



Primrose Schools

Affiliated to the CISCE Board for ICSE & ISC
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An ISO 9001:2015 Certified Institution

NATIONAL PRIMTALENT OLYMPIAD EXAMINATIONS SCIENCE

CLASS
8

Name :

Section :

Roll no :

Guidelines for the Candidates

1	Please check your Name, Class and Section on the OMR sheet provided to you.
2	In case, OMR sheet with your name is missing, please fill in information about yourself in the blank sheet provided before start of exam.
3	All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
4	There is only ONE correct answer. Choose only ONE option for an answer.
5	To mark your choice of answers by darkening the circles in OMR sheet, use HB Pencil or Blue/Black ball point pen only.
6	Rough work should be done in the blank space provided in the booklet.
7	Return the OMR sheet to the invigilator at the end of the exam
8	Please fill in your personal details in space on the top of this page before attempting the paper

PHYSICS

SECTION A - LOGICAL REASONING

1 If **RESULT** is coded as **798206**, then how **LET** will be coded?

- A. 906
- B. 096
- C. 690
- D. 069

2 In each of these questions two statements A and B are given followed by two conclusions I and II. Consider both the statements to be true even if they seem to be at variance from commonly known facts. Decide which of the given conclusions is/are definitely drawn from the given statements.

Choose answer as:

- A. If only I follows
- B. If only II follows
- C. If neither I nor II follows
- D. If both I and II follows

Statements:

- (A) If all players play to their full potential, we will win the match
- (B) We have won the match

Conclusions:

- (I) All players played to their full potential
- (II) Some players did not play to their full potential

3 Fill in the blanks in these questions from among the alternatives (a), (b), (c):

C G : EI :: FJ:.....

- A. LM
- B. IJ
- C. GK
- D. JK

4 Choose same relationship from given four choices as given in original pair.

For a light ray : Mirror : Reflection, then Water :

- A. Conduction
- B. Dispersion
- C. Immersion
- D. Refraction

5 Read the statements carefully and choose the correct option.

Statement 1: Inertia is the property by virtue of which the body is unable to change by itself the state of rest.

Statement 2: The bodies do not change their state unless acted upon by an unbalanced external force.

- A. Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
- B. Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
- C. Statement 1 is true and statement 2 is false.
- D. Both statements 1 and 2 are false.

SECTION B - EVERYDAY PHYSICS

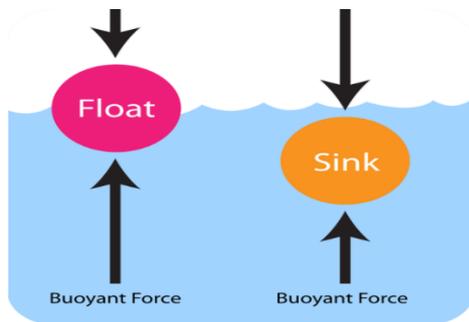
6. Graham has gone for fishing, and is sitting quietly waiting for a fish to bite, but nothing is happening. So Graham turns on the radio to try to find some music to encourage the fish. The first piece of music Graham finds is a bass guitar solo, which has a very low frequency. Graham doesn't like the sound of that, so he finds another station which is playing a selection of soprano duets, which are of much higher frequency.

Which music will travel faster from the radio to the fish?

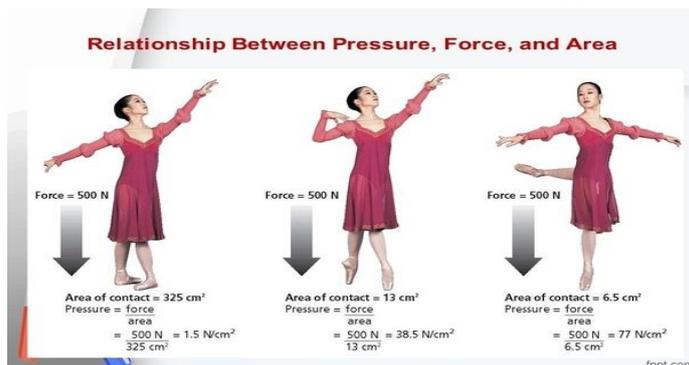
- A. Bass guitar solo
- B. soprano duets
- C. both at the same time
- D. can't hear both

- 7 Coolie A takes 1 min to raise a box of mass m through a height of 2.0 m. Another coolie B takes 30 s for the same job. Which one has greater power?
- A. Coolie A
 - B. Coolie B
 - C. Both have the same power
 - D. Can't state the answer
- 8 A large hefty chicken and a small light quail, both flying in air, have the same velocity. Which of the following statement is true?
- A. The chicken has a greater kinetic energy than the quail.
 - B. The quail has a greater kinetic energy than the chicken.
 - C. The chicken and the quail have the same kinetic energy.
 - D. Nothing can be inferred, the kinetic energy has nothing to do with the mass.
- 9 Arya bought few grams of gold at the 'poles' of earth as per the instruction of one of her friends. She handed over the same when she met her friend at the 'equator'. Will the friend agree with the weight of gold that Arya brought? If not why?
- A. Yes. Friend will agree because the weight of the gold will be same.
 - B. No. Friend will not agree because the weight of gold will be lesser.
 - C. Yes. Friend will be happy because the amount of gold will be more.
 - D. None of the above.
- 10 When you put an object on a spring balance, do you get mass of an object or its weight?
- A. weight
 - B. force
 - C. mass
 - D. acceleration

- 11 The picture shows the concept of buoyancy. What would be the buoyant force when a piece of stone sinks in water?

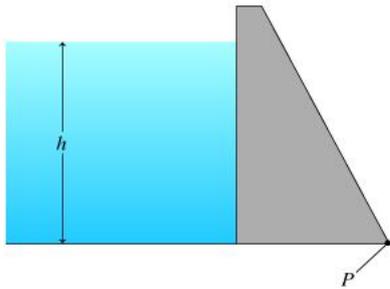


- A. zero
B. more than the weight of the stone
C. equal to the weight of the stone
D. less than the weight of the stone
- 12 Billy is trying to shine a laser off a mirror at the end of a basketball court into Sam's eyes to distract him (Billy is evil). Sam is at a 38° reflection angle from the mirror. At what angle does Billy need to shine the laser at the mirror to get it in Sam's eyes?
- A. 38°
B. 52°
C. 90°
D. 12°
- 13 Riya learnt the relationship between pressure, force and area with the help of given below diagram. After learning the concept Riya gave a suggestion to her mother to use a sharp knife for cutting the vegetables easily. Which statement is most suitable for her suggestion?



- A. The pressure exerted is lesser and area is also less.
- B. The pressure exerted is greater because the area is less
- C. Pressure and area are equal.
- D. Area is more, so pressure is high.

- 14 The given figure shows the cross section of a dam. The walls of the dam towards the bottom is made thicker, this is because to withstand with the ;



- A. increase in pressure with depth of water
 - B. decrease in pressure with depth of water
 - C. increase in mass of the wall
 - D. decrease in mass of the wall
- 15 In a solar cell, the light energy gets converted into electrical energy. What type of energy is produced and wasted during most energy transformations?
- A. Chemical
 - B. Thermal
 - C. Electrical
 - D. magnetic

SECTION C - ACHIEVERS SECTION

- 16 Which of the following states the second law of reflection correctly?
- A. incident ray, reflected ray and the normal drawn at the point of incidence to the reflecting surface, lie in the same plane.
 - B. incident ray, reflected ray and the normal are always perpendicular to each other
 - C. incident ray, reflected ray lie in same plane which are perpendicular to the normal
 - D. none of the above

- 17 Rohan is surprised when he sees water boiling at 115°C in a container. Give reason why water can boil at the above temperature.
- A. because the room temperature is high
 - B. because of the presence of impurities
 - C. water can boil at 115°C also
 - D. none of the above
- 18 The work done by a student in lifting a 0.5 kg book from the ground and keeping it on a shelf of height 1.5 m is:
- A. 8.30 J
 - B. 7.5 J
 - C. 5.40 J
 - D. 6.45 J
- 19 A long spring is fixed at one end. A person holding the other end compresses the spring with a jerk. The compression travels along the length of the spring. Is it an example of a longitudinal or transverse wave?
- A. Stationary
 - B. Transverse
 - C. Longitudinal
 - D. Both longitudinal and transverse.
- 20 A force of 16 N is distributed uniformly on one surface of a cube of edge 8 cm. The pressure on this surface is:
- A. 3500 Pa
 - B. 2500 Pa
 - C. 4500 Pa
 - D. 5500 Pa

BIOLOGY

SECTION A - LOGICAL REASONING

21. In each of the following questions, choose the correct code form.
In a certain code, MEN is written as ABC and DARK is written as LSTZ. How can READ be written in this code?

- A. TCSL
- B. TBSL
- C. TASL
- D. TLSL

22. Choose the number which is different from others in the group.

- A. 35
- B. 49
- C. 50
- D. 63

23. Read the following information carefully and answer the question below.

1. $J + K$ means J is the son of K
2. $J - K$ means J is the wife of K
3. $J \times K$ means J is the brother of K
4. $J \div K$ means J is the mother of K
5. $J = K$ means J is the sister of K

What does $A \times B \div C$ mean?

A is the brother of C

- A. A is the father of C
- B. A is the uncle of C
- C. A is the nephew of C

24. In the following question, various terms of an alphabet series are given with one or more missing terms as shown by (?). Choose the missing term out of the given alternatives.

XYA, XYC, XYB, XYD, XYC, ?

- A. XYD
- B. XYE
- C. XYB
- D. XYC

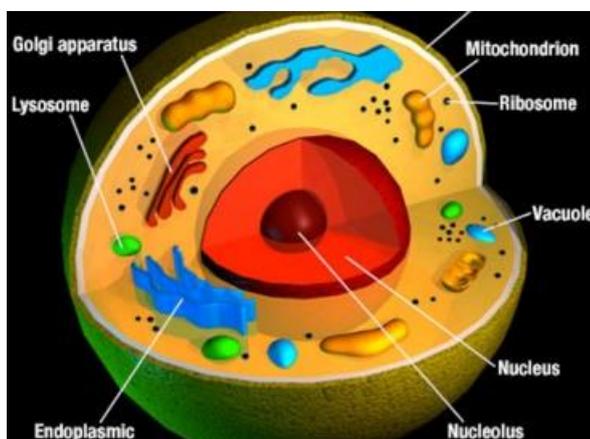
25. In the following question, a statement/group of statements is given followed by some conclusions. Without resolving anything yourself, choose the conclusion which logically follows from the statement(s).

Statement - All beggars are not poor.

- A. Some beggars may not be poor.
- B. If A is not rich, then A is not a beggar.
- C. All those who are poor are beggars.
- D. If A is rich, then A is not a beggar.

SECTION B - EVERYDAY SCIENCE

26. Which of the organelle is the central commanding centre of the cell?

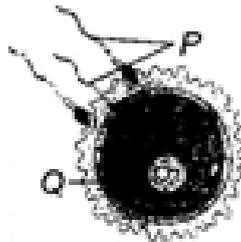


- A. Nucleus
- B. Mitochondria
- C. ER
- D. Ribosomes

27. Overall control of all voluntary action is gained through

- A. medulla oblongata
- B. Cerebral hemisphere
- C. Cerebellum
- D. pituitary gland

28. Refer to the given figure and select the incorrect statement regarding this.



- A. P represents the human male gamete which consists of head, middle-piece and tail.
- B. Q represents the human female gamete which is a single cell.
- C. The process shown in the figure is fertilisation.
- D. The resulting structure formed after the shown process is foetus.

29. Sieve tubes and companion cells are present in

- A. Xylem
- B. phloem
- C. cork
- D. cambium

30. The connective tissue that connects muscle to bone is called

- A. ligament
- B. tendon
- C. nervous tissue
- D. all of the above

31. Which of the following is a mismatched pair of Endocrine gland Hormone?

- A. Ovaries – Estrogen
- B. Testes – Testosterone
- C. Pancreas – Calcitonin
- D. Adrenal – Adrenaline

32. Which are the four types of animal tissues?

- A. Epithelial, Squamous, Muscular, Connective
- B. Epithelial, connective, Muscular, Cardiac
- C. Connective, Muscular, Epithelial, Nervous
- D. Cuboidal, Ciliated, Glandular, Columnar

33. Left atrium receives oxygenated blood from

- A. right atrium
- B. lungs
- C. right ventricle
- D. aorta

34. Which of the following constitute a pistil?

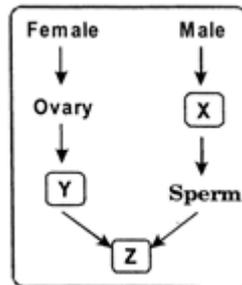
- A. Stigma, style and anther
- B. Stigma, style and ovary
- C. Stigma, stamen and ovary
- D. Pollen sac, style and ovule

35. Which one of the following is not an essential element for a plant?

- A. Iron
- B. Zinc
- C. Potassium
- D. Iodine

SECTION C - ACHIEVERS SECTION

36. What do X, Y and Z represent in the figure given below?



- A. X-Ovum, Y-testes, Z-Ovulation
- B. X-Testes, Y-Ovum, Z-Implantation
- C. X-Ovum, Y-Testes, Z-Implantation
- D. X-Testes, Y-Ovum, Z-Fertilization

37. _____ is the master gland.

- A. Pineal
- B. Pituitary
- C. Thymus
- D. Thyroid

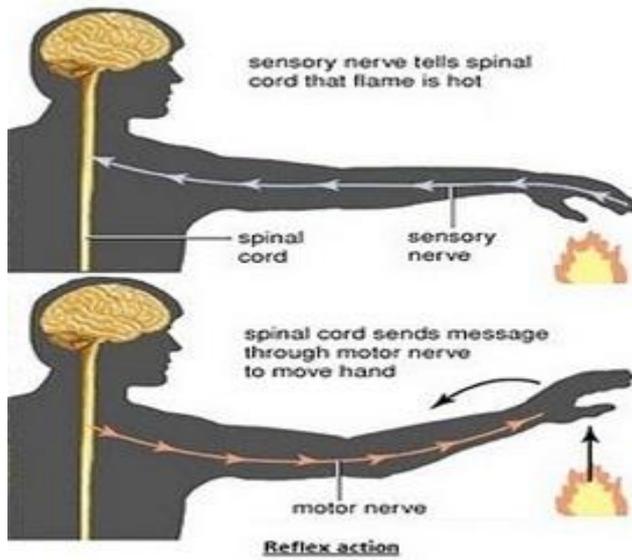
38. The function of cristae in a mitochondrion is...

- A. Electron transport and ATP synthesis
- B. Carbon assimilation
- C. Intake of Oxygen
- D. Elimination of carbon dioxide

39. Enlargement of thyroid gland is due to the deficiency of _____.

- A. Vitamin A
- B. Potassium
- C. Iodine
- D. Vitamin D

40. Demonstration of conditioned reflex was made by _____.

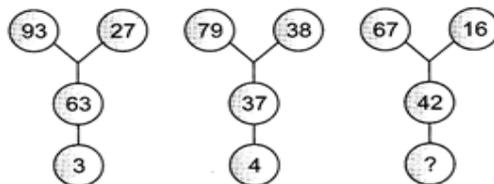


- A. Pavloc
- B. William Harve
- C. Robert Brown
- D. Karl von Frisch

CHEMISTRY

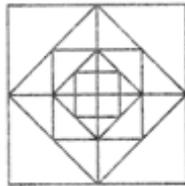
SECTION A - LOGICAL REASONING

41. Which number will replace the question mark in the figure below?



- A. 5
- B. 6
- C. 8
- D. 9

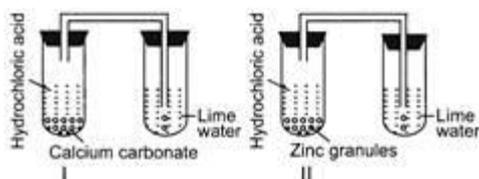
42. A man goes towards east 5km, then he takes a turn south-west and goes 5km. He again takes a turn north-west and goes 5km with respect to the point from where he started, where is he now?
- A. At the starting point
B. 15m, South
C. In the East
D. In the North-East
43. If DIAMOND is coded as VQYMKLV, how is FEMALE coded?
- A. TUMYNU
B. UVNZOV
C. UVNYNV
D. TVNYNV
44. 'X' is the wife of 'Y' and 'Y' is the brother of 'Z', 'Z' is the son of 'P'. How is P related to X?
- A. Sister
B. Aunt
C. Brother
D. Father-in-law
45. How many squares and triangles are there in the following figure?



- A. 13, 32
B. 15, 36
C. 18, 48
D. 17, 40

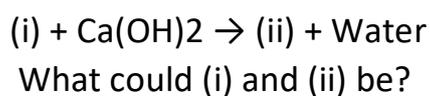
SECTION B - EVERYDAY SCIENCE

46. Kanav took two test tubes marked as I and II. In test tube I, he put calcium carbonate and hydrochloric acid while in test tube II, he put zinc granules and hydrochloric acid. He passed the gas coming out from both the test tubes in lime water. What would be his observation?



- A. The gas coming out from test tube I turned lime water milky.
- B. The gas coming out from test tube II turned lime water milky.
- C. The gases coming out from both the test tubes turned lime water milky.
- D. None of these.

47. Observe the given reaction sequence carefully. Acetic acid + Sodium hydrogen carbonate \rightarrow



A.

(i)	(ii)
CaCO_3	CO_2

B.

(i)	(ii)
H_2O	CaCO_3

C.

(i)	(ii)
CO_2	CaCO_3

D.

(i)	(ii)
H_2O	CO_2

48. Which of the following do not represent that a chemical change is taking place?

- I. A gas is produced.
- II. Precipitate is formed.
- III. State of a substance changes
- IV. A new odour is produced.
- V. Shape of a substance changes

- A. I and V only
- B. I and IV only
- C. II, III and V only
- D. III and V only

49. A student added 10ml–12ml of Conc. H_2SO_4 in a test tube containing 5g–6g of sugar crystals and warmed it gently. He noticed that white crystals slowly turned brown and became a black mass. What happened in this change?

- A. H_2SO_4 turned black but no change took place.
- B. Sugar got charred by the action of hot conc. H_2SO_4 and a chemical Change took place.
- C. It is only a physical change.
- D. It is an irreversible physical change.

50. Two substances P and Q when brought together, form substance R with the evolution of heat. The properties of R are different from both P and Q. What is substance R?
- A. A compound
 - B. An element
 - C. A metal
 - D. A mixture
51. Which of the following alloys is ferrous alloys
- A. Bronze
 - B. Brass
 - C. Invar
 - D. Duralumin
52. What is a solution of iodine in carbon tetrachloride called?
- A. Aqueous solution
 - B. Alcoholic solution
 - C. Non-aqueous solution
 - D. Tincture of iodine
53. Which of the following statements about the isotopes of an element is NOT correct?
- A. Isotopes have the same proton number.
 - B. Isotopes have the same chemical properties.
 - C. Isotopes have the same nucleon number.
 - D. Atoms of the isotopes of the element have the same number of electrons.
54. A liquid and a solid are found together in a single phase. What is this known as?
- A. Solution
 - B. Solute
 - C. Solvent
 - D. Emulsion

55. What do oxygen atom and oxide ion have in common?
- A. Same size
 - B. Same number of electrons
 - C. Same electronic configuration
 - D. Same number of protons

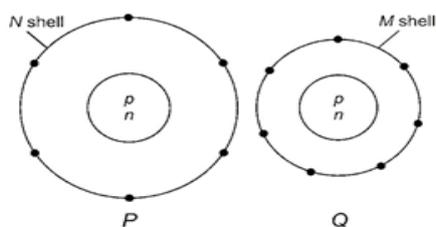
SECTION C - ACHIEVERS SECTION

56. Element 'X' contains 9 protons, 10 electrons and 9 neutrons. What is 'X'?
- A. A neutral atom
 - B. An isotope
 - C. A cation
 - D. An anion
57. What does Bohr's atomic theory explain?
- A. About quantum numbers
 - B. About the shape of sub-levels
 - C. About nucleus
 - D. About stationary states
58. A neutral atom of an element has a nucleus with a nuclear charge 13 times and mass 27 times as that of hydrogen nucleus. What is the ratio of electrons to protons in its stable positively charged ion?
- A. 27:13
 - B. 10:13
 - C. 20:24
 - D. 10:14
59. In a pressure-kerosene stove,
1. (i) We pump kerosene and convert it into vapours.
 2. (ii) The vapours are then ignited.

Which of the following is true about the above statements?

- A. (i) is a chemical change; (ii) is a physical change,
- B. (i) is a physical change; (ii) is a chemical change.
- C. Both (i) and (ii) are physical changes.
- D. Both (i) and (ii) are chemical changes.

60. Electron distribution of two elements P and Q in their outermost shell is shown below. Atomic numbers of P and Q are respectively



- A. 9, 17
- B. 15, 17
- C. 24, 17
- D. 17, 24