

Duration : 60 min.
Class : 9th

Maximum Marks : 180
Subject : SCIENCE



International Talent Search Examination - 2023-24

अंतराष्ट्रीय प्रतिभा खोज परीक्षा - २०२३-२४

Organized by

Savitri Skill Development Institute, Training Partner with
Ministry of Micro Small & Medium Enterprises (MSME), Govt. of India.



TEST BOOKLET

Name :

Class : School:

Father's Name : Father's Occupation :

Mother's Name : Mother's Occupation :

Categories : Gen OBC SC ST

Correspondence Address :

Date of Birth :

Father's Contact No :


Home/Mother's Contact No. :

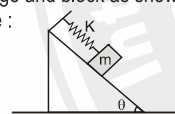
WhatsApp No. :

Basic Instructions:

- Ensure that your personal data has been entered correctly.
- Immediately after opening the test booklet verify that all the pages are printed properly and are in order. If there is a problem with your test booklet, immediately inform the invigilator. You will be provided with the replacement.
- All questions are compulsory.
- For every correct answer you will be awarded with 4 marks and for all incorrect answer 1 mark will be deducted.
- Directions for answering the questions are given. Read those directions carefully and answer the question by circling the bubble in the OMR Sheet Provided to you. Test booklet/OMR Sheet will be submitted at the end of the examination.
- Follow the instructions given by the invigilator. Students found violating the instructions will be disqualified.
- Rough work can be done separately or on the Question paper.
- Please fill the bubbles in OMR sheet with Blue or Black pen only.
- Do not tear the question paper or OMR sheet else you will be disqualified in the examination.

CLASS-9 (SCIENCE)

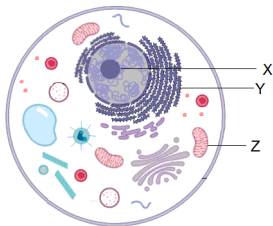
1. A body starts from rest with an acceleration of 3m/s^2 , the velocity of the body after 6 sec is
 (A) 18 m/s (B) 2 m/s (C) 12 m/s (D) 3 m/s
 2. A cricketer catches a ball of mass 150g in 0.1s moving with speed 20ms^{-1} . He experiences a force of
 (A) 300 N (B) 30 N (C) 3N (D) 0.3N
 3. The sum of kinetic energy and potential energy is called
 (A) Thermal energy (B) Chemical energy (C) Mechanical energy (D) Resultant energy
 4. A particle moves with uniform velocity. Which of the following statements about the motion of the particle is true?
 (A) Its speed is zero (B) Its acceleration is zero
 (C) Its acceleration is opposite to the velocity (D) Its speed may be variable
 5. The earth's gravitational force at some place in space causes an acceleration of 7m/s^2 in a 1 kg mass. What will be the acceleration of a 5 kg mass at the same place?
 (A) 7m/s^2 (B) 35m/s^2 (C) 1.4m/s^2 (D) 3.5m/s^2
 6. A block of mass 15 kg is suspended through two light spring balances as shown in figure.
 (A) Both the scales will read 7.5 kg
 (B) Both the scales will read 15 kg
 (C) The upper scale will read 15 kg and the lower zero
 (D) The readings may be anything but their sum will be 15 kg
- 
7. During the motion of a lift, apparent weight of a body becomes twice its actual weight when
 (A) lift is moving down with acceleration = g (B) lift is moving up with acceleration = g
 (C) lift is moving down with uniform velocity = 9.8ms^{-1} (D) lift is moving up with uniform velocity = 9.8ms^{-1}
 8. A particle weighs 120 N on the surface of the earth. At what height above the earth's surface will its weight be 30 N? Radius of the earth = 6,400 km.
 (A) 800 km (B) 1600 km (C) 3200 km (D) 6400 km
 9. The initial velocity of a body moving along a straight line is 7 m/s. It has a uniform acceleration of 4m/s^2 . The distance covered by the body in the 5th second of its motion is
 (A) 25 m (B) 35 m (C) 50 m (D) 85 m
 10. A system of wedge and block as shown in figure, is released with the spring in its natural length. All surfaces are frictionless. Maximum elongation in the spring will be :



 (A) $\frac{2mg\sin\theta}{K}$ (B) $\frac{mg\sin\theta}{K}$ (C) $\frac{4mg\sin\theta}{K}$ (D) $\frac{mg\sin\theta}{2K}$
 11. What does the area under the acceleration displacement graph represent?
 (A) Distance (B) Velocity (C) $\frac{v^2 - u^2}{2}$ (D) none of these
 12. A body of mass M is dropped from a height h on a sand floor. If the body penetrates x m into the sand, the average resistance offered by the sand to the body is
 (A) $Mg\left(\frac{h}{x}\right)$ (B) $Mg\left(1 + \frac{h}{x}\right)$ (C) Mgh + Mgx (D) $Mg\left(1 - \frac{h}{x}\right)$
 13. A man pushes a wall but fails to displace it. He does:
 (A) negative work (B) positive work (C) no work at all (D) maximum positive work
 14. A body of mass 1.5 kg is thrown vertically upwards with an initial velocity of 40 m/s reaches its highest point after 3 s. The air resistance acting on the body during the ascent is (assuming air resistance to be uniform, $g = 10\text{m/s}^2$)
 (A) 35 N (B) 25 N (C) 15 N (D) 5 N
 15. Two particles connected by string rest on an inclined plane. If their masses and corresponding coefficient of friction are m_1, m_2 and μ_1, μ_2 respectively. Find the greatest inclination of the plane for equilibrium.
 (A) $\tan^{-1}\left(\frac{\mu_1 m_1 + \mu_2 m_2}{m_1 - m_2}\right)$ (B) $\tan^{-1}\left(\frac{\mu_1 m_1 - \mu_2 m_2}{m_1 + m_2}\right)$ (C) $\tan^{-1}\left(\frac{\mu_1 m_1 + \mu_2 m_2}{m_1 + m_2}\right)$ (D) $\tan^{-1}\left(\frac{\mu_1 m_2 + \mu_2 m_1}{m_1 + m_2}\right)$

16. Which of the following depends on surface area of a liquid?
 (A) Vapour pressure (B) Evaporation (C) Boiling point (D) Solidification
17. The dispersed phase of aerosol is
 (A) solid (B) liquid (C) gas (D) A or B
18. Which of the following mixture can be separated by sublimation?
 (A) Sand and common salt (B) Iodine and sand (C) Common salt and sugar (D) Glucose and sugar
19. The molecular mass of an oxide with formula M_2O is 94 g. What is the atomic mass of M?
 (A) 86 (B) 78 (C) 39 (D) 43
20. Which of the following substances has highest density?
 (A) Honey (B) Water (C) Iron (D) Milk
21. Name the solid that would sublime on heating
 (A) Butter (B) Ice (C) Ammonium chloride (D) Hydrogen
22. The crystal of sodium chloride consists of
 (A) Na and Cl atoms (B) Na atom and Cl^2 molecules (C) Na^+ and Cl^- ions (D) Na^+ and Cl^- ions
23. What mass percentage of calcium is present in calcium carbonate ($CaCO_3$)?
 (A) 20 (B) 40 (C) 60 (D) 80
24. Which of the following process is favoured at high pressure and low temperature?
 (A) Melting of a solid (B) Boiling of a liquid (C) Condensation of a gas (D) Sublimation of a solid
25. Which of the following substance does not have a fixed volume?
 (A) Diamond (B) Benzene (C) Nitrogen (D) Water
26. Nitric acid can be produced from NH_3 in three step process given below
 (I) $4NH_3(g) + 5O_2(g) \longrightarrow 4NO(g) + 6H_2O(g)$
 (II) $2NO(g) + O_2(g) \longrightarrow 2NO_2(g)$
 (III) $3NO_2(g) + H_2O(l) \longrightarrow 2HNO_3(aq) + NO(g)$
- Percent yield of 1st, 2nd and 3rd steps are 50%, 60% and 80% respectively then what volume of $NH_3(g)$ at 1 atm and 0°C required to produce 1575 g of HNO_3 .
 (A) 156.25 (B) 350 L (C) 3500 L (D) None of these
27. What is the mass of 6.022×10^{20} atoms of aluminium (At. mass = 27)?
 (A) 2.7×10^{-3} g (B) 27×10^{-2} g (C) 2.7×10^{-2} g (D) 27×10^{-4} g
28. 0.01 mole of a compound weigh 8 g. What is the molecular mass of the compound?
 (A) 8 (B) 80 (C) 800 (D) 8000
29. How many electrons are present in 1.7 g of NH_3 ?
 [At. mass of N = 14, H = 1]
 (A) 6.022×10^{23} (B) 6.022×10^{22} (C) 6.022×10^{24} (D) $(6.022 \times 10^{23} \times 17)$
30. Which of the following characteristic of a liquid increases if it is heated at boiling point temperature?
 (A) Kinetic energy (B) Potential energy (C) Temperature (D) Interparticle force
31. Which of the following tissue is present at the tip of the plants?
 (A) Apical Meristem (B) Collenchyma (C) Intercalary Meristem (D) Connective tissue

32.



Which of the following is responsible for membrane biogenesis?

- (A) X (B) Z (C) Y (D) None of these

33. Which of these cells work in association with companion cells?
(A) Xylem parenchyma (B) Phloem parenchyma (C) Sieve tube (D) Tracheids
34. F_0 & F_1 particles are found in which organelle? What are they called?
(A) Chloroplast & Peroxisomes (B) Mitochondria & Oxysomes (C) Mitochondria & Peroxisomes (D) Chloroplast & Oxysomes
35. Plasma membrane of muscles is also known as:
(A) Sarcomere (B) Sarcoplasm (C) Sarcolemma (D) Sarcostyles
36. The plant cell gets plasmolyzed when it is placed in:
(A) Hypotonic (B) Hypertonic (C) Isotonic (D) Cell will not plasmolysed
37. Which of the following given below is known as 'factory of Ribosomes'?
(A) Nucleus (B) Endoplasmic Reticulum (C) Mitochondria (D) Nucleolus
38. Cytoplasmic bridges which develop between adjacent plant cells in the minute pores of their walls are known as:
(A) Pits (B) Protoplasm (C) Plasmodesmata (D) Plasma lemma
39. The protein released by viral infected cell to protect uninfected cell are called as:
(A) Hepatitis (B) Interferon (C) AIDS (D) Influenza
40. Which muscles bears stripes of light & dark bands?
(A) Striped Muscle (B) Squamous epithelium (C) Smooth Muscle (D) None of these
41. Lateral meristem includes:
(A) Fascicular cambium & cork cambium (B) Phellogen & Protoderm
(C) Procambium & intrafascicular cambium (D) Dermatogen & ground meristem
42. Name the cambium present between phloem and xylem.
(A) Shoot cambium (B) Root cambium (C) Vascular cambium (D) Cork cambium
43. Identify a member of porifera.
(A) Spongilla (B) Euglena (C) Penicillin (D) Hydra
44. Which is not a feature of Annelid
(A) Metameric segmentation (B) Nephridia (C) Pseudocoelom (D) Clitellum
45. The five kingdom classification system of organisms was proposed by
(A) Whittaker (1969) (B) Linnaeus (1758) (C) Copeland (1966) (D) Haeckel (1866)