



PROVINCIAL DEPARTMENT OF EDUCATION - NORTH WESTERN PROVINCE

THIRD TERM TEST - 2022

Grade 11

Science - I

Time : 01 hour

Name/Index No.

Instructions for answering :

- ✍ Answer all questions.
- ✍ In each of the questions 1 to 40, pick one of the alternatives (1), (2), (3), (4) which you consider as correct or most appropriate.
- ✍ **Marks a cross (X) on the number corresponding to your choice in the answer sheet provided.**

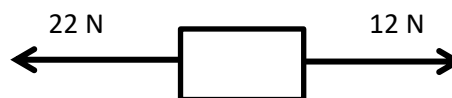
1. What is the standard unit of measuring energy out of the followings?
1) Joule 2) Metre 3) Newton 4) Watt
2. A non-living structure found in the living cell is ,
1) Chloroplast 2) Mitochondrion
3) Cell wall 4) Cell membrane
3. Two metals which can be extracted by the method of electrolyzing fused compounds is ,
1) Na and K . 2) K and Fe 3) Fe and Ag . 4) Ag and Au .
4. What is the application of electromagnetic force out of the followings.?
1) Loud speaker 2) Bicycle dynamo
3) Micro phone 4) Alternate current dynamo
5. What is the option which contain diseases which are sexually transmitted by virus?
1) AIDS and Gonorrhea 2) Gonorrhea and Syphilis
3) Syphilis and Herpes 4) Herpes and AIDS
6. A motor bike with the mass of 80 kg is moving with an acceleration of 2 m s^{-2} What is the unbalanced force acts on it ?
1. 40 N 2. 80 N 3. 160 N 4. 320 N
7. In which instances, the applied force becomes equal to the frictional force?
1. Static and limiting situations 2. Limiting and dynamic situations
3. Static and dynamic situations 4. Only in limiting situation

8. What is the compound which release H^+ ions by fractional ionization in aqueous solutions?.

- 1) HNO_3 2) H_2CO_3 3) H_2SO_4 4) HCl

9. As shown in the diagram,there are two forces act on an object.What would be the magnitude of the resultant force?.

- 1) 10 N
2) 12 N
3) 22 N
4) 34 N



10. Which is **not** a feature of monocotyledonous plant?.

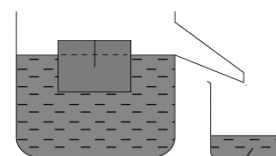
- 1) Trimerous flowers 2) Presence of parallel venation
3) Presence of tap root system 4) Presence of only one cotyledon

11. When a strong acid and a weak base is mentioned respectively,

- 1) HCl and KOH . 2) CH_3COOH and KOH .
3) HCl and NH_4OH . 4) HCO_3 and NH_4OH .

12. As shown in the diagram,a wooden block with the weight of 2 N submerged and float on water.The weight of displaced water is?

- 1) Less than 2 N
2) More than 2 N
3) Equal to 2 N
4) May less than or more than 2 N



13. Which factors out of the followings causes to increase the number of organisms in a population?

- 1) Births and deaths 2) immigration and emigration
3) Births and immigrations 4) Deaths and emigrations

14. What is the correct way that the scientific name of elephant has printed ?

- 1) **Elephas maximus** 2) *Elephas maximus*
3) *Elephas Maximus* 4) **ELEPHAS MAXIMUS**

15. Followings are the ideas of two students about forces acts on the handle of a bicycle when riding a bicycle.

- A- A couple of forces act when turning the handle with both hands.
B- Only a moment of force acts when turning a handle with a single hand.

What is the correct statement about the ideas given above?.

- 1) A is correct and B is incorrect
- 2) B is correct and A is incorrect.
- 3) Both A and B statements are incorrect
- 4) Both A and B statements are correct

16. What is the living cell belongs to the xylem tissue?.

- 1) Vessels
- 2) Tracheids
- 3) Xylem fibers
- 4) Xylem parenchyma

17. A 100 cm^3 of an aqueous solution contains 2g of NaOH. What is the concentration of the solution?. (Na=23, O=16, H=1)

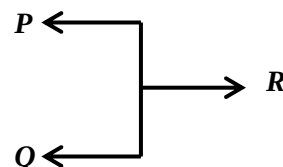
- 1) 0.5 mol dm^{-3}
- 2) 1 mol dm^{-3}
- 3) 2 mol dm^{-3}
- 4) 20 mol dm^{-3}

18. Followings are some ideas introduced by a student regarding the conditions that should fulfill when three forces are at equilibrium as shown in the diagram

- A. **P**, **Q** and **R** should be equal in magnitude
- B. Lines of action of **P**, **Q** and **R** forces should be parallel
- C. The magnitude of force **R** should be equal to **P + Q**

Correct statements out of them are ,

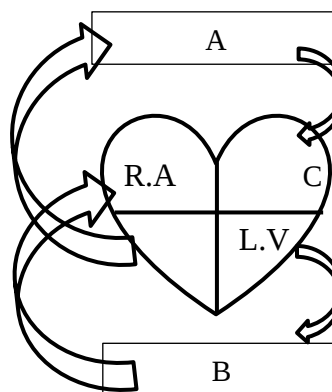
- 1) A and B only
- 2) A and C only
- 3) B and C only
- 4) A, B and C all



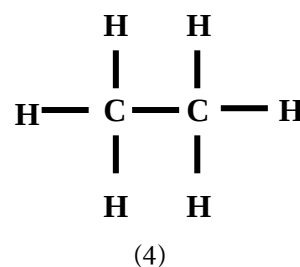
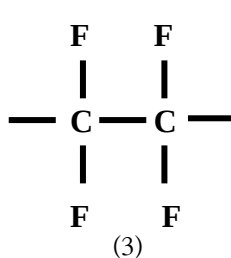
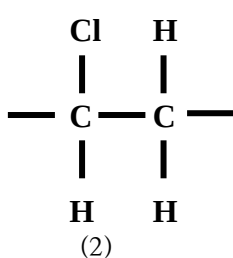
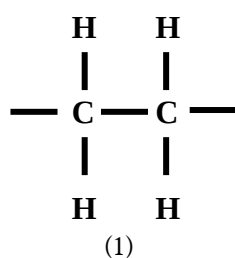
19. Following is a rough diagram of human double circulation.

When the structures represented by A, B and C letters are shown According to the order.

- 1) Lung, Body organ, Left atrium.
- 2) Body organ, Lung, Left atrium
- 3) Lung, Body organ, Right ventricle
- 4) Body organ, Lung, Right ventricle



20. What is the repeating unit of Ethelene?



21. What is the potential difference that should be supplied to a 10Ω resistor to flow a current of 2 A ?

- 1) 5 V
- 2) 8 V
- 3) 12 V
- 4) 20 V

22. Consider the following statements regarding the blood circulation of human.

- A. The oxygen is transported to the cells through hemoglobin in red blood cells.
- B. The sounds of heart occur due to the closure of heart valves.
- C. Left pulmonary artery is connected to the left atrium

Correct statement out them are

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

23. What is the **incorrect statement** about the electrolysis of aqueous CuSO_4 solution?

- 1) The colour of the solution gradually decreases when electrolyzing using carbon electrodes.
- 2) The colour of the solution will not decrease when a piece of copper is used as positive electrode.
- 3) Deposition of copper at negative electrodes can be taken as an observation.
- 4) Oxygen gas evolves at anode when carbon is used as positive and negative electrodes.

24. If the object is placed at anywhere, can obtain a virtual, upright and diminished image by

- 1) Convex mirrors and concave lenses
- 2) Convex mirrors and convex lenses
- 3) Concave mirrors and concave lenses
- 4) Concave mirrors and convex lenses

25. Consider following statements introduced by a student about enzymes.

- A. Increase the rate of biochemical reactions.
- B. Special proteins.
- C. Can destroy at high temperatures.

Correct statements out of them are

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

26. The melting point of the compound A is -78°C and the boiling point is -33°C

The melting point of compound B is 801°C and the boiling point is 1413°C

What is the correct statement about the A and B compounds ?

- 1) A is a covalent compound and B is an ionic compound
- 2) B is a covalent compound and A is an ionic compound
- 3) A and B are covalent compounds
- 4) A and B are ionic compounds

27. What is the amount of heat required to increase the temperature of 2 kg of water by 10°C ?

(Specific heat capacity of water- $4200\text{ J kg}^{-1}\text{ }^{\circ}\text{C}^{-1}$)

- 1) 4 200 J 2) 8 400 J 3) 42 000 J 4) 84 000 J

28. There are following features of a certain plant cell.

- Cell wall is thin.
- Consist of large central vacuoles.
- Presence of chlorophyll.
- Inter cellular spaces are present.

The cells with the above features may be,

- Parenchyma cells
- Collenchyma cells
- Sclereids cells
- Fiber cells

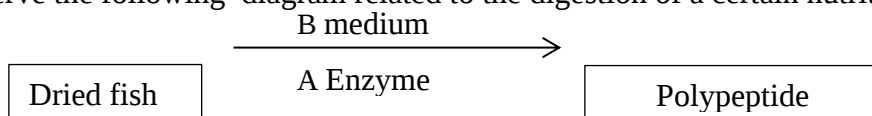
29. 10 LED lamps with 9W power of a certain house lighted up per 5 hours for 30 days. What was the amount of energy consumed?.

- 1) 13,5 kW h 2) 450 kW h 3) 2700 kW h 4) 13,500 kW h

30. When an immersion heater is connected to the 12V power supply a current of 5A is flowed. What is the power of the immersion heater?.

- (1) 1000 W (2) 1150 W (3) 1500 W (4) 2000 W

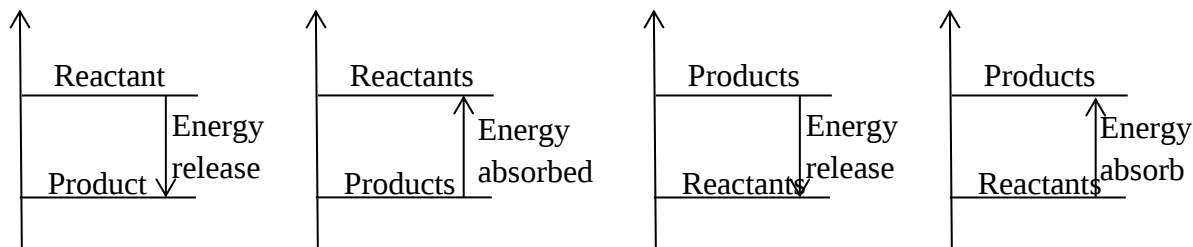
31. Observe the following diagram related to the digestion of a certain nutrition of dried fish.



Enzyme A and the medium B respectively are,

- 1) Amylase and basic
- 2) Pepsin and acidic
- 3) Trypsin and acidic
- 4) Lipase and basic

32. What is the energy level diagram which correctly show an exothermic reaction?



1)

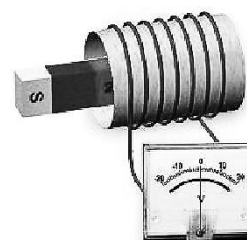
2)

3)

4)

33. As shown in the diagram, a current is induced in the circuit when,

- 1) The magnet is moved in to the coil only.
- 2) The magnet is moved away from the coil only.
- 3) The magnet is kept at rest in the coil only.
- 4) The two situations when the magnet is moved in to the coil and moved away from coil only.



34. What is the number of atomic moles of oxygen in 68g of hydrogen peroxide(H_2O_2)

- 1) 1
- 2) 2
- 3) 4
- 4) 68

35. Followings are three simple experiments to identify gases and their observations.

	Experiment	Observation
A	Introduce a glowing splinter to the gas sample	Glow with a bright flame.
B	Sending the gas through lime water	Turns in to milky. Turns colourless when send further.
C	Bring a flame close the gas sample.	Burns with a pop sound

When A,B and C gases are mentioned respectively?

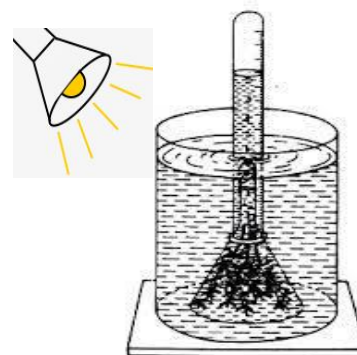
- 1) oxygen, carbon dioxide and hydrogen
- 2) Carbon dioxide, oxygen and Hydrogen.
- 3) Hydrogen, oxygen and carbon dioxide.
- 4) Hydrogen, carbon dioxide and Oxygen.

36. Following is a diagram used to study the photosynthesis process .A and B show the ideas introduced by two students about the conditions that can be tested

- A. The effect of light for photosynthesis.
- B. Release oxygen gas as a product of photosynthesis.

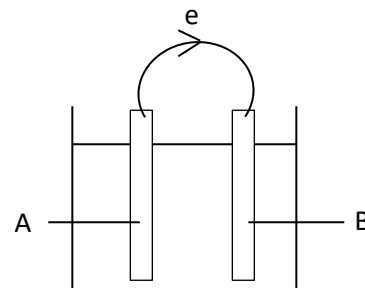
Out of these statements

- 1) A statement is correct and B statement is incorrect.
- 2) A statement is incorrect and B statement is correct
- 3) Both A and B statements are correct
- 4) Both A and B statements are incorrect



37. What is the correct statement regarding the electrochemical cell shown in the diagram?.

- 1) A electrode is Cu and B electrode is Zn.
- 2) A electrode is anode and B electrode is cathode.
- 3) Reduction takes place in A and oxidation takes place in B
- 4) Standard direction of current flows from A to B



38. Followings are three metals applied on iron to prevent from corrosion.

- a) Zn (Zink)
- b) Sn (Tin)
- c) Ni (Nickel)

Out of these metals ,which metals are applied on iron to protect from corrosion as anodic protection method?

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

39. What is the most suitable solution for fuel crisis?

- 1) Decrease the fuel consumption by increasing the fuel price.
- 2) Improve the public transportation by limiting the private vehicles.
- 3) Extension of railways further and facilitate transportation to a large crowd.
- 4) Improve the use of renewable energy sources to fulfill energy requirements.

40. A student near the front door of a house in a rainy day heard a huge thundering sound 2S after seen the light of it. What should be the most suitable action to take by the student after observing the light of thunder?.

- | | |
|---------------------------------|--|
| 1) Covering the ears with hands | 2) Close the door and go into the house |
| 3) Laying down on the ground. | 4) Take the legs up and laying on a bed. |





PROVINCIAL DEPARTMENT OF EDUCATION - NORTH WESTERN PROVINCE

THIRD TERM TEST - 2022

Grade 11

Science - II

Time : 03 hours

Name/Index No.

Instructions :

- Write your answers in neat hand writings.
- Answer the four questions in part A , in the space provided.
- Answer only 03 questions out of five questions in part B. Use separate papers to write answers.
- Attach part A and Part B answer script together and hand over

Part A- Structured Essays

01.

- A. The figure shows how a natural environment has changed after certain period of time due to the usage of human.



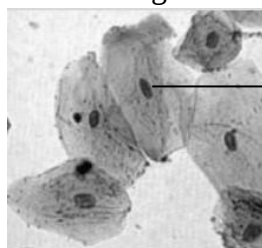
- Write two changes which has done by the human on this environment. (02)
a. b.
- The effect which has occurred in this environment is a harm or a development ? (01)
.....
- Mono crop cultivation has done in this environment. Which cultivation method should be used instead of mono crop cultivation, according to the sustainable usage of agriculture? (01)
.....

- iv. There is a more attention to use organic fertilizer for the sustainable environmental usage.
- v. a. Name a substance which can be used to produce organic fertilizer **from this environment**. (01)
-
- b. Write two advantages gain by soil due to the usage of organic fertilizer (02)
-
- c. There is an idea that the sudden usage of organic fertilizer is not effective in a land which has used chemical fertilizers. State a reason for that?. (01)
-
- vi. The attentions should be paid about the traditional food as sustainable use of agriculture. Name two diseases which have a less tendency to occur due to this. (02)
-

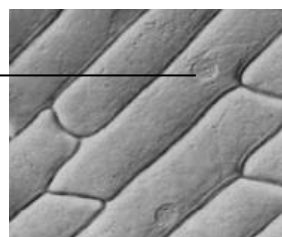
- B. Write the procedure which can be followed under sustainable development Infront of the dotted line given below. (03)
- i. The total amount of carbon dioxide released in a certain period of time as a result of the activities of a particular individual, organization or community -
- ii. The total amount of fresh water utilized in the production or supply of the goods and services by a particular person or a group. -
- iii. The distance over which a food item is transported during the journey from producer to consumer -

- C. Not conserving energy has become a huge crisis
- i. Write two reasons for the occurrence of energy crisis (01)
-
- ii. Write a procedure that can be followed to overcome the energy crisis? (01)
-

- 02.
- A. Following diagrams show the light microscopic views of cells of onion peel and cheek cells.



A Diagram



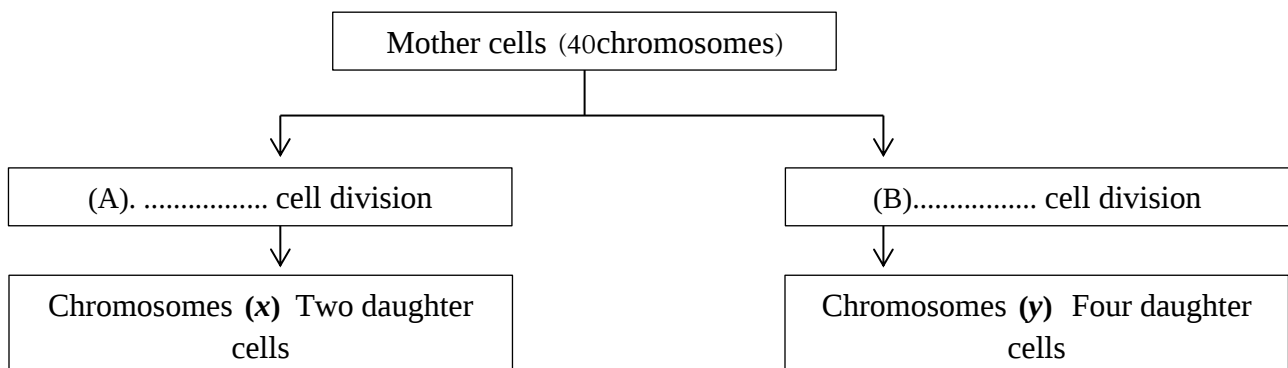
B Diagram

- i. Name respectively the diagrams which shows onion peel cell and cheek cell out of the A and B diagrams.?
(01)
.....
- ii. Write a feature to indicate onion peel cells as plant cells. (01)
.....
- iii. A student says that there is no specific shape for the cheek cell. Give a reason for it (01)
.....
- iv. What is the function of the organelle P?..... (01)
- v. Name two organelles which can not observed through light microscope but observed through electron microscope. (02)
.....

B. Photosynthesis is a living process takes place in plants.

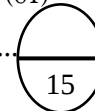
- i. Categorize the factors of photosynthesis as external factors and internal factors. (02)
External factors :
Internal factors :
- ii. In which cells out of the parenchyma, collenchyma and sclerenchyma cells where photosynthesis takes place? (01)
.....
- iii. Write the balanced chemical equation to indicate the photosynthesis (02)
.....

C. Following is a diagram related to the cell division in organisms



- i. Name two types of cell division which are shown as A and B. (02)
A. B.
- ii. State the number of chromosomes represented as (x) and (y) (02)
(x) (y)

- iii. The number of chromosomes in the gamete cell of a certain organism is n . what is the number of chromosomes in the zygote which is formed by combining male and female gametes? (01)



03. Followings are some information relevant to certain elements with the atomic number from 1 to 20. The symbols of the elements are not real. Answer the question using the symbols given in the table.

Atomic number	1	9	12	13	14	15	16	17	19	20
Element	P	Q	R	S	T	U	V	W	X	Y

- i. Relevant to the following information, write the symbols of the elements within brackets. (05)

- The element with highest electronegativity - (.....)
- The element with lowest electronegativity - (.....)
- The element which makes strongest acidic oxide - (.....)
- The element which makes amphoteric oxide in the third period - (.....)
- The element which is used to make a transistor- (.....)

- ii. Write the formula of the compounds formed by the element R with chlorine, oxygen and PO_4^{3-} Radical

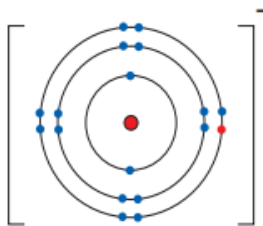
- With Chlorine - (01)
- With Oxygen - (01)
- With PO_4^{3-} Radical - (01)

- iii. Ionic compounds are formed when W and X elements are combined

- Write the electronic configuration of W and X ions (02)

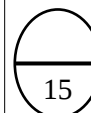
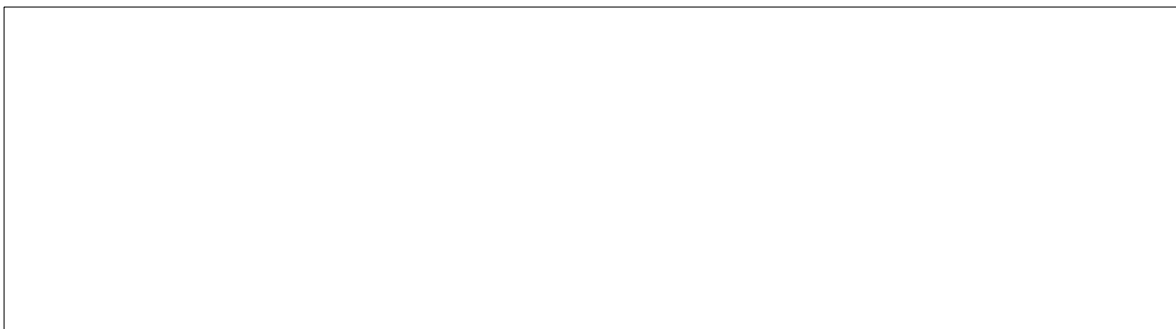
W - X -

- The negative ion out of the W and X ions which contains in the lattice is shown below. Draw the positive ion. (02)



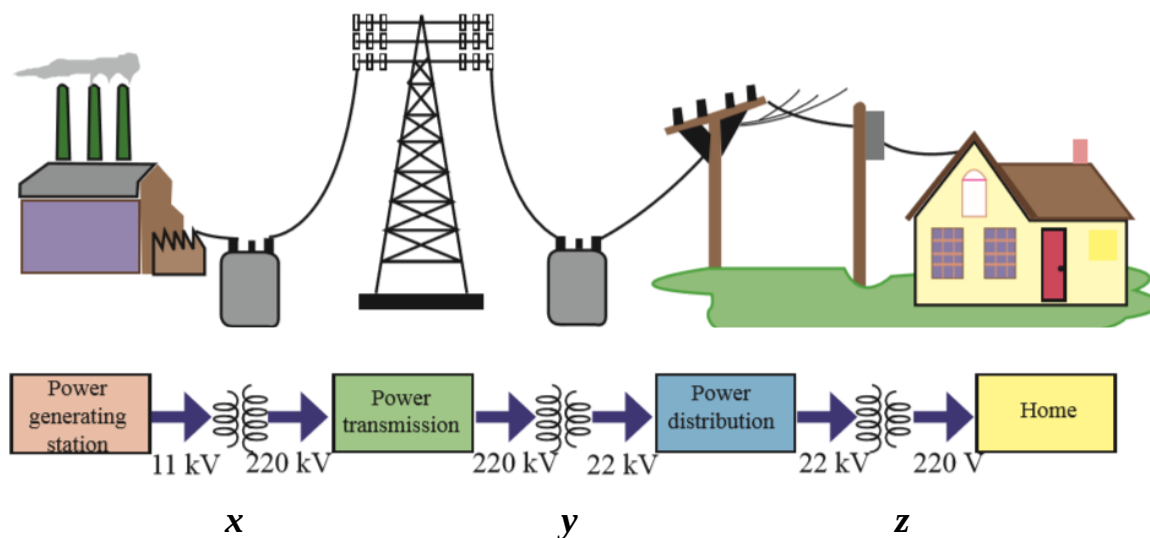
- iv. Write the letters of two elements which contribute to make compounds in which exceed the octet electrons in a covalent bond.. (01)

- v. Draw the Lewis structure of the compound which form hydrogen bond by combining two elements in the table (02)



04.

A. Following is a diagram to show distribution of power to house hold circuits from a main power grid.



i. Categorize the x, y and z shown in the diagram as step up and step-down transformers. (02)

Step down transformers : Step -up transformers :

ii. Power station shown above is a thermal power station.

a. Name a fuel used in thermal power stations. (01)

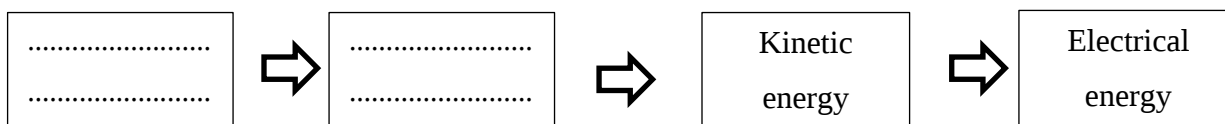
.....

b. State an advantage and a disadvantage of generating electricity by using thermal power stations in srilanka. (02)

Advantage :

Disadvantage:

iii. Complete the following flow chart relevant to the production of electricity using thermal power stations. (02)

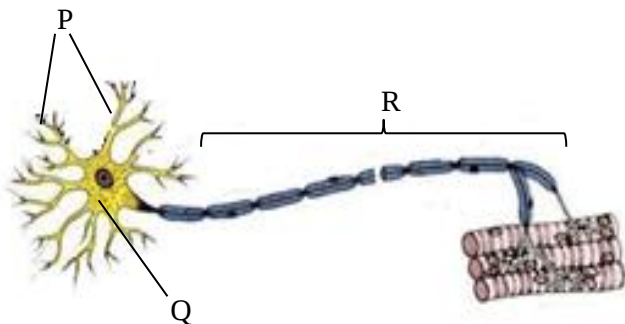


- iv. Non renewable energy sources are used in thermal power stations. Name two renewable energy sources used to generate electricity in power stations of srilanka. (02)
-
- v. Name the component which connect firstly to the household circuit which belongs to the service provider? (02)
-
- vi. What is the component which disconnect when repairing the household circuit? (01)
-
- vii. In a transformer, If the number of turns in the primary coil is N_P and the number of turns in the secondary coil is N_S and the voltage of primary coil is V_P and voltage of secondary coil is V_S , construct an equation to show the relationships between the above quantities. (01)
-
- viii. In a transformer, if the number of turns in the primary coil is 8000, number of turns in the secondary coil is 400 and the voltage of primary coil is 240V, Calculate the voltage of secondary coil V_S (02)
-
-
-

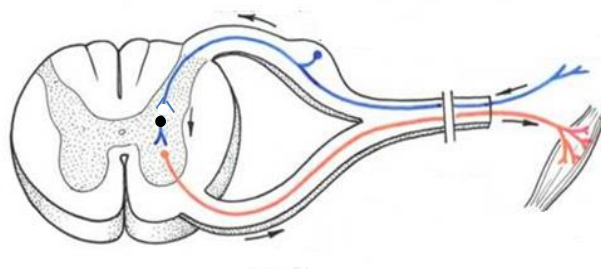


05.

- A. (a) Diagram shows the structural unit of the nervous system and the (b) diagram shows the functional unit of the nervous system.



(a) Diagram



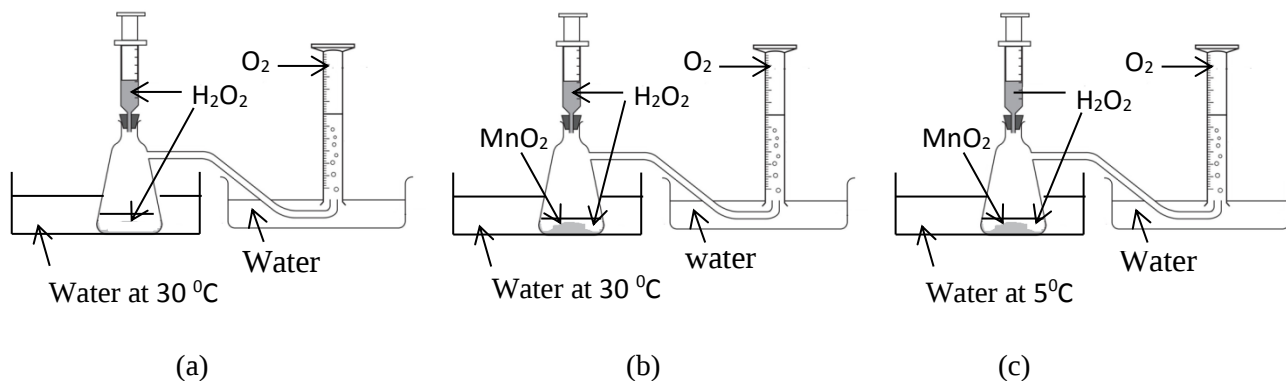
(b) Diagram

- i. Write the name of the structural and functional unit of the nervous system. (02)
 - ii. Name the P,Q and R parts of the structural unit of the nervous system shown in the (a) diagram. (03)
 - iii. Briefly explain what is meant by reflex action. (01)
 - iv. State the path of travelling impulses in a reflex action using the diagram (a) (02)
 - v. Write a difference between nervous coordination and non-nervous coordination. (01)
 - vi. Name a ductless gland which contribute to non- nervous coordination. (01)
- B. Various investigations have done about the inheritance of genetic characteristics of human.
- i. Who is considered as the first person to investigate the transmission of inherited characteristics? (01)
 - ii. How is the particular factors which transmit characteristics from parents to offspring are defined? (01)
 - iii. Define following terms regarding the inheritance (02)
 - a. Gene expression
 - b. Sex linked genes.
 - iv. Express the features of offspring using punette square when a carrier female of hemophilia is married with a healthy male, (03)
 - v. Name two diseases caused to human due to mutation in autosomal chromosomes. (02)
 - vi. Briefly explain the importance of prevention of marriages between blood relatives (01)

(20 marks)

06.

A. (a),(b) and (c) diagrams show three apparatus used by a group of students to prepare oxygen gas in the laboratory. The volume of gases collected in different time intervals are shown in the figures.

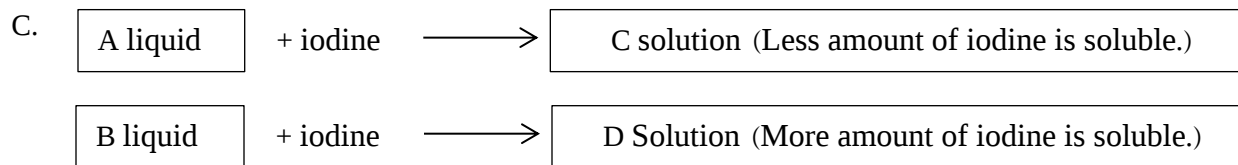


- i. According to the experiment, What was the apparatus which collect the gas quickly? (01)
- ii. Write the balanced chemical equation relevant to the production of oxygen gas in the set up. (02)
- iii. The equation stated above (i) is belonged to which type according to the way of getting products from reactants? (01)
- iv. State the pair of apparatus which can use to check the following factors of a rate of reaction
 - a. The effect of catalysts
 - b. The effect of temperature
 (02)
- v. What are the other two factors which affect the rate of reaction other than temperature and catalysts.? (02)
- vi. What is the conclusion that can arrive from the observations of (b) and (c) apparatus after a constant period of time? (01)
- vii. Briefly explain a simple test which is used to confirm that the oxygen gas is produced during the experiment. (01)

B. There are three types of tanks used during the extraction of salt.

- i. State the compounds precipitate in the following tanks. (03)
 - a. Shallow large tank
 - b. Medium tank
 - c. Small tank
- ii. What are the two main separation techniques used in the separation of salts from sea water. (02)

- iii. Write a geographical /environmental factor that should be considered when establishing a saltern (01)



- i. Give an example for each of A and B liquids. (02)
- ii. The iodine contained in the solution of C should be transferred to the liquid B. Write two properties of liquid B to fulfil this requirement. (02)
- (20marks)

07.

- A. Following data shows the way of changing velocity with the time of an object traveled in a linear motion.

Time t (s)	0	1	3	4	5	7	9	10	11
Velocity (ms^{-1})	0	2	6	8	10	10	10	5	0

- i. State the time spent in the following situations in the motion.. (03)
- Forward motion with an acceleration.
 - Move with a constant velocity.
 - Move with a negative acceleration.
- ii. What is the value of uniform velocity moved in the forward direction. (01)
- iii. Draw the velocity- time graph for the above data. (02)
- iv. Calculate the following quantities using the gradient of the velocity- time graph.
- The acceleration gains in the forward direction. (02)
 - The deceleration occurred in the motion. (02)
- B. The diagram (1) shows the usage of convex mirrors in side mirrors of vehicles.
- The diagram (2) shows how the word AMBULANCE is printed on the front side of an ambulance.
- The diagram (3) shows how the word AMBULANCE is printed on another side of the ambulance.



(1)



(2)



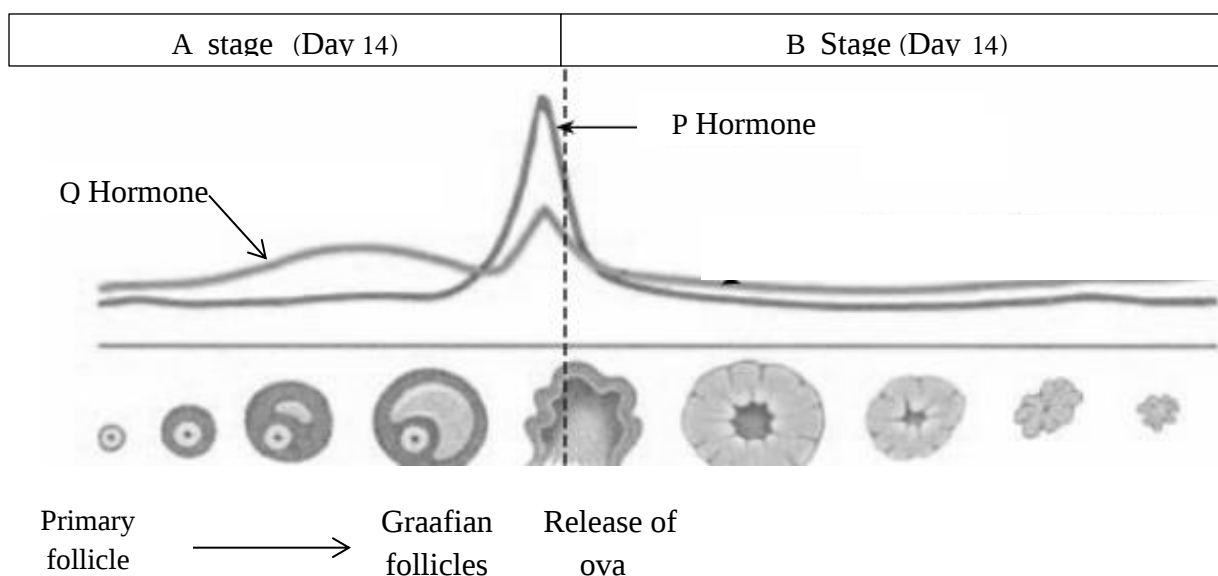
(3)

- i. Write the features of the image seen through the side mirrors of vehicles by selecting from the features given below. (03)
 - a. Real/ Virtual
 - b. Upright / Inverted
 - c. Magnified/ Diminished/ Equal to the object
- ii. Write a reason for not using plane mirrors as side mirrors of vehicles. (01)
- iii. Write two advantages of using convex mirrors as side mirrors of vehicles other than the use of plane mirrors. (02)
- iv. Write a reason for printing letters on the front side of the ambulance as inverted letters and the other side of it as normal letters. (01)
- v. An object is kept less than the distance of focal length in front of a convex lens with the focal length of 10cm. Draw a ray diagram to show the image formed in the above instance. (03)

(20 marks)

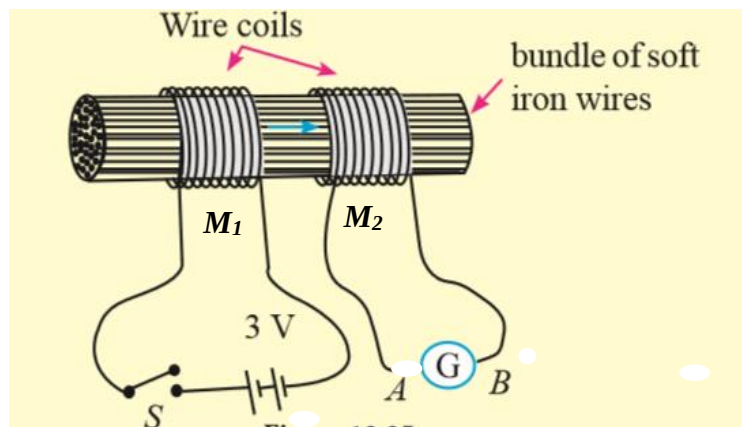
08.

A. Development and release of ova which are the reproductive cells of female is the function of ovary.



- i. How is the A and B stages in which the changes in ovary which can be studied are defined as? (02)
- ii. What is the name of Q hormone which affect to change a primary follicle into a graafian follicle?? (01)
- iii. Name the ductless gland which secrete the hormone mentioned in the above answer(ii) (01)
- iv. Name the hormone which secrete from ovary at the A and B stages respectively. (02)
- v. What is the name of the hormone P which affect to burst the graafian follicle and release ova? (01)
- vi. What is the place where fertilization of ovum which release from the ovary takes place? (01)
- vii. If the fertilization occurred, the wall of ovary becomes thick and improve the supply of blood. In which stage of the menstrual cycle can explain this condition.? (01)
- viii. In which stage can explain the changes in the uterus if the fertilization doesn't occur? (01)

B. Following is a diagram drawn to explain the action of a transformer. M_1 and M_2 are the insulated copper coils used for this.



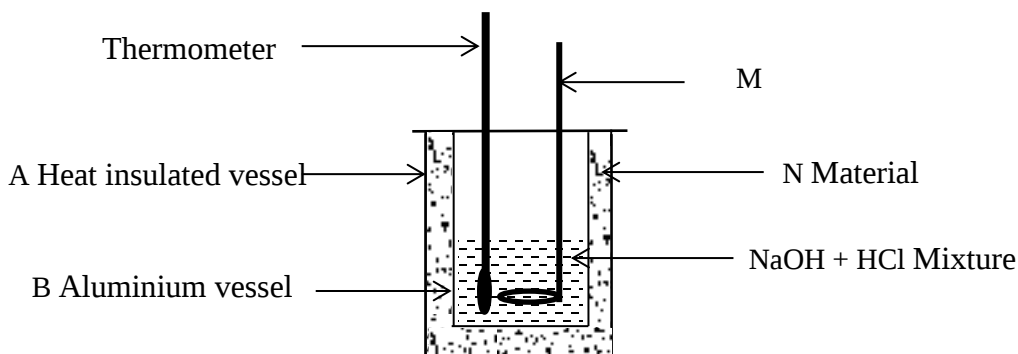
Switch

- i. Name State whether there is a deflection in the galvanometer in the following Instances. (03)
 - a) When closing the switch
 - b) When the switch is kept closed
 - c) When opening the switch
- ii. Out of the M_1 and M_2 insulated copper coils, which coils are used as primary and secondary coils? (02)
- iii. Write two changes that should be done in the apparatus to get a higher reading in the galvanometer (02)
- iv. Write the relationship between the number of turns in M_1 and M_2 coils if this transformer to use as
 - a) Step down transformer
 - b) Step up transformer (02)
- v. Write an instance of using step down transformers in day-to-day life. (01)

(20 marks)

09.

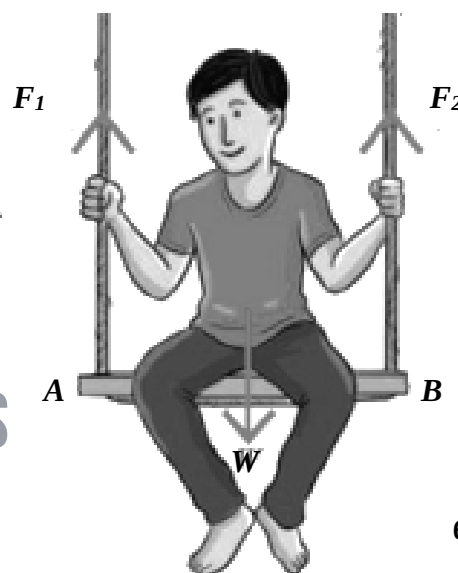
- A. Following is an apparatus used to react 100cm^3 of a very dilute solution of NaOH with another 100cm^3 of very dilute solution of HCl. When NaOH and HCl solutions are mixed the temperature change was 10°C .
(Specific heat capacity of water. = $4200\text{ J kg}^{-1}\text{ K}^{-1}$, Density of water = 1 g cm^{-3})



- Is that the temperature increase or decrease when NaOH and HCl are mixed? (01)
- According to the temperature change is it an exothermic or endothermic reaction? (01)
- Write the balanced chemical equation for the reaction NaOH and HCl indicating the physical states of reactants and products. (02)
- What is the use of M relevant to the reaction? (01)
- State a material which can be used as N (01)
- Write an example for each of exothermic and endothermic reaction takes place in day-to-day life. (02)
- If the NaOH and HCl solutions used in the experiments haven't labeled, briefly explain the way of identifying those solutions. (02)

- B. As shown in the diagram a student stays seated on a swing. He stays in the middle of two ropes. The mass of the rope is 50Kg and the mass of the wooden plank that he seated is 2Kg . The **AB** length of the wooden plank is 80 cm . Assume the mass of the wooden plank is negligible.

- What is the weight of the child? (02)
- What is the resultant force W created by the child
And the wooden plank downwards? (01)
- State the values of F_1 and F_2 (02)
- Draw a force diagram to show how forces act
As shown in the diagram. (01)
- Write the relationship among the F_1 , F_2 and W forces
by an equation. (02)
- If the child is seated 50cm above the ground level,
calculate the potential energy of the child.
($g = 10\text{ m s}^{-2}$) (03)





PROVINCIAL DEPARTMENT OF EDUCATION - NORTH WESTERN PROVINCE

THIRD TERM TEST - 2022

Grade 11

Science

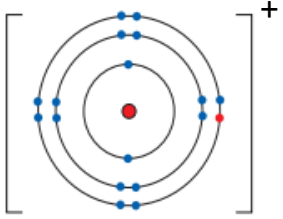
Answer Paper

Question number	Answer	Question number	Answer	Question number	Answer	Question number	Answer
1	2	11	3	21	4	31	2
2	3	12	3	22	1	32	1
3	1	13	3	23	3	33	4
4	2	14	2	24	2	34	3
5	4	15	4	25	4	35	1
6	3	16	4	26	1	36	3
7	1	17	1	27	4	37	2
8	2	18	3	28	1	38	3
	1	19	2	29	4	39	4
10	3	20	1	30	2	40	1

Science II

Part A - Structured Essays

1.			
A	i	Cutting trees/ Breeding colonies of bees/ Land has cultivated/Animals tied into trees. (For a correct change- 01 mark)	02
	ii	Harm	01
	iii	Mixed cultivation	01
	iv	a. Answer such as, animal dung /dead matter/plant materials	01
		b. Developing soil texture/Aeration of soil/Developing microbes/Soil becomes fertile due to the growth of microorganisms. (For correct answer -1 mark).	02
		c. Microorganisms can be destroyed due to the usage of chemical fertilizers and take a long time to grow microbes and soil organisms adequately.	01
	v	Diabetes (01) High blood pressure (01)	02
B	i	Carbon foot print	01
	ii	Water foot print	01
	iii	Food mile	01
C	i	High growth of population / Establishment of factories excessively/ Over usage of energy / Wastage of energy / Not exploring renewable energy resources / War activities / Political issues	01
	ii	Regulating daily use of energy/ Auditing energy consumption/ Energy efficiency/ Sustainable use of energy	01
			15
2.			
A	i	B and A	01
	ii	Cell wall	01
	iii	Cell wall is not present	01
	iv	Control the cellular activities	01
	v	Chloroplast/ Mitochondria /Ribosome /Golgi complex /Endoplasmic reticulum	01

B	i	External factors: water, Light and carbon dioxide (If three answers are correct) 01 marks Internal factors: Chloroplast (If written correctly), 01 mark	02
	ii	Parenchyma and collenchyma (If two answers are written)	01
	iii	$6\text{CO}_2 + 6\text{H}_2\text{O} \longrightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ (01 mark) When light is written above the arrow and chloroplast is written below the arrow. (01 mark)	02
C	i	A- Mitosis (01) B- Meiosis (01)	02
	ii	(x) 46 (01 mark) (y) 23 (01 mark)	02
	iii	$2n$	01
			15
03.			
	i	a. Q b. X c. W d. S e. T	01 01 01 01 01
	ii	i. RCl_2 (No marks when written as MgCl_2) ii. RO (No marks when written as MgO) iii. $\text{R}_3(\text{PO}_4)_2$ (No marks when written as $\text{Mg}_3(\text{PO}_4)_2$)	01 01 01
	iii	a. $\text{W} = 2,8,8$ (01 mark) $\text{X} = 2,8,8$, (01 mark)	02
		b.  (01 mark if (+) mark is absent)	02
	iv	U and W (When two elements are written only)	01
	v	For a correct answer written using two elements which form covalent bonds.2 marks (No marks if standard symbols are used or dot cross diagrams are drawn or Lewis dot diagrams are drawn.)	02
			15
04			
A	i	Step down transformer - y and z (01) Step up transformer- x (01)	02
	ii	A fuel like Coal/Diesel/Burnt oil	01
	iii	Advantage : Answer like inability produce a sufficient current from flowing water and wind ,it can be used to fulfill the energy requirement to some extent/Reduce the time of power cut. Disadvantage : Occurrence of environment pollution/ Lack of money (Dollars)to import fuels/ High expenditure for import.	01 01
	iii	Chemical energy (01) Heat energy (01)	02
	iv	Flowing water (01) Wind (01)	02
	v	Overload circuit breaker/ Service fuse (01) Electric meter/ Kilowatt hour meter (01)	02
	vi	Isolator/ Main switch	01
	vii	$\frac{N_p}{N_s} = \frac{V_p}{V_s}$	01
	viii	$\frac{8000}{400} = \frac{230}{V_s}$ (01) $V_s = \frac{230 \times 400}{8000}$ $V_s = 11.5 \text{ V}$ (01)	02
			15

05												
A	i	Neuron (01) , Reflex arc (01)	02									
	ii	P- Dendrites (01) Q- Cell body (01) R- Axon (01)	03									
	iii	A sudden response to a stimulus which occurs without involment of brain/Without thinking/involuntarily.	01									
	iv	Receptor, Sensory neuron, Inter neuron, (01) Motor neuron , Effector (01)	02									
	v	Nervous coordination is fast when responding to stimuli and chemical coordination is slow. (01) Nervous coordination is an electrical coordination and chemical coordination occurs through hormones. (01)	01									
	vi	Pituitary /Thyroid /Pancreas / Adrenal gland/ Gonads	01									
B	i	(Gregor) Mendel	01									
	ii	Genes	01									
	iii	a. The gene expression to a particular characteristic (01) b. The genes present in X or Y which do not segregate independently. (01)	02									
	iv	Since Carrier female for haemophilia- $X^H X^h$ (the gametes X^H and X^h) Since healthy male for haemophilia - $X^H Y$ (the gametes X^H and Y) <table border="1"><tr><td></td><td>X^H</td><td>X^h</td></tr><tr><td>X^H</td><td>$X^H X^H$</td><td>$X^H X^h$</td></tr><tr><td>Y</td><td>$X^H Y$</td><td>$X^h Y$</td></tr></table> For identifying gametes (01) For obtaining correct genotype by matching gametes (01) For writing correct phenotype (Healthy female, carrier female, Healthy male ,diseased male) (01)		X^H	X^h	X^H	$X^H X^H$	$X^H X^h$	Y	$X^H Y$	$X^h Y$	03
	X^H	X^h										
X^H	$X^H X^H$	$X^H X^h$										
Y	$X^H Y$	$X^h Y$										
	v	Albinisms (01) Thalassemia (01)	02									
	vi	If heterozygous recessive condition occurs in a person to particular disease, there is a more tendency to occur it in blood relatives.The disease can be expressed in offspring's as they are homozygous recessive.(For a correct idea)	01									
			20									
06												
A	i	b	01									
	ii	$2H_2O_2 \xrightarrow{MnO_2} 2H_2O + O_2$	02									
	iii	Chemical decomposition reaction	01									
	iv	a. a and b b. b and c	01 01									
	v	Surface area of reactants (01) Concentration of reactants (01)	02									
	vi	Rate of reaction increases when increasing the temperature of reactants/Rate of reaction decreases when decreasing the temperature.	01									
	vii	Burns with a bright flame when introducing a glowing splinter	01									
B	i	a. $CaCO_3$ b. $CaSO_4$ c. NaCl	01 01 01									
	ii	Vaporization/ Evaporation (01) Crystallization (01)	02									
	iii	A flat land close to the ocean which can obtain water easily/A clay soil with minimum percolation of water/Presence of strong sunlight and wind throughout the year.	01									

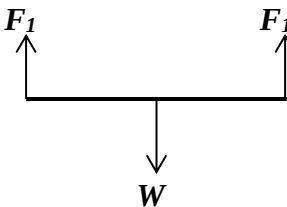
Grade 11

Answer Paper

Science

C	i	A liquid-water (01) B Liquid-carbon tetrachloride/thinner/ethyl alcohol/kerosine oil (01)	02
	ii	Not mixing with the liquid C(01)/ Density of B is less than or greater than liquid C/ Solubility of iodine is high (01)	02
			20
07			
A	i	a. 5 s b. 4 s c. 2 s	01 01 01
	ii	10 m s ⁻¹	01
	iii	For correct labeling axis (01) For correct drawing graph (01)	02
	iv	a. Gradient of the curve = Difference in Y coordinates / Difference in X coordinates $= (10-0) / (5-0) \quad 01 \text{ mark}$ $\text{Acceleration} = 10 / 5 = 2 \text{ m s}^{-2}$ Answer with unit 01 mark	02
		b. Gradient of the curve = Difference in Y coordinates / difference in X coordinates $= (0-10) / (11-9) \quad 01 \text{ marks}$ $= -10 / 2 = -5 \text{ m s}^{-2}$ Deceleration = 5 m s ⁻² Answer with unit 01 (Note =Mark is not allocated if the answer is given as -5 m s ⁻²)	02
B	i	a. Virtual (01) b. Upright (01) c. Diminished (01)	03
	ii	Seen the image as inverted/ Occurrence of real images/ Can obtain convergent beams of light.	01
	iii	Can see a large area since the image is diminished. (01) Image forms near the focus / Image is clear since the image distance is short. (01) Minimize the difficulty cause due to the divergence of light from the behind vehicles during night.(01) (01 mark for a correct answer)	02
	iv	Front letters are seen by vehicles move front to the vehicle.When seen through side mirror, letters are subjected to lateral inversion.Therefore the word is seen correctly. The side letters are seen by the people who use the road.To see them correctly the letters are written normally.	01
			20

08			
A	i	A-Follicular stage (01) B- Luteal stage (01)	02
	ii	Follicular stimulating hormone	01
	iii	Pituitary gland	01
	iv	A stage -oestrogen (01) B stage -progesterone(01)	02
	v	Luteinizing hormone	01
	vi	Fallopian tube (Upper part)	01
	vii	Proliferation phase	01
	vii	Menstrual phase	01
B	i	a. Deflection (01) b. No deflection (01) c. Deflection (01)	03
	ii	M_1 Primary coil (01) M_2 Secondary coil (01)	02
	iii	Increase the number of turns in M_2 coil. (01) Increase the voltage supplied to M_1 coil. (01)	02
	iv	a. Number of turns in M_2 coil is less than M_1 coil. b. Number of turns in M_2 coil is greater than M_1 coil	01 01
	v	To distribute the electricity to houses by lowering it up to 230V from main distribution centers. To reduce the voltage from 230V to required voltage in electric appliances such as power packs, computers and radios	01
			20
09			
A	i	Increase the temperature	01
	ii	Exothermic	01
	iii	$\text{NaOH (aq)} + \text{HCl (aq)} \longrightarrow \text{NaCl(aq)} + \text{H}_2\text{O(l)}$ If the physical states of reactants and products are not shown - 01mark	02
	iv	Mixing the reactants properly./Mixing the mixture properly/ Maintain a constant temperature throughout the mixture	01
	v	An insulator material such as Cotton wool/ Asbestos fibre.	01
	vi	Exothermic : A situation of combustion /A day-to-day instance like respiration. (01) Endothermic : Burning lime stones/ A day-to-day instance like photosynthesis (01)	02
	vii	Taking small quantities from both solutions and - When red litmus is added, aqueous NaOH solution turns into blue colour and other solution is HCl. - When blue litmus is added, aqueous HCl solution turns into red colour and other solution is NaOH. - When pH papers are added, aqueous HCl solution turns into red colour and NaOH solution turns into purple colour. - When a drop of phenolphthalein is added ,aqueous NaOH solution turns in to pink colour and other solution is HCl. - When a small amount of methyl orange is added and mixed ,the aqueous HCl solution turns into red colour and other solution is NaOH	01
B	i	$W = mg$ or weight = Mass x gravitational acceleration (01) = $50 \text{ kg} \times 10 \text{ m s}^{-2} = 500 \text{ N}$ Answer with unit (01)	02
	ii	520 N Answer with unit	01
	iii	$F_1 = 260 \text{ N}$ (01) and $F_2 = 260 \text{ N}$ (01)	02

	iv		01
	v	$F_1 + F_2 = W$	01
	vi	Potential energy $E_p = mgh$ (01) $= 50 \text{ kg} \times 10 \text{ m s}^{-2} \times 0.5 \text{ m}$ (01) $= 250 \text{ J}$ Answer with units (01)	03
			20
		Marks for multiple choice question paper = 2 x 40	80
		Marks for part A 15 x 4 = 60 and part B 20 x 3 = 60	120
		Total marks 200 / 2	100

Note:

- Allocate marks if the correct answers are written other than the answer given in the answer script. (When the answer is written by understanding the concept correctly)
- Don't allocate marks when the unit is not written with the final answer where it is compulsory.
- Do not allocate ½ (half) marks
- Consider this as a pre practice for G.E.E (O/L) examination when marking and discussing the answers with students after correcting the papers



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