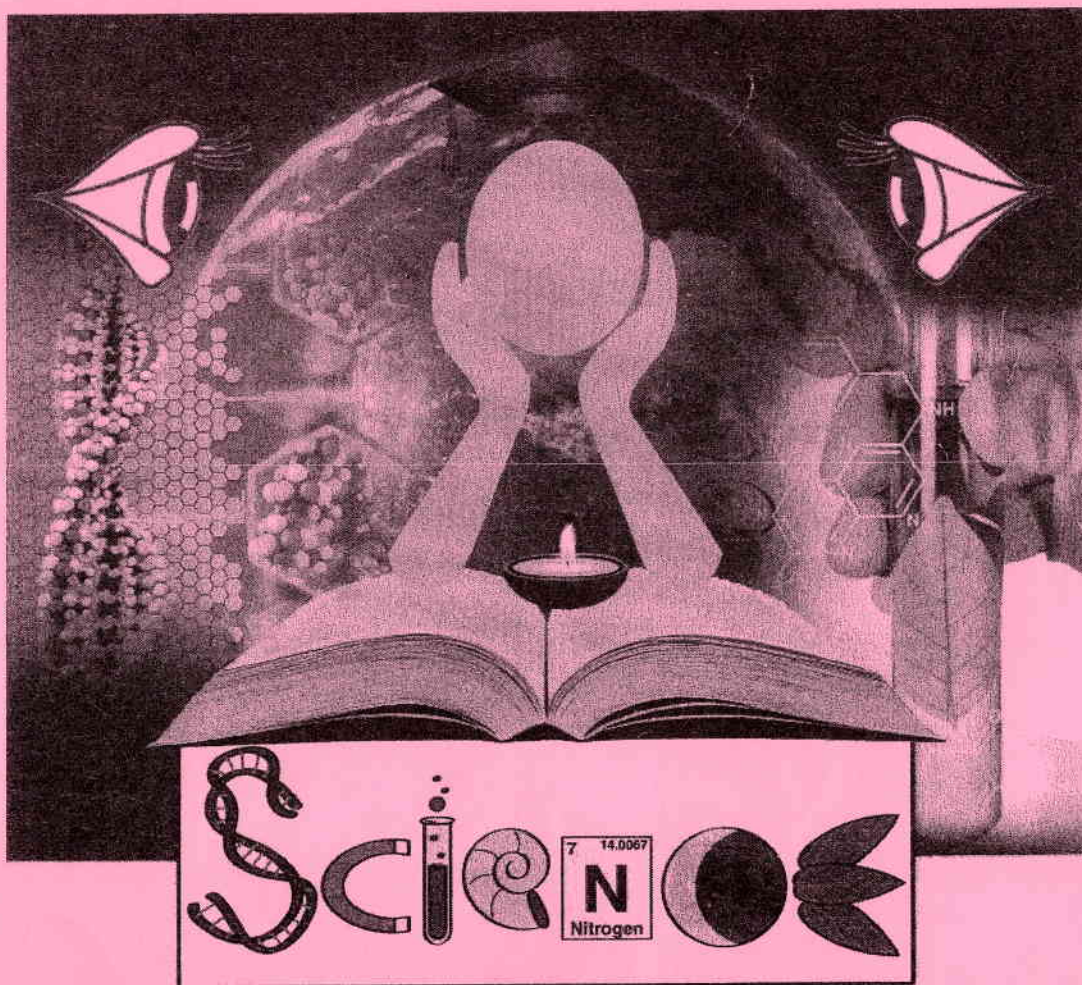




Department of Examinations - Sri Lanka
G.C.E. (O/L) Examination - 2018

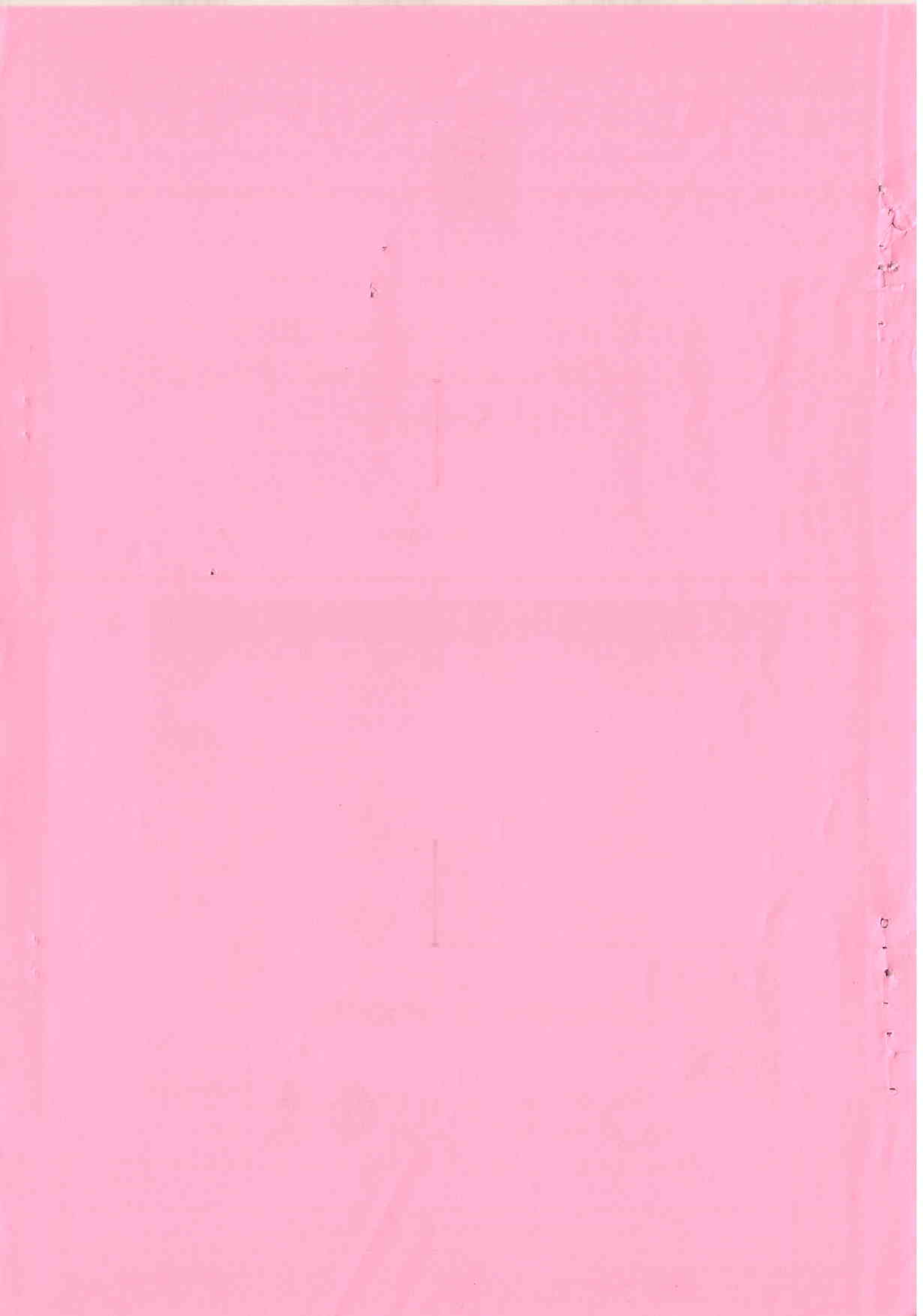
34 - Science

Marking Scheme



This document has been prepared for the use of Marking Examiners. Some changes would be made according to the views presented at the Chief Examiners' meeting.

Amendments to be included



OL/2018/34/E-1

34. What characteristic given below should be studied to distinguish as living and non living the specimens; a fertilized egg, a piece of meat, a bean seed obtained before germination and a dry piece of a branch of a plant?

- (1) growth (2) respiration (3) reproduction (4) cellular organisation

35. An electric lamp bulb of a motor car is labelled 12 V, 0.5 A. Consider the following statements about those values.

A - When an electrical supply of 12 V is given across the bulb, the current flowing through it is 0.5 A.

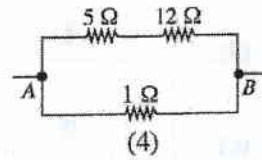
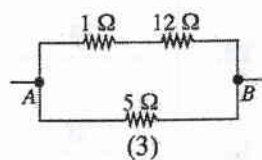
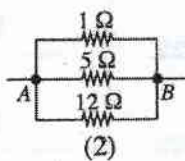
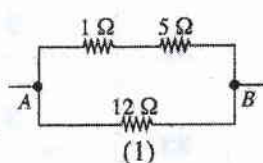
B - When the bulb operates normally, its power is 12×0.5 W.

C - The resistance of the bulb is $\frac{12}{0.5} \Omega$.

Of the above, the correct statements are,

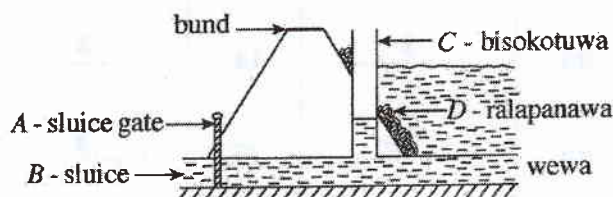
- (1) only A and B. (2) only B and C. (3) only A and C. (4) all A, B and C.

36. Which diagram correctly indicates the connection of 1Ω , 5Ω and 12Ω resistors so that the equivalent resistance between A and B is 4Ω ?



37. The diagram illustrates a cross section across the bund close to the sluice of a wewa (tank). What is the structure constructed to reduce the speed of water flow by reducing pressure, when water is released from the tank?

- (1) A (2) B
(3) C (4) D



38. Some activities carried out after felling trees in a forest are given below. Among them, which one contributes most to increase the carbon dioxide percentage in the atmosphere in a short period of time?

- (1) Growing vegetable crops in the area (2) Letting cut down parts decompose naturally
(3) Using parts of timber for constructions (4) Burning the parts cut down

39. It has been planned to hold a conference in Sri Lanka in May/June 2019, on a convention/treaty dealing with regulations related to the trade of endangered plants and animals. By what name is that convention/treaty known?

- (1) Ramsar (2) Montreal (3) CITES (4) Reo

40. Reduce, Reuse and Recycle are three, out of the principles used in waste/energy management. Which of the following is not a suitable example for "Reduce" given here?

- (1) Switching off unnecessary electric lamps
(2) Eating all the food served for self
(3) Closing the unnecessarily opened water taps
(4) Refraining from using polythene

* * *

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
இலங்கைப் பரீட்சைத் திணைக்களம்

අ.පො.ස. (සා.පෙළ) විභාගය - 2018
க.பொ.த (சா.தர)ப் பரீட்சை - 2018

විෂයය අංකය
பாட இலக்கம்

34

විෂයය
பாடம்

Science

I පත්‍රය - පිළිතුරු
I பத்திரம் - விடைகள்

ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.	ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.	ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.	ප්‍රශ්න අංකය வினா இல.	පිළිතුරු අංකය விடை இல.
01.	3	11.	1	21.	1	31.	3
02.	1	12.	1	22.	1	32.	4
03.	2	13.	3	23.	4	33.	3
04.	4	14.	2	24.	4	34.	2
05.	2	15.	4	25.	1	35.	4
06.	3	16.	1	26.	1	36.	1
07.	4	17.	2	27.	4	37.	3
08.	4	18.	2	28.	3	38.	4
09.	2	19.	3	29.	3	39.	3
10.	2	20.	2	30.	2	40.	4

විශේෂ උපදෙස් } එක් පිළිතුරකට ලකුණු
விசேட அறிவுறுத்தல் } ஒரு சரியான விடைக்கு

02

බැගින්
புள்ளி வீதம்

මුළු ලකුණු / மொத்தப் புள்ளிகள் 02 × 40 = 80

පහත නිදසුනෙහි දක්වෙන පරිදි බහුවරණ උත්තරපත්‍රයේ අවසාන තීරුවේ ලකුණු ඇතුළත් කරන්න.
கீழ் குறிப்பிடப்பட்டிருக்கும் உதாரணத்திற்கு அமைய பல்தேர்வு வினாக்களுக்குரிய புள்ளிகளை பல்தேர்வு
வினாப்பத்திரத்தின் இறுதியில் பதிக.

නිවැරදි පිළිතුරු සංඛ්‍යාව
சரியான விடைகளின் தொகை

25

40

I පත්‍රයේ මුළු ලකුණු
பத்திரம் I இன் மொத்தப்பள்ளி

50

80

34 - Science

Paper II

①	(i)		-	02
	(ii)		-	02
	(iii)		-	02
	(iv)		-	02
	(v)		-	02
	(vi)		-	01
	(vii)		-	02
	(viii)		-	01
	(ix)		-	01
Total marks 15				

④	(A)	(i)		-	01
		(ii)		-	02
		(iii)		-	01
		(iv)			01
		(v)			01
		(vi)			01
	(B)	(i)		-	02
		(ii)		-	02
		(iii)		-	01
		(iv)		-	03
Total marks 15					

⑦	(A)	(i)	(a)	-	02
			(b)		01
			(c)		01
		(ii)	(a)		01
			(b)		01
		(iii)	(a)		01
			(b)		01
		(iv)			02
		(v)			03
		(vi)			03
	(B)	(i)	(a)		02
			(b)		01
Total marks 20					

②	(A)	(i)	-	01
		(ii)	-	01
		(iii)	-	01
		(iv)	-	01
		(v)	-	01
		(vi)	-	01
		(vii)	-	02
	(B)	(i)	-	01
		(ii)	-	01
		(iii)	-	01
	(C)	(i)	-	02
		(ii)	-	02
Total marks 15				

⑤	(A)	(i)	-	02
		(ii)		01
		(iii)		01
		(iv)		01
		(v)		01
		(vi)		02
		(vii)		01
	(B)	(i)		02
		(ii)		03
		(iii)		01
	(C)	(i)		04
		(ii)		01
මුළු ලකුණු 20				

⑧	(A)	(i)		-	01
		(ii)	(a)	-	01
			(b)		01
		(iii)	(a)	-	02
			(b)	-	01
	(B)	(i)			01
		(ii)			01
	(C)				02
	(D)	(i)			01
		(ii)	(a)		01
			(b)	-	01
			(c)		01
		(iii)			02
		(iv)			02
		(v)			02
Total marks 20					

③	(A)	(i)		-	01
		(ii)		-	01
		(iii)		-	01
		(iv)		-	01
		(v)		-	01
		(vi)		-	01
		(vii)		-	01
		(viii)		-	01
		(ix)		-	01
	(B)	(i)	(a)	-	01
			(b)	-	01
			(c)	-	01
			(d)	-	01
		(ii)	(a)	-	01
			(b)	-	01
Total marks 15					

⑥	(A)	(i)		-	01
		(ii)	(a)	-	02
			(b)		02
			(c)		02
	(B)	(i)		-	01
		(ii)	(a)		01
			(b)		01
		(iii)			02
		(iv)	(a)		01
			(b)		03
	(C)	(i)			01
		(ii)			01
		(iii)			01
		(iv)			01
Total marks 20					

⑨	(A)	(i)	(a)	-	02
			(b)		01
			(c)		01
		(ii)	(a)	I	01
				II	01
			(b)	-	01
			(c)		01
			(d)	I	01
				II	01
	(B)	(i)		-	01
		(ii)		-	01
		(iii)			01
		(iv)	(a)	-	01
			(b)		02
		(v)	(a)	-	02
			(b)	I	01
				II	01
Total marks 20					

OL/2018/34/E-II

සියලු ම හිමිකම් ඇවිරිණි / முழுப் பதிப்புரிமையுடையது / All Rights Reserved

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
 இலங்கைப் பரீட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம்
 Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka Department of Examinations, Sri Lanka
 ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
 இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரීட்சைத் திணைக்களம் இலங்கைப் பரīட்சைத் திணைக்களம்

34 E II

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2018 දෙසැම්බර්
 கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2018 டிசெம்பர்
 General Certificate of Education (Ord. Level) Examination, December 2018

විද්‍යාව II
 விஞ்ஞானம் II
 Science II

08.12.2018 / 0830 - 1140

පැය තුනයි
 மூன்று மணித்தியாலம்
 Three hours

අමතර කියවීමේ කාලය - මිනිත්තු 10 යි
 மேலதிக வாசிப்பு நேரம் - 10 நிமிடங்கள்
 Additional Reading Time - 10 minutes

Use additional reading time to go through the question paper, select the questions and decide on the questions that you give priority in answering.

Index Number:

- Instructions:**
- * Write your answers in neat handwriting.
 - * Answer the four questions in Part A, in the space provided.
 - * Of the five questions in Part B answer three questions only.
 - * After answering, tie Part A and the answer script of Part B together and hand over.

Part A

1. Figure 1 given below illustrates the setting of a factory located close to a settlement area and its surroundings. A few years after the commissioning of the factory, environmental problems emerged in the area.

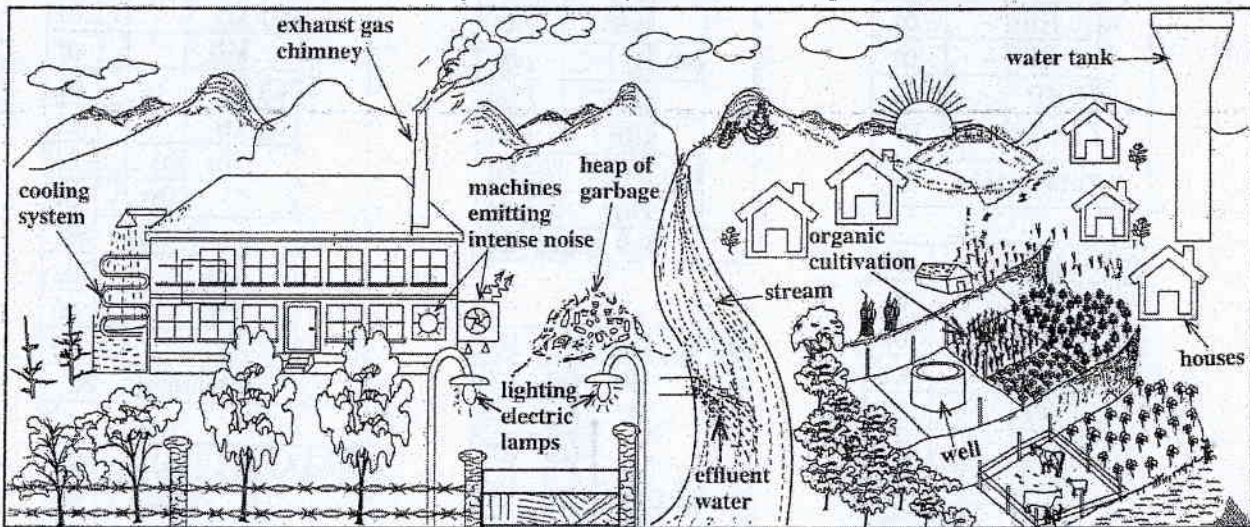


Figure 1

- (i) State **two** instances in which loss of energy occurs in relation to the factory as illustrated in the Figure.
- (a) • lighting electrical lamps (during day time.) • (machines) emitting intense noise • removing heat (through the cooling system.) • burning fuel (unnecessarily)..... (02)
- (ii) Write **two** problems leading to environmental pollution which may emerge due to this factory. Give marks for any 2 answers.
- (a) • collecting/ dumping garbage in the environment • adding effluent water to the stream..... Number of fish
- (b) • intense noise/ sound pollution • emission of exhaust gases to the atmosphere • emitting heat to the environment/ thermal pollution..... Give marks for any 2 answers. (02)

- (iii) A group of students counted once in six months, the number of fish living in a specific area down the stream, and plotted a graph. That growth curve was found to differ from the typical population growth curve and assume the shape shown by letter *a* in Figure 2.

In which phase does the number of fish begin to decrease in the fish population? high growth phase/ exponential phase/ phase II

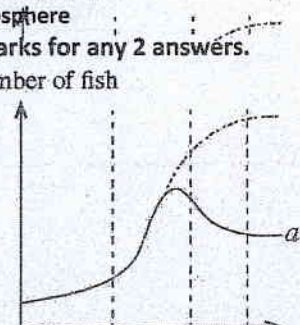


Figure 2 Time (02)

- (iv) In the stream studied, the factors—the number of fish, temperature of water and the amount of heavy metals added to the stream—were measured for a period of about four years. Figure 3 shows the result of it. What factor can be given as the nearest cause for the decrease in the fish population as shown in Figure 3?

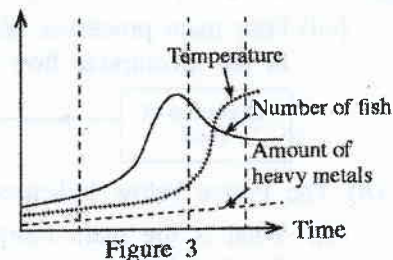


Figure 3

(02)

temperature

- (v) After some time, because of the entry of heavy metals into the blood of the people living in the settlements around the factory, they were subject to nervous disorders. Write schematically, using arrows, the instances of the process in which the heavy metals get into the blood like this.

- effluent water → stream → drinking water → blood
- effluent water → stream → crop cultivation → food → blood
- effluent water → stream → fish → food → blood
- effluent water → stream → aquatic plant → food → blood
- effluent gases → air → respiration → blood any one of the above in order

- (vi) State an importance of maintaining the organic cultivation shown in Figure 1 as a poly-culture .

- reducing spreading of pests/ reducing spreading of diseases (in the cultivation)
- reducing forming pests with high resistance
- protecting the nutrient balance in the soil
- reducing competition (for resources)

(01)

- (vii) Write two advantages of applying organic fertilizers for the cultivated land.

- (a) • increasing the soil texture/ ventilating the soil/ increasing the retention of water
• improving the soil structure • enhancing the activity of soil organisms/ favorable condition for soil organisms

- (b) 01 mark for each

(02)

- (viii) From time-to-time, the waste products of the factory are sorted out and disposed. When the production of waste is high, they are mixed, piled up as garbage and disposed at a later stage. What is the advantage of disposing the factory waste separately from time-to-time than disposing them as garbage after mixing and piling up?

- waste management is easy
- recycling (of waste) is easy
- can be reused
- reducing

environmental pollution. for any one fact

(01)

- (ix) In controlling the rise in global warming, as personal responsibilities it is important to minimize the environmental indicators such as one's carbon footprint, water footprint and food mileage. The people in the settlement consume flour made in the factory from cereals imported from abroad. By raising which environmental indicator given above do the people contribute to increase global warming by this practice?

food mileage

(01)

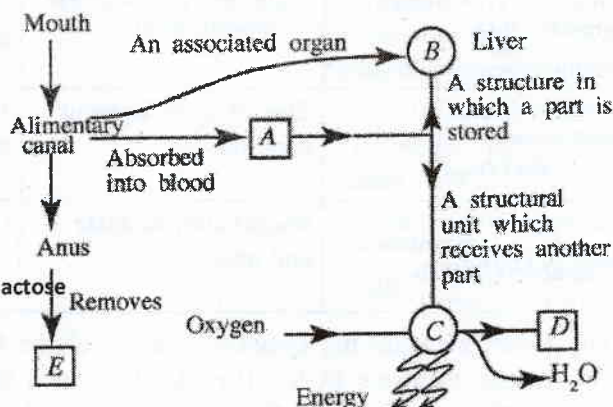
2. (A) The Figure shows a part of a concept map prepared incorporating some functions occurring in the human body and the structures relevant to them.

- (i) A is a digestive product containing only carbon, hydrogen and oxygen. Name it.

glucose/ $C_6H_{12}O_6$ (01)

- Give marks even for writing monosaccharide or fructose/ galactose
- (ii) State a digestive product absorbed by the lacteal in the alimentary canal without being absorbed into blood.

..... fatty acids/ glycerol (01).....



- (iii) A part of the nutrient A is stored in B (liver). Before this storing, it gets converted into another chemical substance. What is that chemical substance? glycogen

(01)

- (iv) What structural unit is represented by C? cell/ mitochondrion

(01)

- (v) D is produced as a product of a chemical process taking place in C. What is D?

..... carbon dioxide / CO_2

(01)

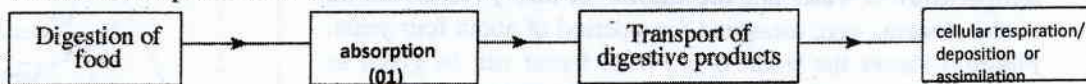
- (vi) What is the reason for not considering E an excretory product?

..... not a product of metabolic activities / left overs of undigested food

(01)

gas burns giving

- (vii) Four main processes taking place in the body relevant to the above concept map are given in the incomplete flow chart below. Fill in the blank boxes in it.



- (B) The Figure below indicates a part of a dicotyledonous plant with a leaf.

- (i) What is the main morphological feature that can be used to identify that this leaf belongs to a dicotyledonous plant?

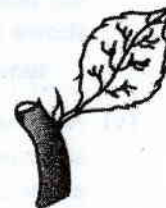
....(reticulate) venation.....

- (ii) State a morphological feature of the root system of the plant to which this leaf belongs.

....having a tap root.....

- (iii) State a morphological feature in which the stem of a monocotyledonous plant differs from the stem of the plant to which this leaf belongs.

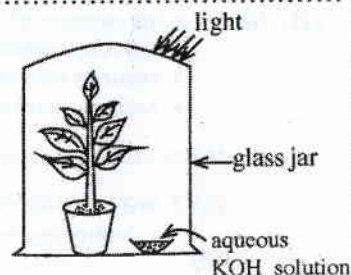
....unbranched / having a stem with uniform girth.....



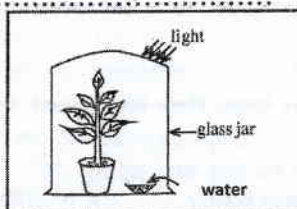
- (C) The Figure indicates an apparatus set up by a student for an experiment conducted with regard to photosynthesis.

- (i) Mention the aim of this experiment.

....testing whether CO₂ / carbon dioxide is needed for photosynthesis..



- (ii) Draw a labelled sketch of a set-up of a control experiment suitable for this experiment in the given box.



3. (A) The following table presents in summarised form, incomplete information relevant to the preparation of three gases and tests for their identification. Complete the table using words or correct symbols/formulae as appropriate.

Method of preparation	Substances left in the reaction mixture after the reaction	Test carried out on the gas	Observation	Gas produced
Adding (i) hydrogen peroxide / H ₂ O ₂ drop-wise on manganese dioxide solid (01)	Water and (ii) manganese dioxide / MnO ₂ (01)	Holding a glowing splint	Glowing splint lighted	(iii) O ₂ / ... oxygen (01)
Adding dilute (iv) hydrochloric / HCl acid on (v) zinc / Zn metal (01)	Zinc chloride aqueous solution	Holding a lighted eke	(vi) (gas) burns giving pop sound. (01)	Hydrogen
Adding dilute sulphuric acid to (vii) magnesium carbonate / MgCO ₃ (01)	Magnesium sulphate and water	(viii) passing the gas through (colourless) lime water / Ca(OH) ₂ (aq). No marks for Ca(OH) ₂ only. (01)	(ix) (Colourless) lime water turns milky / white / turbid (01)	Carbon dioxide

- (B) Given here are the symbols of some of the first twenty elements in the Periodic Table and their locations in the Periodic Table.

- (i) Fill in the blanks in the following sentences using the elements given in the Table.

H						He
Li					O	F
Na	Mg	Al				Cl
K	Ca					Ar

- (a) ...helium/ He... is the element with maximum first ionisation energy.

- (b) ...fluorine/ F... is the element of highest electronegativity.

- (c) The electronic configuration of magnesium is ...2, 8, 2.....

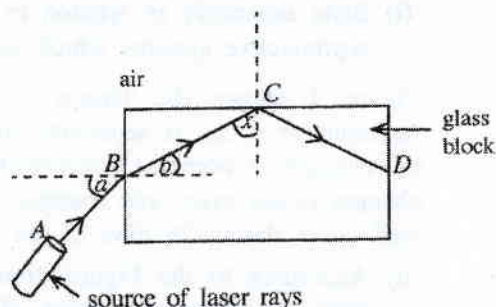
- (d) The formula of the compound formed by the combination of aluminium (Al) and oxygen (O) is ...Al₂O₃.....

[See page four

- (ii) In the following sentences, select the appropriate word, out of the words given within parentheses and **underline** it.

- (a) The bond of the compound formed between hydrogen and chlorine is (ionic/covalent/polar covalent). (01)
- (b) The oxide formed by the combination of aluminium and oxygen is (acidic/basic/amphoteric). (01)

4. (A) In an activity related to light, a student placed a glass block on a white paper laid on a horizontal surface. Then, as shown in the Figure, he pointed a laser ray to the glass block along the plane of the paper. The path of the laser ray was marked A B C D.



- (i) By what name is the phenomenon known to which the ray is subjected after falling on point B?
.....refraction..... (01)
- (ii) Write the names of the following angles in relation to the phenomenon occurring at point B.
Angle a : ...angle of incidence (01) Angle b : ...angle of refraction (01) (02)
- (iii) When the value of the angle ' a ' increases, how does the value of the angle ' b ' change corresponding to that?
.....(when, (a) increases, (b) also) increases..... (01)
- (iv) According to the Figure, what is the phenomenon to which the ray is subjected at point C?
.....total internal reflection..... (01)
- (v) State a device that adopts the phenomenon you mentioned in (iv) above in modern communication technology.optic fibre..... (01)
- (vi) If the angle between the ray BC and the normal at point C is x , is the angle x equal to, greater than or smaller than the critical angle of the glass-air interface?
..... x is greater (than the critical angle)...... (01)

- (B) Two sets of apparatus arranged by a student to demonstrate a certain phenomenon related to heat are given here.

- (i) What is expected to be demonstrated by each of these set-ups?

Set-up A : ..(thermal) expansion of a liquid/ water..... (01)

Set-up B : ..(thermal) expansion of a gas/ air..... (01) (02)

- (ii) When heated for some time, what changes can be seen in the narrow glass tubes in the above two set-ups?

Set-up A : rising the water level in the tube/ goes down slightly and rises up (01)

Set-up B : ..(coloured) drop of water rises up..... (01)..... (02)

- (iii) By what method is heat transferred across the wall of the boiling tube in set-up B?

.....(thermal) conduction / radiation..... (01)

- (iv) The mass of water in the boiling tube and the water in the glass tube connected to it in set-up A was 50 g. Initial temperature of that water was 30°C . If that mass of water got heated up to 40°C , calculate the quantity of heat absorbed by water. (Consider the specific heat capacity of water is $4200 \text{ J kg}^{-1} ^\circ\text{C}^{-1}$).

$$\text{mass of water } m = \frac{50}{1000} \text{ (kg)} \quad (01)$$

$$\text{amount of heat absorbed } Q = mc\theta$$

$$= \frac{50}{1000} \text{ (kg)} \times 4200 \text{ (J kg}^{-1} ^\circ\text{C}^{-1}) \times 10 \text{ (}^\circ\text{C)} \quad (01)$$

$$= 2100 \text{ J} \quad (01)$$

* *

Part B

- Of the questions No. 5, 6, 7, 8 and 9, answer **three** questions only.

5. (A) Human reproductive process is coordinated by chemical substances known as hormones associated with the reproductive system.

- (i) State separately in relation to each system, a hormone secreted by the male and female reproductive systems which coordinates their functioning.

Figure 1 shows the phases of the female reproductive cycle. It separately illustrates how the changes of hormone concentration in blood, changes in the ovary and changes in the uterine wall occur during 28 days of the cycle.

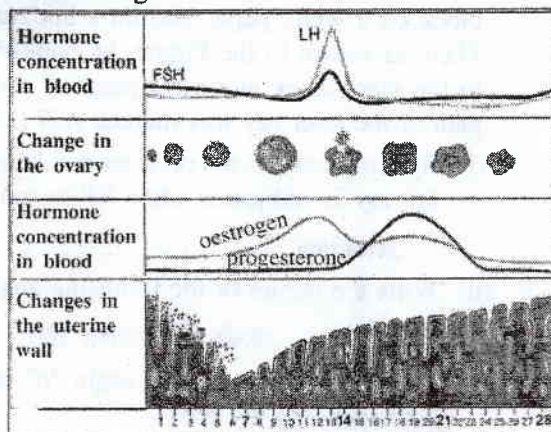


Figure 1

- (ii) According to the Figure, from which day does the menstrual phase of the female reproductive cycle start?
- (iii) Name a hormone secreted by the pituitary gland that affects the functioning of this cycle.
- (iv) What is the main phenomenon that occurs in the ovary by about the 14th day of the cycle?
- (v) During which time interval of the cycle is there a greater chance for the fertilization of the ovum?
- (vi) Write in **two** steps, what happens in the course of a fertilized human ovum becoming an embryo.
- (vii) State a common disease caused by a species of bacteria that is sexually transmitted and has become a social menace.

(B) (i) A person scared by a snappy dog starts running. Which two systems do the electrical and chemical coordination relevant to this?

- (ii) Using the relevant parts in Figure 2, write schematically using arrows, the connection from the receptor to the effector in the system relating to electrical coordination in (i) above.

- (iii) State one function carried out by the adrenal gland in relation to the coordination process.

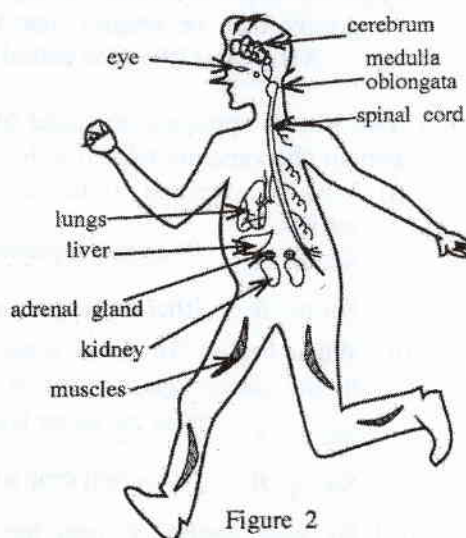


Figure 2

(C) (i) Given as A, B, C and D in Figure 3 are optical microscope diagrams of some plant and animal tissues you have studied. Write the names of the tissues A, B, C and D correctly, identifying their structural features.

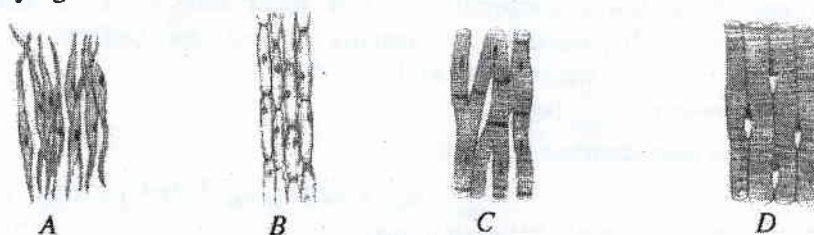


Figure 3

- (ii) What common feature could be seen in a tissue when various plant and animal tissues are observed?

(Total marks 20)

(See page six)

5	(A)	(i)	male :- testosterone (01) female :- oestrogen/ progesterone (01) Give marks even for writing answers in order.	02
		(ii)	from the day 01 or at the end of the day 28	01
		(iii)	<ul style="list-style-type: none">FSH/ Follicle Stimulating HormoneLH/ Luteinizing Hormone for one answer	01
		(iv)	ovulation	01
		(v)	between day 14 and day 21	01
		(vi)	<ul style="list-style-type: none">Cell division/ cell differentiation/ becoming a morula/ implantation (01) (01)	02
		(vii)	syphilis/ gonorrhoea	01
	(B)	(i)	<ul style="list-style-type: none">nervous system (01)endocrine system (system of ductless glands) (01)	02
		(ii)	eye → cerebrum → spinal cord → muscles <ul style="list-style-type: none">when all steps are written completely - 03 markswhen cerebrum / spinal cord of the above steps are not mentioned - 02 marksfor any other answers - 00 marks	03
		(iii)	secretion of adrenaline hormone	01
	(C)	(i)	A - smooth muscle (tissue) (01) B - parenchyma (plant tissue) (01) C - cardiac muscle (tissue) (01) D - skeletal muscle (01)	04
		(ii)	consisting of identical cells (mostly)	01
				Total marks

6. (A) Natural rubber is a polymer.

(i) Name the monomer which natural rubber is made up of.

(ii) Natural rubber is vulcanized by heating rubber with sulphur to a certain temperature.

(a) Mention the structural change that occurs in natural rubber during vulcanization.

(b) State **two** changes in the properties of natural rubber brought about by the structural change you stated in part (a) above.(c) Name one pollutant causing global warming and one pollutant causing acid rain which are added to air when vulcanized tyres are bunt in air (**The pollutants causing respective effects should be written clearly and separately**).

(B) The LP gas cylinders used for domestic cooking mainly contain propane and butane; both belonging to the hydrocarbon group.

(i) What is meant by 'hydrocarbons'?

(ii) (a) To which series of hydrocarbons do propane and butane belong?

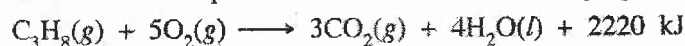
(b) What is the common formula related to the hydrocarbon series you stated above?

(iii) The balanced chemical equation relevant to the complete combustion of butane is as follows.



Write the values relevant to 'x' and 'y' in the above equation.

(iv) The balanced chemical equation for the combustion of propane is given below.



(a) Is the above reaction exothermic or endothermic?

(b) Sketch an energy level diagram for the above reaction indicating clearly the relative positions of reactants and products.

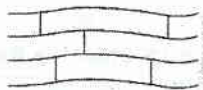
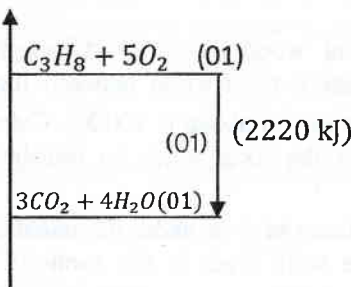
(C) Given in the box below are several techniques used to separate components in mixtures.

- | | | |
|-------------------|-----------------------|---------------------------|
| ● Sifting | ● Recrystallisation | ● Fractional distillation |
| ● Filtration | ● Solvent extraction | ● Steam distillation |
| ● Crystallisation | ● Simple distillation | ● Chromatography |

Write separately, which technique given in the above box is most suitable to fulfil the requirements (i), (ii), (iii) and (iv) given in the first column of the following table.

	Requirement	Chemicals provided	Extra information
(i)	Obtaining pure potassium chlorate crystals from a sample of potassium chlorate salt contaminated with a small amount of common salt	water	Potassium chlorate is more water-soluble at higher temperatures than at lower temperatures.
(ii)	Obtaining most of the iodine dissolved in a volume of water as pure crystals of iodine	diethyl ether	Diethyl ether is a volatile solvent immiscible with water. Iodine is more soluble in diethyl ether than in water.
(iii)	Identifying three colourings supposed to have been added to a food material	ethanol	The relevant food colourings are soluble in ethanol.
(iv)	Separating hexane and octane from a mixture formed by mixing the liquids hexane and octane	—	Hexane and octane are miscible liquids. Boiling point of octane is higher than the boiling point of hexane.

(Total marks 20)

6	(A)	(i)	isoprene	01	
		(ii)	(a)	formation of cross links (among linear chains) of rubber (through sulphur) or 	02
			(b)	increasing the hardness/ decreasing the elastic nature increasing the melting point/ resistant to wear and tear 01 mark for each answer	02
		(c)	increasing global warming- carbon dioxide / CO_2 (01) acid rains- sulphur dioxide/ SO_2 (01) Give marks even when these answers are written in order.	02	
	(B)	(i)	(organic) compounds which contain carbon and hydrogen only	01	
		(ii)	(a)	alkane (group)	01
			(b)	C_nH_{2n+2}	01
		(iii)	x = 2 (01) y = 8 (01)	02	
		(iv)	(a)	exothermic	01
			(b)	(energy) 	03
	(C)	(i)	recrystallisation (01)		
		(ii)	solvent extraction (01)		
		(iii)	chromatography (01)		
(iv)		fractional distillation (01)	04		
Total marks				20	

9	(A)	(i)	(a)	$L + MSO_4 \longrightarrow LSO_4 + M$	02	
			(b)	single displacement (reaction)	01	
			(c)	L	01	
		(ii)	(a)	I) pink/ red	01	
				II) OH^- / hydroxyl/ hydroxide	01	
			(b)	$Zn \longrightarrow Zn^{2+} + 2e$ Give marks also for $Zn - 2e \longrightarrow Zn^{2+}$	01	
				(c)	to obtain observations quickly / to increase the rate of reaction / to increase the conductivity of the medium / to neutralize the medium	01
			(d)	I) iron / Fe	01	
				II) galvanizing iron/ give marks for stating that a sacrificing metal is connected to the hulls of ships/ underground pipes	01	
		(B)	(i)	20Hz – 20000Hz	01	
			(ii)	pitch	01	
			(iii)	loudness	01	
			(iv)	(a)	longitudinal waves	01
				(b)	making rarefactions and compressions (in air particles)	02
(v)	(a)		speed = $\frac{\text{distance}}{\text{time}}$ or $= \frac{170(m)}{0.5(s)} = 340 \text{ ms}^{-1}$ (01) (01)	02		
			(b)	I) Does not change II) Changes	01 01	
Total marks					20	