Ministry of Education
Science Branch

34 - E - II

Grade 11

G.C.E (O/L) Supportive Test-2024(2025)

Science I

One hour

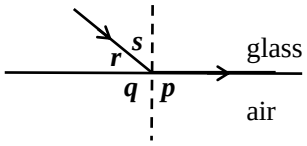
Instructions:
- Answer all the questions.
- In each of the questions 1 to 40, pick one of the alternatives (1), (2), (3), (4) which you consider is correct or most appropriate. (g = **10 m s^{-2}**)

1. What is the international standard unit (SI) of measuring specific heat capacity?
(1) J S^{-1} (2) J K^{-1} (3) J kg^{-1} K^{-1} (4) J kg^{-1} ^{0}C^{-1}

2. What is the correct answer which indicates the scientific name of mango plant?
(1) *mangifera Indica* (2) *Mangifera indica* (3) mangifera indica (4) MANGIFERA INDICA

3. The information that cannot be determined from the location of an element in the periodic table is,
(1) Atomic number
(2) Electronic configuration
(3) Mass number
(4) Number of energy levels

4. Which letter represents the critical angle in the given diagram?
(1) ***p*** (2) ***q***
(3) ***r*** (4) ***s***

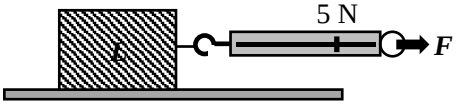


5. ..... is a photoautotrophic organism.
(1) Chlamydomonas (2) Yeast (3) Sea anemone (4) Amoeba

6. The two vegetative propagation parts of plants ***A*** and ***B*** shown in the figure respectively are.
(1) Rhizome and Stem tuber (2) Corm and Stem tuber
(3) Rhizome and Bulbs (4) Corm and Bulbs

A ***B***

7. The figure shows how a horizontal force ***F*** is applied to a wooden block ***L*** placed on a rough surface. When the force ***F*** is 5 N, the wooden block does not move. The correct statement regarding the figure,
(1) Weight of the wooden block is 5 N.
(2) Static frictional force is 5 N.
(3) Resultant force towards ***F*** is 5 N.
(4) Limiting frictional force is less than 5 N.



8. The tissue that provides rigidity to the plant body is,
(1) Xylem (2) Phloem (3) Cambium (4) Parenchyma

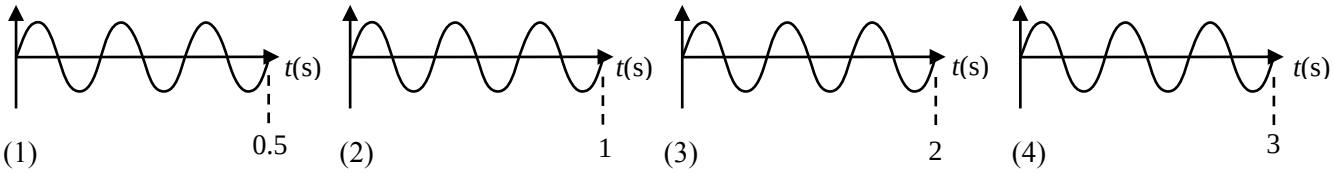
9. The reaction that occurs when a piece of zinc is put in to a diluted hydrochloric acid solution is,
(1) Combination reaction
(2) Decomposition reaction.
(2) Single displacement reaction
(4) Double displacement reaction

10. What hormone does the opposite function of the Glucagon hormone?
(1) Adrenalin (2) Calcitonin (3) Thyroxin (4) Insulin

11. What is the answer with molecules that have single bonds, double bonds, and triple bonds respectively between atoms?
(1) N_2 , CO_2, HCl (2) CO_2, HCl, N_2 (3) HCl , CO_2, N_2 (4) HCl, N_2, CO_2

12. A transformer with 100% efficiency supplies 220 V and a current of 0.5 A to the primary coil. If a potential difference of 11 V is applied to the secondary coil, what is the current flowing in that coil?
(1) 0.025 A (2) 0.5 A (3) 10 A (4) 40 A

13. Which of the following waves has a frequency of 1.5 Hz?

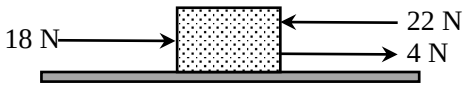


(1) 0.5 (2) 1 (3) 2 (4) 3

14. What is the answer with membrane less, single membrane and double membrane organelles in a cell respectively?

(1) Ribosomes, Golgi bodies and Chloroplast.
(2) Ribosomes, Nucleus and Chloroplast.
(3) Nucleus, Golgi body and Mitochondria.
(4) Mitochondria , Ribosome and Nucleus.

15. The figure given below shows how three horizontal forces are acting on an object. What is the magnitude of the resultant force acting on that object?



(1) 0 N
(2) 18 N
(3) 22 N
(4) 36 N

16. Which of the following is not a product of respiration in plants?

(1) Ethyl alcohol (2) Carbon dioxide (3) Lactic acid (4) ATP

17. How many H atoms are there in 16 g of methanol (CH_3OH)? (CH_3OH = 32 g mol^{-1})

(1) $2 \times 6.022 \times 10^{23}$ (2) $4 \times 6.022 \times 10^{23}$ (3) $16 \times 6.022 \times 10^{23}$ (4) $32 \times 6.022 \times 10^{23}$

18. Excretion of waste products produced during metabolism from the body is known as

(1) Excretion
(2) Coordination
(3) Irritability
(4) Respiration

19. In which of the following situations does a couple of force does not act?

(1) Turning the key to lock the door
(2) Using a screwdriver to fix a screw.
(3) Twisting a cap of a bottle
(4) Pedalling a bicycle

20. Which molecule has a central atom with a noble gas configuration?

(1) $BeCl_2$ (2) $AlCl_3$ (3) NH_3 (4) PCl_5

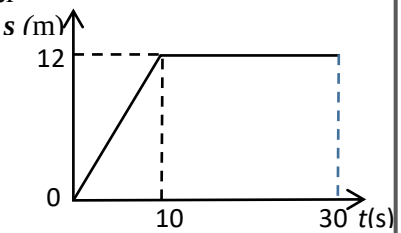
21. The colour rings of a resistor are red, purple, brown and silver respectively. What is the resistance value of the resistor?
(Brown = 1, Red = 2, Purple = 7)

(1) 172 Ω (2) 270 Ω (3) 271 Ω (4) 1700 Ω

22. Which of the following pairs of substances form a homogeneous mixture when mixed together?

(1) Ethanol and Water
(2) Water and Carbon tetrachloride
(3) Carbon tetrachloride and Ethanol
(4) Coconut oil and Water

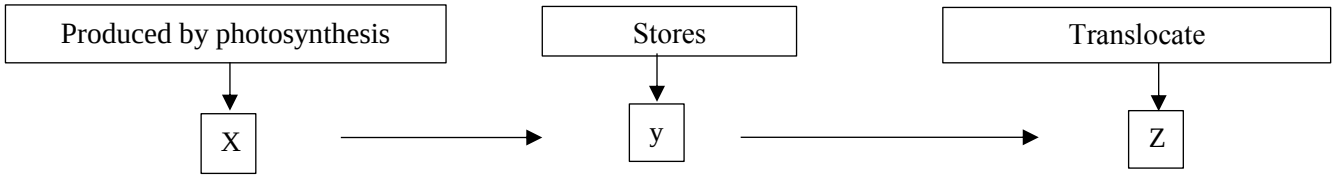
23. The displacement-time graph related to the motion of an object is shown below. Consider the following statements regarding it.



A - During the first 10 s, the object has moved with a uniform velocity.
B - The object remains at rest within 10 s to 30 s.
C - The displacement of the object in 30 s is 300 m.
Which of the above statements is correct?

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

24. Given below is part of a flowchart prepared by a student.



Which answer shows the correct carbohydrate corresponding for X, Y and Z respectively from the following?

(1) glucose, sucrose and starch.
(2) glucose, starch and sucrose.
(3) sucrose, starch and glucose.
(4) starch, glucose and sucrose.

25. Which answer shows the ascending order of the mass of the element in an organism?

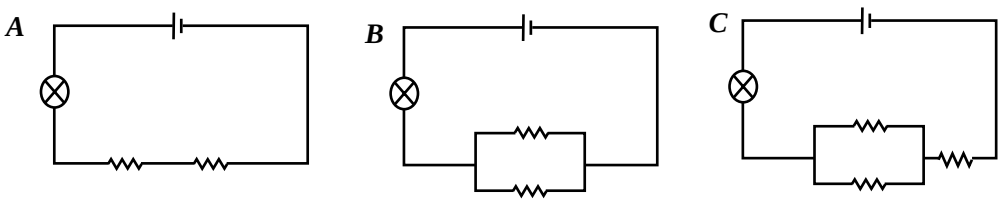
(1) Carbon < Hydrogen < Oxygen (2) Oxygen < Hydrogen < Carbon

(3) Oxygen < Carbon < Hydrogen (4) Hydrogen < Carbon < Oxygen

26. Given below is the information regarding four players ***P, Q, R,*** and ***S*** in a running event. Which player has the highest momentum?

	Player	Mass of the Player	Velocity
(1)	***P***	*m*	4 m s^{-1}
(2)	***Q***	*m*	9 m s^{-1}
(3)	***R***	2 *m*	4 m s^{-1}
(4)	***S***	2 *m*	9 m s^{-1}

27. Given below are three circuits A, B and C which are used to light three filamented bulbs. Resistance of each resistor is 4 Ω.



What are the circuits with the bulbs with highest and the lowest brightness respectively,

(1) A and B (2) A and C (3) B and A (4) B and C

28. Given below are the observations of three solutions in an acid base identification.

A – pH paper turns into purple.

B – Phenolphthalein remains colorless.

C – Red litmus turns blue.

The basic solution out of the three solutions is,

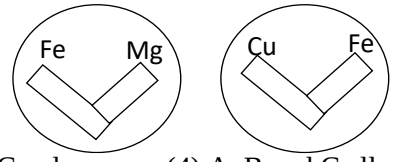
(1) A and B only. (2) A and C only. (3) B and C only. (4) A, B and C all.

29. The figure shows two pairs of metals placed in an agar medium mixed with potassium Ferricyanide and phenolphthalein. Given below are some statements of a student regarding the observations after a few hours.

A - pink color near Cu metal.

B - Blue colour near Fe in both setups.

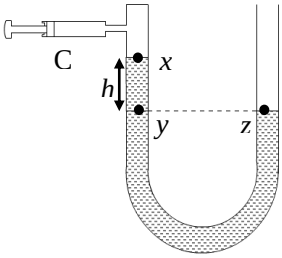
C - No colour change near Mg.



Which of the statements made by the student is true?

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

30. The air pressure in the syringe C at the bone shown in the figure is,



(1) Equal to the pressure at ***z***.

(2) Equal to the pressure at ***z*** + pressure at ***y***.

(3) Equal to the pressure at ***z*** + pressure exerted by liquid column *h*.

(4) Equal to the pressure at ***z*** - pressure exerted by liquid column *h*.

31. A plier dropped by a mechanic at the top of a transmission tower 45 m high, falls vertically down freely. What is the velocity of the plier at the moment it touches the ground? ($g = 10$ m s^{-2})

(1) 3 m s^{-1} (2) 4.5 m s^{-1} (3) 30 m s^{-1} (4) 45 m s^{-1}

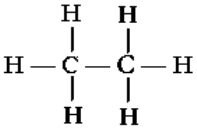
32. The Lewis structure of the molecule ethane (C_2H_6) is shown below. What characteristic confirms that ethane is an alkane?

(1) Presence of single bonds between Carbon and Hydrogen atoms.

(2) Presence of single bonds between Carbon atoms.

(3) Consisting only carbon and hydrogen atoms.

(4) The ratio of C to H is 1:3.

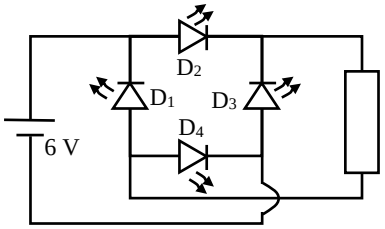


33. Three solutions A, B and C prepared by dissolving different masses of NaOH in distilled water have given in the table. (NaOH =40 g mol^{-1}) What is the answer with the ascending order of concentration of solutions?

	A	B	C
Mass	10 g	20 g	40g
Volume	100 cm^3	250cm^3	600 cm^3

(1) C < B < A (2) A < B < C
(3) B < C < A (4) A < C < B

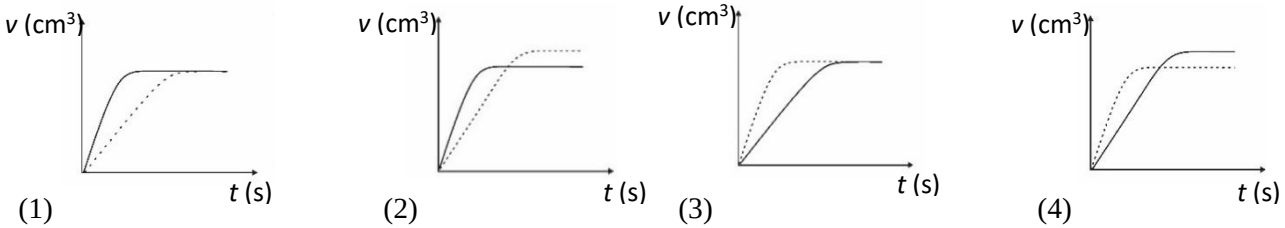
34. Red LEDs are used instead of rectifier diodes in the bridge shown in the picture. Which LEDs light up according to the direction of current flow in the circuit?



(1) D_1 and D_2 (2) D_1 and D_3
(3) D_2 and D_3 (4) D_2 and D_4

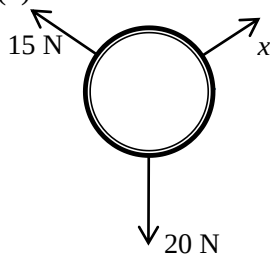
35. In order to study how the physical nature of the reactants affects the reaction rate, 2 g of Zn sheets are reacted separately with 1 mol dm^{-3} concentrated HCl acid. Which of the following is the graph that correctly shows how the volume of the collected air (v) varies with time (t) at each moment?

-------- Zn sheet —— Zn pieces



(1) (2) (3) (4)

36. The figure below shows how a ring is in equilibrium under three co-planer forces. The resultant of 15 N and 20 N is 14 N. What is the magnitude of the x force?



(1) 35 N (2) 21 N
(3) 14 N (4) 5 N

37. Given below are some of the behaviors of a certain person.

- Travels to workplace in his personal car.
- Use the elevator whenever possible.
- Snacks are eaten in addition to the main meal.

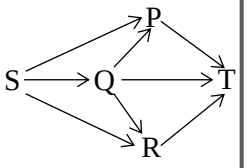
Which of the following non-communicable disease is he at risk of most likely to develop?

(1)Diabetic (2) Cancer (3) Chronic Kidney Disease (4) Hypotension

38. Given below are some animals that live near a garbage dump. Among them, who is the animal with the highest concentration of microplastic particles in its blood?

(1) Rat (2) Frog (3) Snake (4) Hawk

39. A food web in an ecosystem is given in the figure below. Which animal population density decreases rapidly when T is removed from the ecosystem?



(1) P (2) Q (3) R (4) S

40. Below are some measures followed by people in a particular household

A - Using banana leaves instead of polythene to make lunch parcels.
B - Using food scraps from home to make compost.
C - Using the polythene bag brought from the store to bring the goods on a later day.

Which of the following is the correct 4R principle answer for the above actions?

	A	B	C
(1)	Replace	Recycle	Reuse
(2)	Replace	Reduce	Reuse
(3)	Reduce	Reuse	Recycle
(4)	Recycle	Replace	Reduce

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