Artificial Passive Acquired Immunity: If the readymade antibody is given to	ı	
ļ	an individual artificially, (produced in some other animal and extracted) it is	i	
ļ	called Artificial Passive Acquired Immunity. This immunity is not permanent.	ı	
ļ		i	
ļ	TYPES OF IMMUNITY	ı	
ļ		i	
ļ	Natural or Innate Acquired or specific naturally available right developed in the body	i	
ļ	from birth after birth	i	
ļ	↓	i	
ļ	Active Passive Antibodies are Pre-formed antibodies	i	
ļ	produced by bring forth immunity	i	
ļ		2	
ļ	Natural Artificial Artificial Artificial	i	
ļ	developed developed by breast milk from other animals	ı	
ļ	from a disease by introducing mother enter the child	ı	
]		┌────┤	
	<u>The structure of a neuron</u> : Nerve cells or neurons are the structural and	2	
47.		(I	5
47.	functional units of the nervous system. The Human Brain is made up of about 86	1	5
47.	functional units of the nervous system. The Human Brain is made up of about 86 billion neurons and many more neuroglial cells (more than 86 billion). A nerve		5



3.Tr seco seco calle Endo 4.Do the c 5.Po	iple fusion : The other male gamete fuses with the secondary nucleus. The ndary nucleus is diploid in nature. The fusion of secondary nucleus with the nd male gamete is known as triple fusion . The triple fusion nucleus is a primary endosperm nucleus because it develops into an endosperm. The process of fusion of a male gamete with an egg and other gamete with a secondary nucleus is known as double fertilization . The process of the ovule develops into a seed. 2. The integuments of the ovule develop into seed coats.	2	
49. Wha "Gle villa makin single A ter comm	3. The ovary enlarges and develops into a fruit. at is Global Village? obal Village" is the term used to mean that the world has shrunk into a small ge by means of different types of media, especially the World Wide Web, ng it easy to pass messages (like news) thereby making the world become a e village where people can easily and quickly contact each other. rm that compares the world to a small village, where fast and modern nunication allows news to reach quickly. The use of electronics for faster	2	5
Wha Globa borde Infor	t is the global electronic village? al electronic village (GEV) is a term used to refer to a village without ers; it refers to connecting people around the world technologically through mation Communication Technologies (ICTS).	2	
A) No. mol b)	of es in Cu = $\frac{\text{Given particles}}{6.023*10^{23}}$ = $\frac{212.046}{10^{23}}$ = $\frac{2 \text{ moles}}{16.023*10^{23}}$ = $\frac{2 \text{ moles}}{16.023*10^{23}}$ = $\frac{2 \text{ moles}}{16.023*10^{23}}$	2	5
50 c)N	No. of moles in Co ₂ = $\frac{\text{Given particles}}{6.023*10^{23}} = \frac{1.51 \times 10^{23}}{6.023 \times 10^{23}} = 0.25 \text{ moles}$	1	
51 <u>Rela</u> It is 1 ato I n <u>Vapo</u> the g and p	tive. Molecular Mass (RMM): defined as the ratio of the mass of 1 molecule of the gas or vapour to the mass of m of hydrogen Mass of 1 molecule of the gas or vapour Relative molecular =	1	5
	V.D = Mass of 1 molecule of gas or vapour Mass of 1 molecule of hydrogen		

Since hydrogen is diatomic,		
$V.D = \frac{V.D}{V.D} = \frac{V.D}{V$		
2 x Mass of 1 atom of hydrogen		
	1	
Multiplying both side by 2. we get		
$\frac{\text{Mass of 1 molecule of gas or vapour}}{2* \text{ V D}} = \frac{1}{2}$		
2^{-*} Mass of 1 atom of hydrogen		
2* V.D =	1	
Mass of 1 atom of hydrogen	Ĩ	
2*VD = Deletive melecular mass of a concentration		
2° V.D – Relative molecular mass of a gas of vapour	1	
2^* Vapour Density = Relative molecular mass	1	
52. Applications of cryogens	1	5
(i) Rocket		
The important use of cryogenics is cryogenic fuels. Cryogenic fuel (mainly liqui	1	
hydrogen) is used as rocket fuel.	1	
(ii) Magnetic Resonance Imaging (MRI)		
MRI is used to scan the inner organs of human body by penetrating very intensi-	1	
help of liquid helium. It can reduce the temperature of the coil to around 4K. At this	1	
low temperature, very high resolution images can be obtained.	-	
(iii) Power Transmission in big cities:		
It is difficult to transmit power by overhead cables in cities. So underground cable		
are used. But underground cables get heated up and the resistance of the wir		
increases leading to wastage of power. This can be solved by cryogenics. Liquefier	1	
gases are sprayed on the cables to keep them cool and reduce their resistance.		
(iv) Food Freezing:		
Cryogenic gases are used in transportation of large masses of frozen food, when huge quantity of food is transported to war zones, earthquake, flood hit ragions at		
where they must be stored		
(v) Vaccines:	1	
The freezing of biotechnology products like vaccines require nitrogen freezing	1	
53. a) Mass $m = 2.5$ kg; Force $F = 5$ N	2	5
Acceleration $a = ?$		
$a = \underline{F}$		
= 5		
$\frac{2}{2.5}$		
$a = \underline{2m/s^2}$		
b , we know		
distance s = 20m; $a = 2m/s^2$; $u = 0$;		
$s = ut + \underline{1} at^2$		
$20 = (0^*t) + (1^*2^*t^2)$	2	
$20 = t^2$		
$v_{20} = t$ 4.47 s = t		
\mathbf{c} , velocity after 3 seconds		
$\mathbf{v} = \mathbf{u} + \mathbf{a} \mathbf{t}$		
= 0 + 2 * 3	1	
V = 6m/s	· ·	

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Register Number

SSLC Quarterly Examination 2017-18

Time Allowed : 2½ Hours]

SCIENCE

[Max. Marks: 75

- INSTRUCTION : 1. Check the question paper for fairness of printing. If there is any lack of fairness, inform the Hall Supervisor immediately.
 - 2. Use blue or black ink to write and pencil to draw diagrams.

Section – I

Note : 1. Answer all the fifteen questions.

15 x 1 = 15

- 2. Choose the correct answer from the alternatives given in the brackets
- 1. Somatic gene therapy causes

(Changes in sperm, Changes in progeny, changes in body cell, changes in ovum)

- 2. An example of protozoan infecting our intestine is ------
- (Plasmodium vivax, Entamoeba histlytica, Trypanosoma gambinense, Taenia solium).
- The hormone administered by doctors to a pregnant women to help in child birth during the time of natural delivery is ------.

(Estrogen, progesterone, Insulin, Relaxin)

4. -----is the wind dispersal of fruits and seeds

(Auto chory, Anemochory, Hydrochory, Zoochory)

5. _____ is a green house gas which causes climate change and global Warming.

(Hydrogen, Oxygen, Nitrogen, Carbon- di -oxide).

6. Dispersed phase + Dispersion Medium →

(True solution, Colloidal solution, Suspension, Solution)

7. ----- In which solution the diffusion of particles does not occur?

(True solution, colloidal solution, Suspension, Water)

8. $Zn + 2HCI \rightarrow ZnCl_2 + H_2^{\uparrow}$

The above reaction is an example of _____

(Combination reaction, Double displacement reaction, Displacement reaction, Decomposition reaction)

- The king of chemical is ______
 (Nitric acid, Sulphuric acid, Hydrochloric acid, Lactic acid)
- 10. One light year is equal to ________(365.25 x24x60x60x3x10⁸m , 1x24x60x60x3x10⁸m , 360x24x60x60x3x10⁸m)
- 11. Chandrayaan -I operated for _____ days. (520, 312 , 460, 412)

12. Weight is measured using _____ (physical balance, Spring balance)

- 14. Kilo Watt- hour is the unit of ____
- (Potential difference, electric power, electric energy, Charge)
- 15. _____ surface absorbs more heat that any other surface under identical conditions. (White, Rough, black, Yellow)

SECTION II - (Marks : 40)

Note : Answer any twenty questions.

- 16. Sequentially arrange the different species of man from primitive to modern Man. Neanderthal man, Homo hablilis,Homo erectus, Homo sapiens
- 17. What do you mean by phenotype and genotype if an individual? Explain.
- 18. What are Monoclonal antibodies ? Mention its use.
- 19. What are variations ? Mention their types.
- 20. What is triple antigen? Name the three diseases which can be prevented by using it.
- 21. Name two diseases that are transmitted by house flies, mention their causative pathogens.
- 22. Differentiate between the diseases night blindnessand colour blindness.
- 23. From the below diagram label the following parts
 - (Vocal cord, thyroid, para thyroid , Trachea).
- 24. Match the following with respect to dispersal of fruits/ seeds.
 - a) Autochory Lotus
 - b) Anemochory Xanthium
 - c) Hydrochory Tridax
 - d) Zoochory balsam
- 25. Differentiate dehiscent fruits and indehiscent fruits with suitable examples
- Draw the given diagram and label the following parts (Exine, Tube nucleus)
- 27. Classify the following into producers, consumers decomposers.
 - i) butterfly ii) grasshopper
 - grasshopper iii) Calottes
- iv) Snakes

- v) Shoe flower vi) Nitrobacteria
- 28. Living Organisms adapt themselves according to their habitat.
 - Match the following
 - Fish wings
 - Camel hard skin
 - Frog fins
 - Birds hind limbs with web





 $20 \times 2 = 40$

- 29. What is Henry's law?
- 30. What is Brownian movements?
- 31. What is tyndall effect?
- 32. From the given examples identify the isotopes and isobars.
 - 18 Ar40, 17 Cl35, 20 Ca 40, 17 Cl37
- 33. 'Cl' represents chlorine atom 'Cl₂' represents chlorine molecule. List out any two differences between atoms and molecules.
- 34. Identify the wrong statements and correct them.
 - a) The pH of acid is higher than 7
 - b) Acetic acid is used in aerated drinks.
- 35. The hydroxide ion concentration of a solutionis 1.0x10⁻¹⁰M. What is the pH of the solution?
- 36. Observe the given chemical change and answer the following. Identify A and B

Calcium Oxide Caco3 a(OH)2

- a) Write the commercial name of Calcium hydroxide
- b) Identify products c and D when HCI is allowed toreact with calcium oxide.
- c) Write whether Calcium oxide is acidic or basic.
- 37. What are the differences between Mass and weight.

R²

- 38. Match the following.
 - 1. Force (F) Fxd
 - 2. Momentum GM
 - 3. Moment (T) mxa

 - 4. Gravity mxv
- 39. Why does a spanner have a long handle?
- 40. Why does a boxer always move along the direction of the punch of the opponent?
- 41. Write two principles that are used in rocket propulsion.
- 42. What is nuclear fission and nuclear fusion?
- 43. Fuse wire is made up of an alloy of ______ which has high resistance and _____ G/10/Sci/3

44. The figure is a part of a closed circuit find the currents i1, i2 and i3



45. What are the limitations in harnessing wind energy?

SECTION III - (Marks : 20)

Note : (i) Answer any four questions by choosing one question from each part. 4x5 = 20

(ii) Draw diagrams wherever necessary.

PART-I

46. What is immunity ? Write a note on the Various types of immunity.

47. Describe the structure of a neuron with the help of a neat , labeled diagram.

PART-II

- 48. i) Name the process by which a fruit is developed .
 - ii) Explain the development process in brief.
 - iii) Draw a neat , labeled a diagram of thatprocess.
- 49. a) What is Global village?
 - b) What is the global electronic village?

PART - III

- 50. Calculate the number of moles in.
 - a) 12.046 x 10²³ atoms of copper
 - b) 27.95 g of Iron
 - c) 1.51 x 10²³ molecules of Co₂
- 51. How will you establish the relation between Vapour density and Molecular mass of a gas by applying Avogadro law?

PART-IV

52. What are the application of cryogens ?

53. A 5N Force acts on a 2.5 Kg mass at rest , making it accelerate in a straight line .

- i) What is the acceleration of the mass?
- ii) How long will it take to move the mass through 20 m?
- iii) Find its velocity after 3 seconds.