



SAMPLE PAPER

International Olympiad Foundation

EXCELLENCE IN EDUCATION

International Olympiad Foundation

14+

OLYMPIADS

MCQ

FORMAT

0

NEGATIVE MARKS

OLYMPIAD

Science Olympiad

International Olympiad Foundation (IOF) · www.iof.education

CLASS / GRADE

Class 9

SUBJECT

IFSO

DURATION

60 Min

MAX MARKS

50

GENERAL INSTRUCTIONS

- All questions are Multiple Choice Questions (MCQs) with options A, B, C, D, E
- Each correct answer carries 1 mark. No negative marking for wrong answers.
- Rough work should be done separately. Do not write on question paper.

PAPER HIGHLIGHTS

- **Multiple Choice Questions (MCQ)**
Five options per question (A, B, C, D, E). Select the single most appropriate answer.
- **No Negative Marking**
1 mark per correct answer. Zero deductions — attempt every question.
- **Conducted by IOF**
International Olympiad Foundation — fostering excellence among students across India.

SUBJECTS

- Cyber English Entrepreneurship Mathematics Commerce Economics GK & Current Affairs Science Western Music
Sanskrit Indian Music Hindi Reasoning & Aptitude Spell Talent

ALL IOF OLYMPIAD PROGRAMMES

| | | | | | | |
|---|---|---|--|---|--|---|
| IFCO International Foundation Cyber Olympiad | IFEOL International Foundation English Olympiad | IFEnO International Foundation Entrepreneurship Olympiad | IFMO International Foundation Mathematics Olympiad | ICS Institute of Company Secretaries of India Commerce Olympiad | IFEcO International Foundation Economics Olympiad | IFGCO International Foundation General Knowledge & Current Affairs Olympiad |
| IFSO International Foundation Science Olympiad | IFWMuO International Foundation Western Music Olympiad | IFSaO International Foundation Sanskrit Olympiad | IFIMuO International Foundation Indian Music Olympiad | IFHO International Foundation Hindi Olympiad | IFRAO International Foundation Reasoning & Aptitude Olympiad | IFSTO International Foundation Spell Talent Olympiad |

Q1. Sanjeev walks 10 metres towards the South. Turning to the left, he walks 20 metres and then moves to his right. After moving a distance of 20 metres, he turns to the right and walks 20 metres. Finally, he turns to the right and moves a distance of 10 metres. How far and in which direction is he from the starting point?

[+1]
[-0]

- A. 10 metres North
- B. 20 metres South
- C. 20 metres North
- D. 10 metres South
- E. None of these

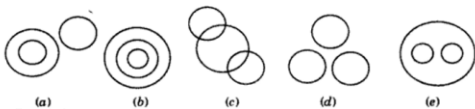
Q2. One evening before sunset two friends Sumit and Mohit were talking to each other face to face. If Mohit's shadow was exactly to his right side, which direction was Sumit facing?

[+1]
[-0]

- A. North
- B. South
- C. West
- D. Data inadequate
- E. None of these

Q3. Which is the most suitable Venn diagram among the following which represents interrelationship among Factory, Machinery, Product.

[+1]
[-0]



- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. (e)

Q4. Manisha ranked sixteenth from the top and twenty ninth from the bottom among those who passed an examination. Six boys did not participate in the competition and five failed in it. How many boys were there in the class?

[+1]
[-0]

- A. 40
- B. 44
- C. 50
- D. 55
- E. None of these

Q5. Choose the correct option to continue the series.

[+1]
[-0]



- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

Q6. Which word completes the second pair in the same way as first pair?

[+1]
[-0]

Knoll : Hill : : Eclogue : ?

- A. Music
- B. Poem
- C. Drama
- D. Ballad
- E. None of these

Q7. Select the lettered pair that has the same relationship as the original pair of words.

[+1]
[-0]

Toss : Hurl

- A. Throw : Grab
- B. Consider : Formulate
- C. Speak : Shout
- D. Bounce : Kick
- E. None of these

Q8. CGLN are related to XTOM in the same way as BFMD is related to

[+1]
[-0]

- A. NWUY
- B. YUNW
- C. YUWN
- D. WUYN
- E. None of these

Q9. Choose the odd one out.

[+1]
[-0]

Birch , Spruce , Cedar , Maple , Ebony

- A. Birch
- B. Spruce
- C. Cedar
- D. Maple
- E. Ebony

Q10. Choose the odd one out.

[+1]
[-0]

43 – 6 , 28 – 4 , 50 – 7 , 36 – 5

- A. 43 - 6
- B. 28 - 4
- C. 50 - 7
- D. 36 - 5
- E. None of these

Q11. Choose the correct option which can continue the given series.

[+1]
[-0]

8, 6, 24, 22, 88, 86, ?

- A. 100
- B. 124
- C. 172
- D. 130
- E. None of these

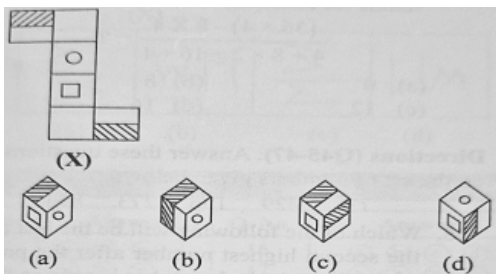
Q12. If in a certain language, 'oka peru' means 'fine cloth', 'meta lisa' means 'clear water' and 'dona lisa peru' means 'fine clear weather', which word in that language means 'weather'?

[+1]
[-0]

- A. peru
- B. oka
- C. meta
- D. dona
- E. None of these

Q13. Select the option which can be formed by folding the given net(X).

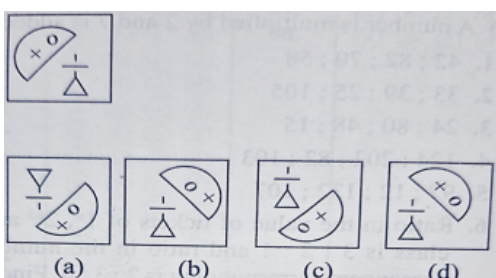
[+1]
[-0]



- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. None of these

Q14. Choose the correct mirror image of the given figure when mirror is placed vertically on the right side of the figure.

[+1]
[-0]



- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. None of these

Q15. The missing letters are given in the proper sequence as one of the option. Choose the correct option.

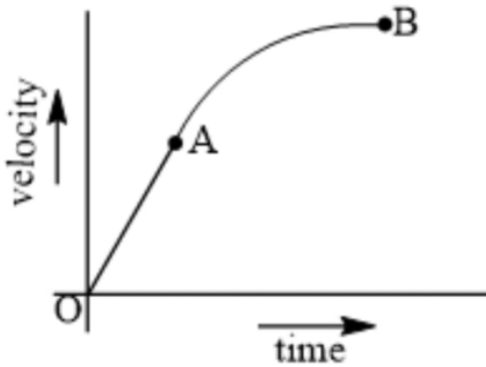
[+1]
[-0]

n_mn_mm_nm_n

- A. nmmn
- B. mnnm
- C. nnmm
- D. mmnm
- E. None of these

Q16. An object is moving in a straight line. The velocity time graph is as shown in the figure. Then

[+1]
[-0]



- A. In part OA, acceleration is increasing
- B. In part AB, acceleration is increasing
- C. In part OA, acceleration is decreasing
- D. In part AB, acceleration is decreasing
- E. None of these

Q17. Two particles of masses m_1 and m_2 are allowed to fall freely from height h_1 and h_2 . They reach the ground at time t_1 and t_2 respectively. Then

[+1]
[-0]

A. $\frac{t_1}{t_2} = \sqrt{\frac{h_1}{h_2}}$ B. $\frac{t_1}{t_2} = \sqrt{\frac{h_2}{h_1}}$
 C. $\frac{t_2}{t_1} = \frac{h_2}{h_1}$ D. $\frac{t_2}{t_1} = \frac{h_1}{h_2}$

- A. A
- B. B
- C. C
- D. D
- E. None of these

Q18. For a satellite, escape velocity is 11 km s^{-1} . If the satellite is launched at an angle of 60° with vertical, the escape velocity will be

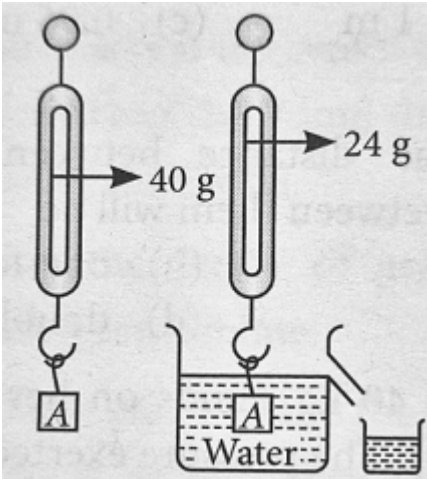
[+1]
[-0]

A. 11 km s^{-1} B. $11\sqrt{3}\text{ km s}^{-1}$
 C. $\frac{11}{\sqrt{3}}\text{ km s}^{-1}$ D. 33 km s^{-1}

- A. A
- B. B
- C. C
- D. D
- E. None of these

Q19. Analyse the figure and find out relative density of the solid.

[+1]
[-0]



- A. 1.66
- B. 2.5
- C. 1.33
- D. 0.6
- E. None of these

Q20. Two bodies of mass 2 gram and 4 gram have same kinetic energy . Their ratio of linear momentum is _____ .

[+1]
[-0]

- A. 2 : 1
- B. $\sqrt{2}$: 1
- C. 1 : 2
- D. 1 : 16
- E. None of these

Q21. At a given temperature what will be the percentage increase in pressure for a 5% decrease in the volume of the gas?

[+1]
[-0]

- A. 5%
- B. 5.26%
- C. 6.26%
- D. 10.26%
- E. None of these

Q22. Which of the following statements is not correct?

[+1]
[-0]

- A. The latent heat of fusion of ice is 3.34×10^5 J/kg
- B. Temperature of melting of ice does not rise even though heat is continuously supplied.
- C. Latent heat of vaporisation of water is 30.4×10^5 J/kg
- D. All of the above are correct.
- E. All the options are incorrect

Q23. An element 'X' has 8 electrons in the M-shell when it gains one electron. Which statements given below are not correct about the element 'X'?

[+1]
[-0]

- 1) It belongs to 3rd period in the modern periodic table.
- 2) It has a valency of 7.
- 3) It belongs to 18th group in the modern periodic table.
- 4) Its valency is 1

- A. (1) and (2)
- B. (2) and (3)
- C. (2) and (4)
- D. (1) and (4)
- E. None of these

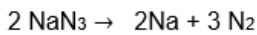
Q24. The atomic number of an element X is 19. The number of electron in its ion X⁺ will be

[+1]
[-0]

- A. 18
- B. 19
- C. 20
- D. 21
- E. None of these

Q25. Sodium azide, NaN₃ decomposes explosively to sodium metal and nitrogen gas and is used in automobile air bags.

[+1]
[-0]



Azide ion is isoelectronic to

- A. CO
- B. NO
- C. CO₂
- D. H₂O

- A. A
- B. B
- C. C
- D. D
- E. None of these

Q26. A metal sulphate has the formula MSO₄. The phosphate of the same metal will have the formula

[+1]
[-0]

- A. M₃ (PO₄)₃
- B. M₂ PO₄
- C. M (PO₄)₂
- D. M₃ (PO₄)₂

- A. A
- B. B
- C. C
- D. D
- E. None of these

Q27. X and Y are the two atomic species.

[+1]
[-0]

| | X | Y |
|-------------------|---|----|
| Number of Proton | 8 | 8 |
| Number of Neutron | 8 | 10 |

Select the correct statement about X and Y

- A. X and Y are isobars.
- B. X and Y have different chemical properties.
- C. X and Y have different physical properties.
- D. X and Y are the atoms of different elements.
- E. None of these

Q28. Choose the incorrect statement.

[+1]
[-0]

- A. Epithelium helps in absorption of nutrients.
- B. Epithelium allows the normal movement.
- C. Epithelium helps in elimination of waste products.
- D. Epithelium secretes chemical substances.
- E. None of these

Q29. Cell vary in their size. Arrange the following cells in an ascending order of their size and select the correct option among the following.

[+1]
[-0]

- (I) Mycoplasma
- (II) Ostrich egg
- (III) Human RBC
- (IV) Bacteria

- A. I, IV, III, II
- B. I, II, III, IV
- C. II, I, III, IV
- D. III, I, II, IV
- E. None of these

Q30. Match the items in column I with column II.

[+1]
[-0]

| | Column I | | Column II |
|---|--------------|-------|--------------------------|
| P | Ribosomes | (i) | Suicidal bags |
| Q | Mitochondria | (ii) | Control function of cell |
| R | Nucleus | (iii) | Protein synthesis |
| S | Lysosomes | (iv) | Powerhouse of the cell |

| | P | Q | R | S |
|---|-----|-----|----|----|
| a | iii | iv | ii | i |
| b | iii | iv | i | ii |
| c | iii | i | ii | iv |
| d | i | iii | ii | iv |

- A. a
- B. b
- C. c
- D. d
- E. None of these

Q31. Match column - I with column – II and identify the correct option.

[+1]
[-0]

| | Column - I | | Column - II |
|---|------------|-----|-------------------|
| P | Virus | i | Ringworm |
| Q | Bacteria | ii | Filariasis |
| R | Protozoa | iii | Tetanus |
| S | Nematoda | iv | Sleeping Sickness |
| | | v | Polio |

| | P | Q | R | S |
|---|-----|-----|----|-----|
| a | ii | v | i | iii |
| b | iii | iv | v | i |
| c | v | iii | iv | ii |
| d | iii | i | v | ii |

- A. a
- B. b
- C. c
- D. d
- E. None of these

Q32. A round green (RRyy) seed plant is crossed with a wrinkled yellow (rrYY) seed plant. According to Mendel's law the phenotypic ratio in f_2 generation will be

[+1]
[-0]

- A. 3:3:2:1
- B. 9:3:3:1
- C. 1:2:1:1
- D. 9:2:3:1
- E. None of these

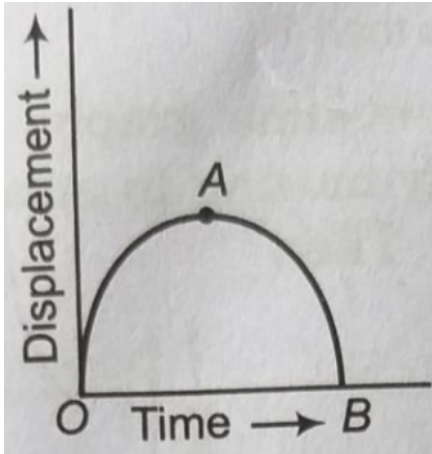
Q33. If a grasshopper is eaten by a frog, then the energy transfer will be from

[+1]
[-0]

- A. primary consumer to secondary consumer
- B. secondary consumer to primary consumer
- C. producer to primary consumer
- D. producer to decomposer
- E. None of these

Q34. In the given figure, the velocity

[+1]
[-0]



- A. decreases between points O and A
- B. increases between points A and B
- C. decreases between points A and B
- D. is zero throughout
- E. None of these

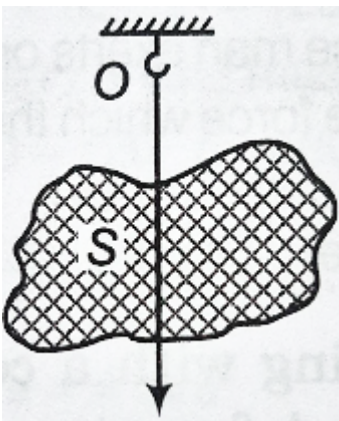
Q35. In 1.0 s, a particle goes from point A to point B moving in a semicircle of radius 1.0 m. The magnitude of the average velocity is

[+1]
[-0]

- A. 3.14 m/s
- B. 2.0 m/s
- C. 10 m/s
- D. zero
- E. None of these

Q36. A stone is tied to the middle of a string and suspended from one end as shown in the figure. Here, S is the stone and O is the point of suspension. At what point a sharp jerk will break the string?

[+1]
[-0]



- A. Below the stone
- B. At the point itself
- C. From above the stone
- D. Nothing can be decided
- E. None of these

Q37. Choose the correct option.

[+1]
[-0]

P – The ratio of inertial mass of gravitational mass is equal to one.
Q – The inertial mass and gravitational mass of a body are equivalent.

- A. Both P and Q are true
- B. Both P and Q are false
- C. P is true but Q is false
- D. P is false but Q is true
- E. None of these

Q38. Velocity of sound in air

[+1]
[-0]

- I. increase with temperature
- II. decrease with temperature
- III. increase with pressure
- IV. is independent of pressure
- V. is independent of temperature

Choose the correct option.

- A. Only I and II are true
- B. Only I and III are true
- C. Only II and III are true
- D. Only I and IV are true
- E. None of these

Q39. Some solutions are given below.

[+1]
[-0]

1. Milk churned with water
2. Water containing mud
3. Blood
4. Starch solution

Which of these show Tyndall's effect?

- A. Only 1
- B. 2 and 3
- C. 1 and 4
- D. Only 2
- E. All of these

Q40. When alpha particles are bombarded on thin gold foil, most of the alpha particles pass through straight because

[+1]
[-0]

- A. α – particles are positively charged.
- B. α – particles have more mass than electron
- C. nucleus is at the centre of the atom.
- D. most of the part of atom is empty.
- E. None of these

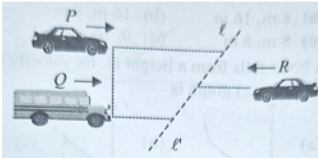
Q41. Mitochondria and chloroplast are also known as self -autonomous in nature because

[+1]
[-0]

- A. they can make their own food
- B. they have their own DNA and ribosome
- C. can exist independently
- D. All of these
- E. None of these

Q42. The P, Q, R vehicles passing through the position in the figure at the same time with a constant velocity come to the LL' direction simultaneously.

[+1]
[-0]



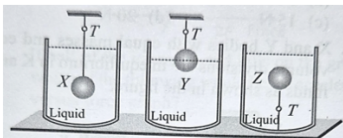
Which of following statements are absolutely correct?

1. The speed of P is greater than that of R.
2. The speed of R is greater than that of Q.
3. The velocity of P is greater than that of Q.

- A. Only 1
- B. Only 3
- C. Only 1 and 2
- D. Only 2 and 3
- E. None of these

Q43. Equal mass X, Y, and Z bodies in vessels containing same type of liquids are in equilibrium as shown in the figure.

[+1]
[-0]



Since the tension in the ropes are equal, what is the relationship between the buoyancy forces F_x , F_y , F_z on the objects?

- A. $F_z > F_x = F_y$
- B. $F_z > F_x > F_y$
- C. $F_x = F_z > F_y$
- D. $F_x = F_y = F_z$

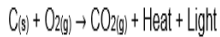
- A. A
- B. B
- C. C
- D. D
- E. None of these

Q44. Two identical balls are thrown vertically up with velocities v and $2v$. The ratios of maximum heights reached by them and time taken to reach the maximum heights are respectively

[+1]
[-0]

- A. 1 : 2 and 1 : 2
- B. 1 : 4 and 1 : 2
- C. 1 : 2 and 1 : 4
- D. 1 : 4 and 1 : 4
- E. None of these

Q45. The reaction of burning of carbon in oxygen is represented by equation



When 9.0 g of solid carbon is burnt in 16.0g of oxygen gas, the mass of carbon dioxide gas formed would be

(Note : atomic mass of C = 12.0 u , O=16.0 u)

- A. 2.33g
- B. 22.0g
- C. 25.0g
- D. 33.00g
- E. None of these

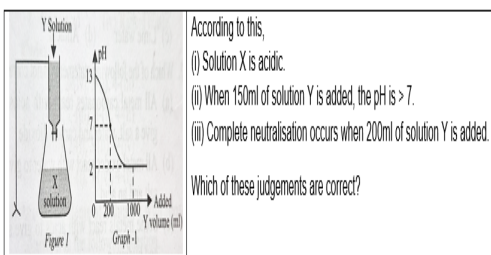
Q46. Pure breed pea plant A is crossed with pure breed pea plant B. It is found that the plants which look like A do not appear in F1 generation but re-emerge in F2 generation. Which of the plants A and B are tall and dwarf?

- A. A are tall and B are also tall.
- B. A are tall and B are dwarf
- C. A are dwarf and B are tall
- D. A are dwarf are B are also dwarf
- E. None of these

Q47. A driver accelerates his car first at the rate of 1.8m/s^2 and then at the rate of 1.2m/s^2 . The ratio of the force exerted at by the engines will be respectively equal to

- A. 2 : 3
- B. 1 : 2
- C. 4 : 2
- D. 3 : 2
- E. None of these

Q48. The solution Y in the burette is slowly dropped onto the solution X in the flask as shown. The pH change obtained against the added volume of Y is given in Graph-1.



- A. (i) only
- B. (ii) only
- C. (i) and (ii)
- D. (ii) and (iii)
- E. None of these

[+1]
[-0]

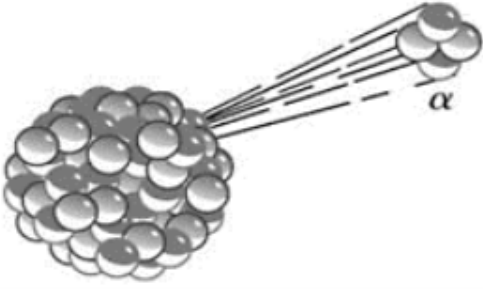
[+1]
[-0]

[+1]
[-0]

[+1]
[-0]

Q49. Uranium -235, an isotope of uranium with a mass number of 235 and an atomic number of 92, is radioactive. It has an unstable nucleus which loses an alpha-particle during alpha decay. Each Alpha-particle consists of 2 protons and 2 neutrons. Which one of the following isotopes is produced during this process in addition to the alpha-particle?

[+1]
[-0]



- A. uranium -231
- B. thorium -231 (the atomic number of thorium is 90)
- C. plutonium – 231 (the atomic number of plutonium is 94)
- D. radium – 231 (the atomic number of radium is 88)
- E. None of these

Q50. The table below shows the number of electrons and neutrons in the following particles:

[+1]
[-0]

Which of the following atoms is an isotope of W?

| Particles | No. of electrons | No. of neutrons |
|-----------------|------------------|-----------------|
| W | 8 | 8 |
| X | 6 | 8 |
| Y ²⁺ | 10 | 12 |
| Z ²⁻ | 10 | 9 |
| R ⁻ | 10 | 12 |

- A. X
- B. Z
- C. Y
- D. R
- E. None of these



CLASS / GRADE

Class 9

SUBJECT

IFSO

TOTAL QUESTIONS

50

MAX MARKS

50

ANSWER SHEET — 50 QUESTIONS

| Q# | ANS | Q# | ANS | Q# | ANS | Q# | ANS | Q# | ANS |
|----|-----|----|-----|----|-----|----|-----|----|-----|
| 01 | B | 11 | C | 21 | B | 31 | C | 41 | B |
| 02 | B | 12 | D | 22 | C | 32 | B | 42 | B |
| 03 | E | 13 | A | 23 | B | 33 | A | 43 | D |
| 04 | D | 14 | B | 24 | A | 34 | B | 44 | B |
| 05 | A | 15 | B | 25 | C | 35 | B | 45 | B |
| 06 | B | 16 | D | 26 | D | 36 | A | 46 | C |
| 07 | C | 17 | A | 27 | C | 37 | A | 47 | D |
| 08 | B | 18 | A | 28 | B | 38 | D | 48 | D |
| 09 | E | 19 | B | 29 | A | 39 | E | 49 | B |
| 10 | B | 20 | B | 30 | A | 40 | D | 50 | B |

◆ ALL IOF OLYMPIAD PROGRAMMES ◆

