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## INTERACTIVE OLYMPIADS

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NATIONAL INTERACTIVE SCIENCE OLYMPIAD

NISO

8 Class | B1 Paper Code




### IMPORTANT INFORMATION

1. You are allowed additional 10 minutes to fill the required details in the **RESPONSE SHEET.**
2. The question paper is made as per syllabus guidelines & pattern given in the information Booklet. The Question Paper for Classes 1 to 6 contains 25 Questions each to be answered in 40 minutes. The Question paper for classes 7 to 12 contains 50 Questions each to be answered in 60 minutes. All questions are compulsory. Further instructions are given in the instruction letter to the coordinator teacher.
3. Use the response sheet to mark your responses by darkening the required circle. The response sheet has to be returned to the foundation, duly filled in. The student can retain the Question Paper.

### GENERAL I. Q.

**1.** Which figure will come next?

(1) 
(2) 
(3) 
(4) None of these

**2.** In two containers A and B, the milk and water are in the ratio of 4 : 3 and 2 : 3 respectively. In what proportion, the solution from both the containers be mixed so as to make the new mixture half milk and half water?
(1) 7 : 5 (2) 1 : 2
(3) 2 : 1 (4) None of these

**3.** Six bells commence tolling together and toll at intervals of 2, 4, 6, 8, 10 and 12 seconds respectively. In 30 minutes, how many times do they toll together?
(1) 4 (2) 16
(3) 10 (4) None of these

**4.** Patrol is related to Security in the same way as Insurance is related to .....?
(1) Money (2) Protection
(3) Policy (4) None of these

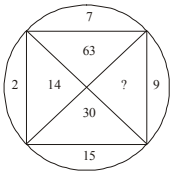
**5.** If Inherit : Acquire then _____?
(1) Hierarchial : Succession
(2) Instinct : Habit
(3) Loss : Gain
(4) None of these

**6.** The average consumption of petrol for a car for seven months is 110 litres and for next five months it is 86 litres. The average monthly consumption is:
(1) 96 litres (2) 98 litres
(3) 100 litres (4) None of these

**7.** A group of students decided to collect as many paise from each member of the group as is the number of members. If the total collection amounts to Rs. 22.09, the number of members in the group is:
(1) 37 (2) 47
(3) 107 (4) None of these

**8.** K is the brother of N and X. Y is the mother of N and Z is the father of K. Which of the following statements is definitely not true?
(1) K is the son of Z (2) Y is the wife of Z
(3) N is the brother of X (4) None of these

**9.** Find the missing character in the given question:



(1) 33 (2) 145
(3) 135 (4) None of these

**10.** Which one of the following diagrams correctly represents the relationship among the classes : Tennis fans, Cricket players, Students?

(1)  (2) 

(3)  (4) None of these

## GENERAL SCIENCE

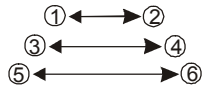
**11.** An incident ray parallel to principal axis of a convex lens will pass through after refraction:
(1) on the other side of the lens through focus
(2) parallel to the principal axis
(3) will pass through the optical centre of the lens
(4) None of these

**12.** The temperature at which celsius and fahrenheit scales shows the same reading is:
(1) 40° K (2) 100° F
(3) – 40° C (4) None of these

**13.** Why do people die sometimes after drinking alcohol, due to
(1) presence of methanol (2) presence of ethanol
(3) presence of acetone (4) None of these

**14.** Which of the following statement is correct?
(1) when air resistance is negligible, the time of ascent is less than the time of descent
(2) when air resistance is not negligible, time of ascent is less than the time of descent
(3) when air resistance is not negligible, the time of ascent is lesser than the time of descent
(4) None of these

**15.** Which two objects will have greatest gravitational pull between them?




(1) 1 and 2 (2) 3 and 4
(3) 5 and 6 (4) None of these

**16.** The term 'CRACKING' in the context of organic molecules is
(1) The process of fractional distillation in the refineries
(2) Breaking of a large alkane molecule into smaller hydrocarbon molecules
(3) A nuclear reaction wherein the nucleus is broken
(4) None of these

**17.** Laundry soap is
(1) a mixture of sodium salts of higher fatty acids of natural origin
(2) sodium carbonate
(3) sodium sulphate
(4) None of these

**18.** Ursa Major is
(1) a star (2) seen only with a telescope
(3) a constellation (4) none of these

**19.** The alpha particle carries two positive charges. Its mass is very nearly equal to that of
(1) Sum of masses of two positrons and two neutrons
(2) An atom of helium
(3) Two protons
(4) None of these

**20.** Cryogenic engines find applications in
(1) Rocket
(2) Frost-free refrigerators
(3) Sub-marine propulsion
(4) None of these

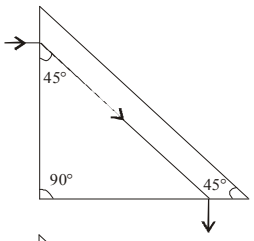
**21.** The clouds float in the atmosphere because of their low
(1) Pressure (2) Density
(3) Temperature (4) None of these

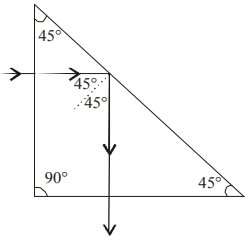
**22.** The basic reason for the extraordinary sparkle of a suitably cut diamond is that
(1) It is very hard
(2) It has a very high refractive index
(3) It has a very high transparency
(4) None of these

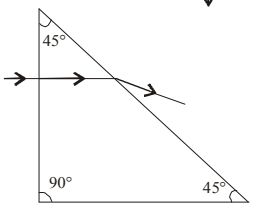
**23.** A corked bottle full of water when frozen will break because
(1) The volume of water increases on freezing
(2) The volume of water decreases on freezing
(3) The bottle contracts on freezing
(4) None of these

**24.** The working of the quartz, crystal in the watch is based on the
(1) Piezo-electric Effect (2) Johnson Effect
(3) Photoelectric Effect (4) None of these

**25.** Which one of the following figures represents correct path of a ray of light through a glass prism?

(1) 


(2) 


(3) 


(4) None of these

**26.** What is velocity of sound in air?
(1) 300 m/s (2) 330 m/s
(3) 280 m/s (4) None of these

**27.** An 'aerosol' is a fine dispersion of :
(1) Tiny air bubbles in water
(2) Tiny droplets of liquid in the air
(3) Grease in water
(4) None of these

**28.** The ISI mark on an electric appliance ensures that:
(1) The appliance is safe
(2) Wastage of energy is minimum
(3) Both (1) and (2)
(4) None of these

**29.** Nickel and cadmium are used in combination:
(1) As a catalyst
(2) In alloys that can resist high pressure
(3) In electric batteries having a very long life
(4) None of these

**30.** Iron is a metal that is obtained in different forms. Which of the following is incorrect?
(1) Wrought iron can be welded and forged
(2) Cast iron can be cast into drain pipes
(3) Pig iron is made from cast iron
(4) None of these

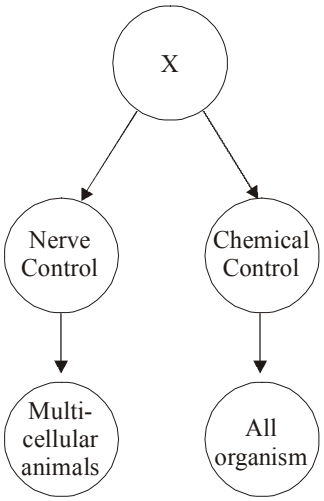
**31.** The chemical reactions taking place in a cell will most likely speed up if the
(1) genetic material in the nucleus stops replicating
(2) size of the cell is increased
(3) concentration of the reactants is increased
(4) none of these

**32.** Which piece of equipment would most likely be used to separate organelles from a mixture of crushed cells?
(1) dissecting microscope (2) electron microscope
(3) ultracentrifuge (4) none of these

**33.** Leaves at the top of a giant redwood tree receive water from the
(1) vascular tissue in the branches, trunk, and roots
(2) epidermal cells in the trunk and branches
(3) process of photosynthesis in the trunk and branches
(4) none of these

**34.** In humans, the immediate result of a blockage in one ureter would be to
(1) limit the ability to store urine
(2) prevent filtration of the blood
(3) decrease the amount of urine entering the bladder
(4) none of these

**35.** A graphic organizer is represented in the diagram below.




The letter *X* most likely represents the term
(1) regulation (2) excretion
(3) growth (4) none of these

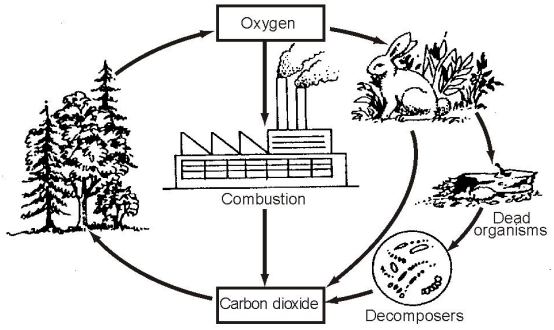
**36.** The part of the human central nervous system that conducts impulses from the brain to the peripheral nervous system is protected by the
(1) vertebrae (2) effectors
(3) receptors (4) none of these

**37.** Gregor Mendel developed heredity principles from his
(1) mathematical analysis of the results of pea plant crosses
(2) working model of the structure of DNA
(3) mapping of the locations of human genes on chromosomes
(4) none of these

**38.** A mother pregnant with her fourth child remarked, "This one just has to be a boy. It is almost certain, since my other three children are girls." Which statement best indicates the accuracy of the mother's comment?
(1) The mother is wrong because the chance of having a boy is always 50%.
(2) The mother is wrong because there is only a 25% chance that the child will be a boy.
(3) The mother is right because the genes of the father are dominant over those of the mother.
(4) None of these

**39.** A farmer found that one tree in his pear orchard produced especially delicious fruit. Which method would most quickly provide a large crop of these pears?
(1) planting seeds of the pears from this tree
(2) crossing this tree with another tree in the orchard
(3) grafting branches from this tree onto other trees in the orchard
(4) none of these

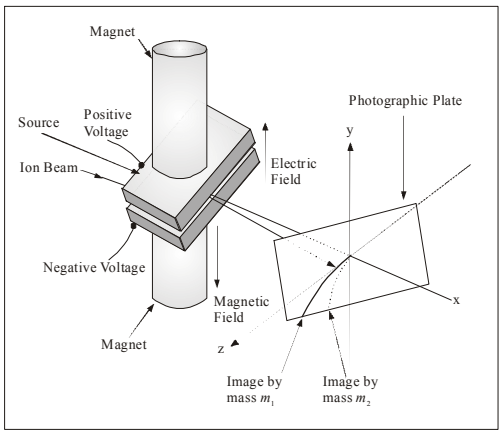
**40.** The diagram below shows some pathways in the cycling of materials in the environment.




Which two processes are involved in the cycling shown in the diagram?
(1) succession and transpiration
(2) photosynthesis and cellular respiration
(3) artificial selection and deamination
(4) none of these

## E&G INTERACTIVE SECTION

In the figure shows the set up used by J. J. Thompson (mass spectrometry). Analyse the figure and choose the correct option.



**41.** Which beam is used in the above set up?
(1) ion beam (2) neutron beam
(3) particles (4) none of these

**42.** What may be the material of Photographic material.
(1) Phosphorus plate (2) Zinc plate
(3) Gold plate (4) None of these

**43.** Why does there is a deflection of beam after passing through the electric field and will the difference be same for all materials.
(1) due to magnetic field; yes
(2) due to electric field; No
(3) due to magnetic field; No
(4) none of these

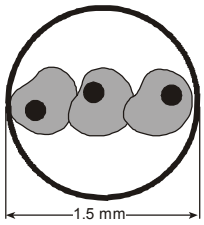
**44.** Which of the following statement regarding friction is false
(1) Friction produces heat
(2) Friction cannot be reduced to zero
(3) Friction is undesirable
(4) none of these

**45.** Two views of the same onion epidermal cells, as seen with a compound light microscope, are shown in the diagram below.

View A View B

What was most likely done to change the view from *A* to *B*?
(1) Lugol's iodine solution was added to the cells.
(2) The 40 × objective was switched to the 10 × objective.
(3) The 10 × objective was switched to the 40 × objective.
(4) None of these

**46.** The diagram below shows three cells in the field of view of a microscope. The diameter of the field of view is 1.5 millimeters.

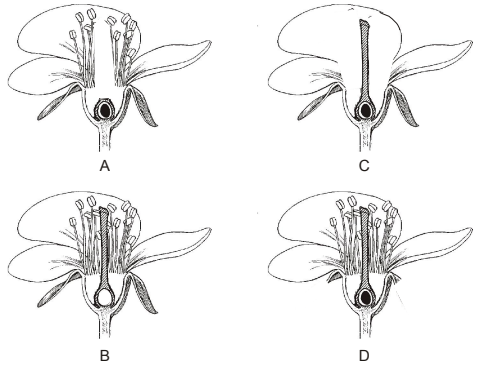



What is the approximate diameter of each cell?
(1) 50 mm (2) 250 mm
(3) 500 mm (4) None of these

**47.** Which statement best describes the procedure for removing excess methylene blue from a wetmount slide preparation?
(1) Remove the coverslip and drop water onto the specimen.
(2) Place a piece of paper towel at one edge of the coverslip to absorb the methylene blue, and then add water at the opposite edge of the coverslip.
(3) Insert a pipette under the coverslip and withdraw some methylene blue.
(4) None of these

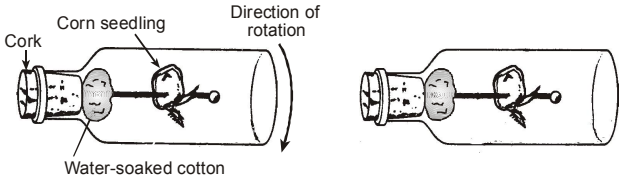
**48.** A student views a wet mount of a specimen with the low-power objective of a compound light microscope. After the student switches to high power, which procedure would most likely produce a better view of the specimen?
(1) increasing the amount of light by adjusting the diaphragm
(2) increasing the distance between the slide and the low-power objective, using the coarse adjustment
(3) removing the water from the slide
(4) None of these

**49.** Four views of the same type of flower are shown in the diagrams below.




In which flower have all the stamens been removed?
(1) A (2) B
(3) C (4) None of these

**50.** The diagram below shows two germinating corn seeds that have been placed in identical bottles and kept in the dark. Bottle *A* will be rotated 90 degrees each day for the next 6 days. Bottle *B* will not be rotated.




Which hypothesis is most likely being tested in this experiment?
(1) The amount of light received affects chlorophyll production.
(2) Water is needed for proper plant growth.
(3) Gravity affects plant growth.
(4) None of these

**END OF THE EXAM**