MÎ	hamps NDIA		2022-23 IENCE CHALLENGE EXAM (AISCE)
Name of the Student			Roll No.:
Name of the School	:		Date :
Class	:	Subject: Science	Time: 60 Min

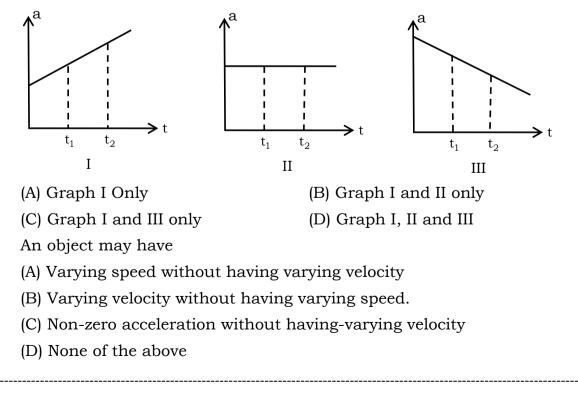
Instructions to the Candidate

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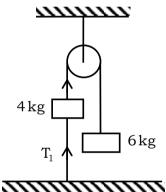
- 1. Each question carries 1 mark. There is no negative marking.
- 2. Separate Optical Mark Reader (OMR) Answer Sheet is supplied to you along with question paper booklet.
- 3. Read the questions carefully and fill in the circle corresponding to your answer. Fill in the circle Completely.
- 4. Rough work should be done only in the space provided in the Question Paper Booklet.
- 5. Return the OMR Answer sheet to the invigilator before leaving the examination hall.
- 6. You can carry the question paper with you after completing the examination.
- 7. Once you enter the examination hall, you are not permitted to leave till the end of the examination.

IX Class Science

 Each of the three graphs represents acceleration versus time for an object that already has a positive velocity at a time t₁ which graph show an object whose speed is increasing for the entire time interval between t₁ and t₂?



- 3. The unit of force is kg m.s⁻², if the unit of length is halved and that of mass is doubled, then the unit of force will
 - (A) be doubled (B) be quadrupled
 - (C) become half of the original value (D) remain unaltered
- A force F acting on a body of mass 'm' produces an acceleration 'a' on it. The same force when acting on another body produces an acceleration of '2a' on it. The mass of second body is
 - (A) $\frac{M}{2}$ (B) 2M (C) 4M (D) $\frac{M}{4}$
- A body is standing on a spring balance. The reading of the spring balance is 'W'. If the boy jumps outside the balance, then the reading of the spring balance will
 - (A) Increase (B) First decreases and then increases
 - (C) First increase then decrease (D) Decrease
- 6. Two bodies of mass 4 kg and 6 kg are attached to the ends of a string passing over a pully. A 4kg mass is attached to the table top by another string the tension in this string T₁ is equal to



(A) 20 N

(C) 15N

(D) 10N

7. A fast bowler bowls a 126 kmph ball at a batsman and his bat has contact with the ball for 1 milli second. It now moves straight towards the bowler at 144 kmph. The ball has a mass 160g what is the impulse of the force exerted on the ball by bat?

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(A) 12000 NS (B) 12 NS (C) 800 NS (D) 0.8 NS
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(B) 25N

8. In the following question, a statement of assertion is followed by a statement of reason.

Assertion: A light body and a heavy body have same momentum. Then they also have same kinetic energy.

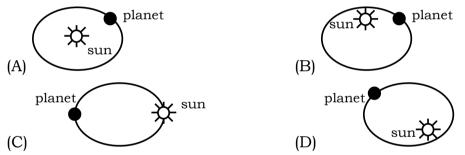
Reason: Kinetic energy does not depend on mass of the body.

Choose the correct option.

(A) If both assertion and reason are true and reason is the correct explanation of assertion.

(B) If both assertion and reason are true and reason is not the correct explanation of assertion.

- (C) If assertion is true but reason is false
- (D) If both assertion and reason are false
- 9. A block moving in air breaks into two parts and the parts separate from each other. I this process
 - (A) Both have same velocities
 - (B) The total momentum is not conserved
 - (C) The total kinetic energy must be conserved
 - (D) The total momentum must be conserved
- 10. How many joules are there in 1 kilo watt hour?
 - (A) 100 joule (B) 1 joule
 - (C) 36 joule (D) 3.6×10^3 kilo joule
- 11. Which of the following orbits is a possible orbit for a planet



12. The masses of two planets are in the ratio 1: 2 their radii are in the ratio 1 : 2.The acceleration due to gravity on the planets are in the ratio.

(A) 1 : 2 (B) 2 : 1 (C) 3 : 5 (D) 5 : 3

13. A rectangular wooden block 5cm × 10cm × 10cm in size is kept on a horizontal surface with its face of largest area on the surface. A minimum force of 1.5N applied parallel to the surface sets the block in sliding motion along the surface. If the block is now kept with its face of smaller area in contact with the surface, the minimum force applied parallel to the surface, to set block in motion is

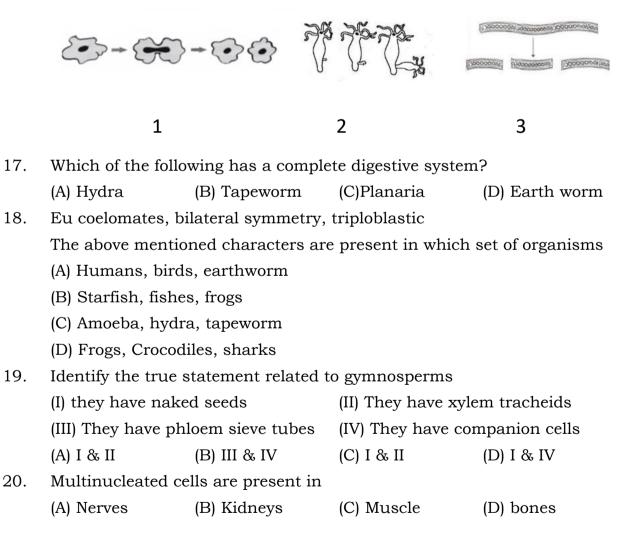
(A) Greater than 1.5 N

(C) Equal to 1.5 N

(D) May be greater (or) less than 1.5 N

(B) Less than 1.5 N

- 14. The lever for which mechanical advantage is less than one has.
 - (A) The fulcrum between the load and the effort
 - (B) Load between the effort and the fulcrum
 - (C) Effort between the fulcrum and the load
 - (D) Load and the effort acting at the same point.
- 15. A block of wood floating in water in a beaker is kept in the left-hand pan (L.H.P) of a physical balance it is balanced using weights in the right – hand pan (R.H.P). The block is now taken out of water and kept by the side of the beaker in L.H.P. Then
 - (A) L.H.P goes up
- (B) R.H.P goes up
- (C) L.H.P. and R.H.P remain balanced
- (D) First L.H.P. goes up and then R.H.P goes up
- 16. Identify the type of reproduction.



A person with blood group 'A^{+ve}' can donate his blood to a person with (I)A^{+ve} group (II) B group (III) AB group (IV) O group (V) A^{-ve} group
(A) I & II
(B) I & III
(C) I, II, IV
(D) I, III, V

22. Identify the true statement related to endoplasmic reticulum

- (A) In liver cells SER is involved in detoxification
- (B) In muscle cells ER is rich in Ca⁺² ions
- (C) In animal cell RER produces proteins
- (D) All the above

23. Eutrophication occurs when

- (A) BOD increases due to water pollution
- (B) Algal bloom causes death of aquatic organisms
- (C) Agricultural soil is full of artificial fertilizers
- (D) All the above

24. Aquaculture includes

(A)Pisciculture (B) Sericulture (C)Mariculture (D) Apiculture

25. Green manuring involves

(A) Adding green leaves to form land (B) Adding green colour in fertilizers

(C)Ploughing plants back to soil (D) Adding plant waste to soil.

26 The changes that occur when a substance changes state are shown below.

solid
$$\underset{Z}{\overset{W}{\longleftarrow}}$$
 liquid $\underset{Y}{\overset{X}{\longleftarrow}}$ gas

Which process, W, X, Y or Z, is occurring in the following four situations?

- 1. Butter melts on a warm day.
- 2. Water condenses on a cold surface.
- 3. The volume of liquid ethanol in an open beaker reduces.
- 4. Ice forms inside a freezer.

	1	2	3	4
A	w	х	Y	z
в	w	Y	x	z
c	x	Y	z	w
D	x	z	Y	w

27 The diagram shows a sugar lump in a cup of tea.

melting



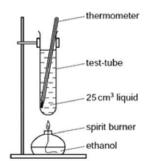
Which two processes must happen to spread the sugar evenly in the tea?

First processSecond processA. diffusiondissolving

dissolving

	First process	Second process	
Β.	dissolving	diffusion	
D.	melting	diffusion	

28 A liquid is heated until it boils. Which result shows that the liquid in the test-tube is pure water?



- A. Condensation forms at the top of the test-tube.
- B. Steam is produced.
- C. The thermometer reads 100 °C.
- D. There is nothing left behind in the test-tube.
- 29 The results of some tests on a colourless liquid X are shown.
 - Boiling point = 102 °C
 - Universal Indicator turns green. What is X?
 - A. ethanol

C.

B. hydrochloric acid

C. pure water

D. sodium chloride (salt) solution

30. Element X, ${}_{9}^{19}X$ forms a compound with element Y, ${}_{19}^{39}Y$.

Which statement describes the bonding in the compound formed?

- A. X and Y share electrons.
- B. X gives away one electron to Y.
- C. Y gives away one electron to X.
- D. Y gives away two electrons to X.

31. Elements X, Y and Z are in Group VII of the Periodic Table.

- X is a gas.
- Y is less reactive than Z

Z is a red liquid.

When X, Y and Z are put in order of increasing proton number, which order is correct?

- $A. X \to Y \to Z \qquad B. X \to Z \to Y \qquad C. Y \to X \to Z \qquad D. Y \to Z \to X$
- 32. The diagram shows part of the Periodic Table.



Which element is correctly matched with its electronic structure?

	A. 2, 8, 1	B. 2, 4	C. 2, 8, 2	D. 2, 8
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 Compound X melts at 801°C and is a good electrical conductor when dissolved in water.

Compound Y boils at 77°C, is insoluble in water and is a non-conductor of electricity. Which type of bonding is present in X and in Y?

	Х	Y	Х	Y
Α.	covalent	covalent	B. covalent	ionic
C.	ionic	covalent	D. ionic	ionic

34. The table contains information about four substances. Which substance is potassium chloride?

	melting point /°C	conduction of electricity		
		when molten	in aqueous solution	
A	-11	no	yes	
в	98	yes	yes	
с	772	yes	yes	
D	1410	no	insoluble	

- 35. Two atoms, X and Y, can be represented as shown. ${}^{41}_{20}X$, ${}^{45}_{20}Y$ Which statement is not correct?
 - A. X and Y are atoms of different elements.
 - B. X and Y are isotopes.
 - C. X and Y have different mass numbers.
 - D. X and Y have the same number of electrons.

36. Which of the following have more number of molecules?

- A. 88g of CO₂
- B. 5g of H₂ gas
- C. 1 mole of H_2O
- D. 14 of N_2

37. The formula of an metal oxide is M_2O_3 . What will be the formula of its hydroxide?

- A. MOH
- B. M(OH)₃
- C. $M(OH)_2$
- D. M₂(OH)₃

38. Teacher asked students to prepare a solution of ethanol having the concentration of 10% by volume. Which of the following student prepared correct concentration?

- A. 5ml of ethanol in 95ml of water
- B. 10ml of ethanol in 100ml of water
- C. 10ml of ethanol 90ml of water
- D. 10ml of ethanol 190ml of water
- 39. A substance X has the following features:
 - i. It does not have fixed melting point

ii. It does not have a molecular formulae

Based on these identify the nature

A. Element B. Compound C. Mixture D. None of the above

40. A substance has a melting point -150° C and a boiling point of -50° C.It exists as:

A.solid B. Liquid C.Plasma D. Gas