National Achievement Survey : MODEL TEST

CLASS X

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< Medium > 0 3

SCIENCE

To be Filled by Student

Your Name	
Your Gender (Boy/Girl)	
Your Social Group (SC/ST/OBC/General)	
Your School Name	

To be Checked / Filled by School Examination Incharge

State Code ☐☐ Student ID ☐☐

School Code ☐☐☐☐☐☐

Location of School { 1- Rural, 2- Urban } ☐

Management of School { 1- Govt., 2- Aided, 3- Private } ☐

Educational Survey Division

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

Sri Aurobindo Marg, New Delhi-110 016.

INSTRUCTIONS FOR STUDENTS

(To be explained by the Invigilator)

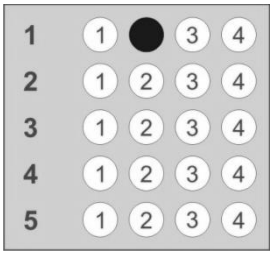
1. This booklet has **60 Items.**
2. You have **90 Minutes** to complete this booklet.
3. Answer **ALL** the items. Marks will not be cut for wrong answers.
4. In each item, there are four choices, **only one** of them is correct. Choose the correct option and **darken** the serial number of the correct choice in the OMR sheet.
5. Answer carefully on the OMR sheet. Once selected, the answer cannot be changed.

Here is an example.

To fill in the blanks in the following questions, encircle the serial number of the correct option.

Q1. Which of the following is called shooting star?

1. comet
2. meteor
3. asteroid
4. unidentified flying object



In this example Choice '2' is darkened because 'meteor' is the correct answer among the four choices.

Now you can START

Q1. Sodium hydrogen carbonate is used in soda-acid fire extinguisher, because when it comes in contact with an acid it produces:

1. Hydrogen
2. Carbon monoxide
3. Carbon dioxide
4. Oxygen

Q2. In the reaction $CuO+H_2 \rightarrow Cu+H_2O$ the substance oxidised and reduced respectively are

1. CuO and H_2O
2. H_2 and CuO
3. CuO and H_2
4. Cu and H_2

Q3. An athlete takes t seconds to go round 5 times a circular path of radius r. Athlete's speed is:

1. $\frac{2\pi r}{t}$
2. $\frac{10\pi r}{t}$
3. Zero
4. $\frac{r}{T}$

Q4. The rate of breathing in aquatic organisms is much faster than terrestrial organisms because

1. they need more oxygen to meet out requirement of the body.
2. amount of dissolved O_2 is fairly low compared to the amount of O_2 in the air.
3. amount of dissolved O_2 is comparatively more than the amount of O_2 in the air.
4. gills absorb O_2 quickly than alveoli of lungs.

Q5. Attempts have been made to increase the height of several existing dams like Tehri and Almati Choose the correct statements among the following that are a consequence of raising the height of dams.

(i) Terrestrial flora and fauna of the area is destroyed.
(ii) Dislocation of people and domestic animals living in the area.
(iii) Valuable agricultural land may be lost permanently.
(iv) Terrestrial flora and fauna of the area will not be affected

1. (i) and (ii)
2. (i), (ii) and (iii)
3. (ii) and (iv)
4. (i), (iii) and (iv)

Q6. If mass numbers of Nitrogen is 14 and atomic number is 7 then what is the number of neutrons in Nitrogen

1. Seven
2. Six
3. Four
4. Two

Q7. An object is moving in a uniform motion. It travels a distance of 50m in first second. What will be the total distance travelled by it at the end of fifth second?

1. 10 m
2. 50 m
3. 55 m
4. 250 m

Q8. If molecular formula of a hydrocarbon to C_2H_6 in a homologous series. What will be the molecular formula of next member of the series?

1. C_3H_4
2. C_3H_5
3. C_3H_6
4. C_3H_8

Q9. If ribosomes are removed from cells, then there will be no _____.

1. synthesis of fat molecules
2. synthesis of proteins
3. transport of materials in the cells
4. production of energy

Q10. Oxygen is carried through the blood by _____.

1. hemoglobin present in WBCs
2. hemoglobin present in platelets
3. hemoglobin present in RBCs
4. both WBCs and platelets

Q11. Which group of diseases spreads through air?

1. Cholera, malaria and kalazar
2. Typhoid, cholera and pneumonia
3. Malaria, common cold and kalazar
4. Pneumonia, tuberculosis and common cold

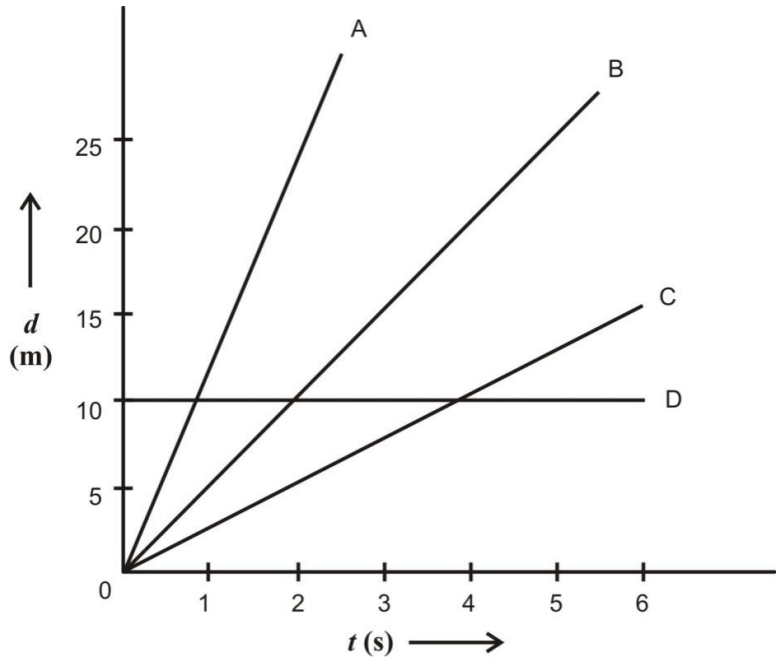
Q12. A few drops of iodine solution were added to the cut surface of a potato. The solution turned blue-black. This indicates that potato contains _____.

1. Lipids
2. Complex proteins
3. Starch
4. Simple proteins

Q13. The changes associated with puberty are because of the hormones _____.

1. testosterone in both males and females
2. estrogen in both males and females
3. testosterone in females and estrogen in males
4. testosterone in males and estrogen in females

Q14. Figure shown the distance-time graphs of four objects A, B, C and D.



Which object is at rest?

1. A
2. B
3. C
4. D

Q15. When we keep a wet cloth for some time it dries up. It is because of :

1. Sublimation
2. condensation
3. Evaporation
4. Decantation

Q16. Which of the following is NOT a natural resource?

1. Soil
2. Water
3. Electricity
4. Air

Q17. When metal oxides react with an acid, then salts and water are produced. Hence, metal oxides are :

1. Acidic
2. Basic
3. Amphoteric
4. Neutral

Q18. Which of the following reacts with water to form slaked lime.

1. calcium sulphate
2. calcium nitrate
3. calcium oxide
4. calcium chloride

Q19. Which of the following substance can act as an acid-base indicator?

1. Vinegar
2. Lemon juice
3. Turmeric
4. Tomato

Q20. Right-hand thumb rule helps us to determine the

1. direction of magnetic field around a straight current-carrying wire.
2. direction of the induced current.
3. number of turns of wire in the coil.
4. strength of the induced current.

Q21. Which gas evolves when baking soda ($NaHCO_3$) is treated with acetic acid (CH_3COOH)?

1. Hydrogen
2. Carbon dioxide
3. Nitrogen
4. Oxygen

Q22. Iron replaces copper from copper sulphate solution and zinc replaces iron from ferrous sulphate solution. Arrange these metals in the increasing order of reactivity

1. Cu > Fe > Zn
2. Zn > Fe > Cu
3. Fe > Cu > Zn
4. Zn > Cu > Fe

Q23. Which of the following products will be formed on heating lead nitrate $Pb(NO_3)_2$?

1. Lead acetate and carbon dioxide
2. Lead oxide and nitrogen dioxide
3. Lead sulphate and nitrogen monoxide
4. Lead chloride and di-nitrogen oxide

Q24. A ball starts falling freely from a tall building. At time T its velocity is u. After time 't' its velocity becomes v. Its acceleration a is:

1. $\frac{u-v}{t}$
2. $\frac{v-u}{t}$
3. $\frac{v+u}{t}$
4. $\frac{v \times u}{T}$

Q25. Shyam finds that his bed sheet is very dusty. He shakes it vigorously to bring out the dust particles. The dust particles come out of it due to:

1. Inertia of dust particles trapped in the bed sheet.
2. Momentum gained by dust particles trapped in the bed sheet.
3. Change in kinetic energy of the dust particles trapped in the bed sheet.
4. Action over bed sheet produces reaction on the dust particles.

Q26. What is true according to the third law of motion?

1. action and reaction always act on the same body in the opposite directions.
2. action and reaction always act on the same body in the same direction.
3. action and reaction always act on different bodies in opposite directions.
4. action and reaction always act on different bodies in the same direction.

Q27. An object moving in a straight line travels a distance of 50m in first second, 100m in first two seconds and 150m in first three seconds. The motion of the object is

1. uniform.
2. non-uniform.
3. uniform and accelerated.
4. non-uniform and accelerated.

Q28. Ranjana wants to change the position of chair. The amount of force required depends on the inertia of the chair. Which of the following does the inertia of the chair depend on?

1. mass.
2. velocity.
3. momentum.
4. energy.

Q29. Find out the correct statements about fertilizer

(i) Fertilizers are commercially produced plant nutrients that supply nitrogen, phosphorus and potassium.

(ii) Fertilizers contain large quantities of organic matter and small quantities of nutrients.

(iii) It increases the water-holding capacity of sandy soil.

(iv) It ensures good vegetative growth, giving rise to healthy plants

1. (i) and (ii)
2. (ii) and (iii)
3. (i) and (iv)
4. (ii) and (iv)

Q30. Upon testing the blood of a person, it was found that he is having high sugar level in his blood. He would be advised to take _____.

1. glucagon injection
2. thyroxin injection
3. insulin injection
4. growth hormone injection

Q31. A DC generator is based on the principle of

1. magnetic effect of current.
2. electromagnetic induction.
3. heating effect of current.
4. chemical effect of current.

Q32. The important message conveyed by the 'chipko movement' is

1. To involve the community in forest conservation efforts.
2. To ignore the community in forest conservation efforts.
3. To cut down forest trees for developmental activities.
4. Government agencies have the unquestionable right to order destruction of trees in the forests.

Q33. What will happen when xylem vessels and tracheids of a plant are blocked due to microbial infection?

1. translocation of food from leaves to root will not occur.
2. translocation of food from root to leaves will not occur.
3. upward movement of water from root to leaves will not occur.
4. movement of water will remain unaffected.

Q34. Select the correct terms for the following statements:

A: When two similar alleles are present for a trait.

B: When two alternative alleles are present for a trait

1. A – Genotype, B – Heterozygous
2. A – Phenotype, B – Genotype
3. A – Homozygous, B – Phenotype
4. A – Homozygous, B – Heterozygous

Q35. Which of the following is a correct statement for displacement?

1. It can never be zero.
2. It is always zero.
3. The magnitude of displacement is more than the distance travelled.
4. The magnitude of displacement can be at the most equal to the distance travelled.

Q36. $NaOH + HCl \rightarrow NaCl + H_2O$ **the above reaction is an example of**

1. Decomposition reaction
2. Combination reaction
3. Precipitation reaction
4. Neutralization reaction

Q37. Which one of the following is NOT a combination reaction?

1. $Ca(OH)_2 + CO_2 \rightarrow CaCO_3 + H_2O$
2. $NH_3 + H_2O \rightarrow NH_4OH$
3. $2H_2 + O_2 \rightarrow 2H_2O$
4. $2NH_3 + H_2SO_4 \rightarrow (NH_4)_2SO_4$

Q38. 2.5g of a solute is dissolved in 25g of water to form a saturated solution at 298K what is the solubility of the solute at this temperature

1. 5g
2. 10g
3. 20g
4. 25g

Q39. Name of the fossil which is intermediate between avis and reptiles is

1. Bat
2. Ammonite
3. Trilobite
4. Archaeopteryx

Q40. In humans, when fresh air is inhaled, O_2 from air moves into blood. When this blood reaches the lungs exchange of gases takes place and CO_2 is returned to the blood which is ultimately exhaled. This process by which exchange of gases takes place is _____.

1. Plasmolysis
2. active process
3. osmosis
4. diffusion

Q41. In which of the following groups of organisms, food material is broken down outside the body and absorbed?

1. Bread mould, mushroom, yeast
2. Mushroom, green plants, amoeba
3. Paramecium, amoeba, cuscuta
4. Cuscuta, lice, tapeworm.

Q42. Which is the correct path for flow of the urine?

1. Kidney →ureter →urethra →urinary bladder.
2. Kidney → urinary bladder →urethra → ureter
3. Kidney → ureter → urinary bladder → urethra
4. Urinary bladder → Kidney → ureter → urethra

Q43. On comparing the average length of small intestine of different mammals, it was found that herbivores have a longer small intestine because digestion of _____.

1. meat takes longer time
2. cellulose takes longer time
3. starch takes longer time
4. lipids takes longer time

Q44. Which of the following statements is correct regarding the propagation of light of different colours in air?

1. Blue light moves faster than green light.
2. Red light moves fastest.
3. All the colours move in the same speed.
4. Yellow light moves with a speed that is average of speeds of red and the violet lights.

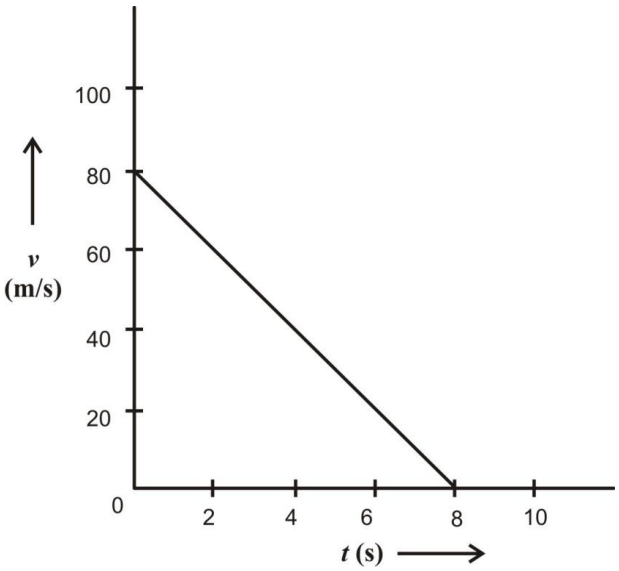
Q45. The work done is said to be negative when the angle between the force applied on an object and the displacement of the object is

1. 0°
2. 90°
3. 180°
4. 270°

Q46. The frequency of a sound wave is 60 Hz. The number of vibrations made by it in one minute is

1. 1.
2. 60.
3. 3600.
4. 1800.

Q47. Figure shown the velocity-time graph of a ball of mass 50g rolling on a concrete floor.



What is the force exerted by the floor on the ball?

1. 1.0 N.
2. 0.5 N.
3. 9.8 N.
4. 4.9 N.

Q48. Which one of the following four metals would be displaced from the solution of its slat by other three metals?

1. Mg
2. Ag
3. Zn
4. Cu

Q49. When CO_2 gas is passed through lime water calcium carbonate is formed. This indicates which nature of Carbon dioxide.

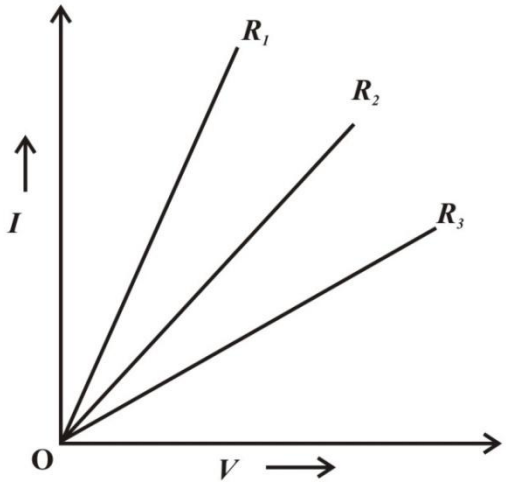
1. Basic
2. Acidic
3. Neutral
4. Both Acidi and basic

Q50. Both prokaryotic and eukaryotic cells have_____.

1. Nuclear membrane
2. Endoplasmic reticulum
3. Golgi apparatus
4. Ribosomes

Q51. Medha performed an experiment and plots the *V-I* graph of three samples of nichrome wire having resistances R_1, R_2 and R_3 respectively as shown in the figure.

For the same applied potential difference, in which wire the current will be the maximum?



1. R_1.
2. R_2.
3. R_3.
4. Current will be the same in all the wires.

Q52. There are two different concentrations of a salt solution in a beaker separated by a semi- permeable membrane. Solution A is 10% and solution B is 40% NaCl solution. What will happen in the beaker?

1. Water molecules will move from B to A.
2. Salt ions will move from A to B.
3. Water molecules will move from B to A while salts ions will move from A to B.
4. Water molecules will move from A to B.

Q53. A concave mirror can be used to form an image smaller than the object, when the object is placed

1. at a distance equal to its radius of curvature.
2. at a distance less than its focal length.
3. between the focus and centre of curvature.
4. at a distance greater than its radius of curvature.

Q54. Which of the following statement is true about human heart?

1. Right atrium receives deoxygenated blood from different parts of the body.
2. Right atrium pumps oxygenated blood to different parts of the body.
3. Right atrium sends blood to left atrium directly which pumps to different parts of the body.
4. Right atrium receives oxygenated blood from the lungs.

Q55. Nitrogen atom has total seven electrons. How many covalent bonds are present in nitrogen molecule?

1. one
2. two
3. three
4. none

Q56. Which of the following can undergo a chemical reaction?

1. $MgSO_4$ + Fe
2. $ZnSO_4$ + Fe
3. $MgSO_4$ + Pb
4. $CuSO_4$ + Fe

Q57. A beam of white light passes through a triangular glass prism and emerges as its spectrum. Which of the following statements is correct?

1. Red light deviates the most.
2. Violet light deviates the least.
3. Yellow light deviates the least.
4. Red light deviates the least.

Q58. The direction of force acting on a current-carrying straight conductor in a magnetic field does NOT depend on

1. length of the current-carrying conductor.
2. direction of the flow of current.
3. direction of the magnetic field.
4. current.

Q59. Two objects of masses 1 kg and 2 kg fall freely near the surface of moon with

1. the same velocities at any instant.
2. the same force.
3. different accelerations.
4. the same momentum.

Q60. An element (X) belonging to group 2 forms a chloride having the formula

1. XCl
2. XCl_2
3. X_2Cl
4. XCl_3