



# 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 10

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

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

**Q1.** Which word completes the second pair in the same way as first pair?

[+1]  
[-0]

Skirmish : War :: Disease : ?

- A. Medicine
- B. Patient
- C. Epidemic
- D. Infection
- E. None of these

**Q2.** Choose the correct option.

[+1]  
[-0]

Forfeit is related to Surrender in the same way as Remit is related to ?\_

- A. Perceive
- B. Confiscate
- C. Exempt
- D. Cancel
- E. None of these

**Q3.** Which number completes the second pair in the same way as first pair?

[+1]  
[-0]

42 : 20 :: 64 : ?

- A. 32
- B. 31
- C. 33
- D. 34
- E. None of these

**Q4.** Choose the odd one out.

[+1]  
[-0]

Lapies , Stalactites , Cliffs , Sinkholes , Stalagmites

- A. Lapies
- B. Stalactites
- C. Cliffs
- D. Sinkholes
- E. Stalagmites

**Q5.** Choose the pair in which the words are differently related.

[+1]  
[-0]

- A. Mulder : Proteins
- B. Curie : Radium
- C. Becquerel : Radio activity
- D. Einstein : Television
- E. None of these

**Q6.** Choose the correct option to complete the series.

[+1]  
[-0]

13, 32, 24, 43, 35, ?, 46, 65, 57, 76

- A. 45
- B. 52
- C. 54
- D. 55
- E. None of these

**Q7.** Choose the correct option to continue the series.

[+1]  
[-0]

FLP, INS, LPV, ?

- A. ORY
- B. UXZ
- C. VXY
- D. SVW
- E. None of these

**Q8.** In a certain code, 'bi nie pie' means 'some good jokes' ; 'nie bat lik' means 'some real stories' ; and 'pie lik tol' means ' many good stories'. Which word in that code means 'jokes'?

[+1]  
[-0]

- A. bi
- B. nie
- C. pie
- D. Can't be determined
- E. None of these

**Q9.** Deepak said to Nitin, "That boy playing with the football is the younger of the two brothers of the daughter of my father's wife." How is the boy playing football related to Deepak?

[+1]  
[-0]

- A. Son
- B. Brother
- C. Cousin
- D. Nephew
- E. None of these

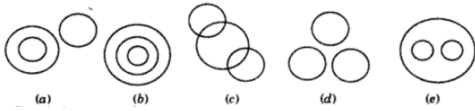
**Q10.** Rohit walked 25 meters towards South. Then he turned to his left and walked 20 meters. He then turned to his left and walked 25 meters. He again turned to his right and walked 15 meters. At what distance is he from the starting point and in which direction?

[+1]  
[-0]

- A. 35 metres East
- B. 35 metres North
- C. 40 metres East
- D. 60 metres East
- E. None of these

**Q11.** Which of the following diagrams indicates the best relation among Truck, Ship, Goods.

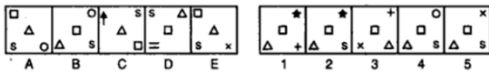
[+1]  
[-0]



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

**Q12.** Choose the correct option to continue the series.

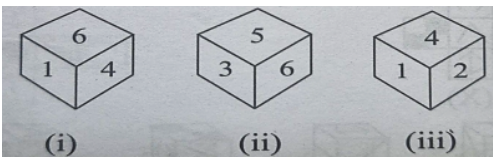
[+1]  
[-0]



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

**Q13.** Three positions of a dice are given. Based on them, find out which number is found opposite the number 2 in the given cube.

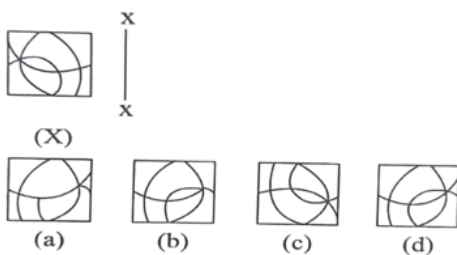
[+1]  
[-0]



- A. 6
- B. 5
- C. 3
- D. 1
- E. None of these

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

[+1]  
[-0]



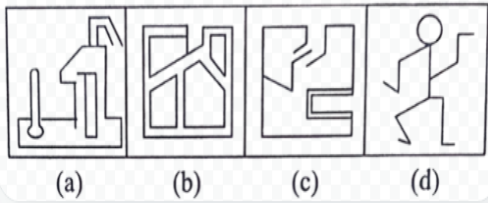
- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. None of these

Q15. Choose the correct option where fig(X) is embedded (in any of the given options)

[+1]  
[-0]



(X)



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

Q16. A screen bearing a real image of magnification  $m_1$ , formed by a convex lens, is moved by a distance  $x$ . The object is then moved until a new image of magnification  $m_2$  is formed on screen. The focal length of lens is

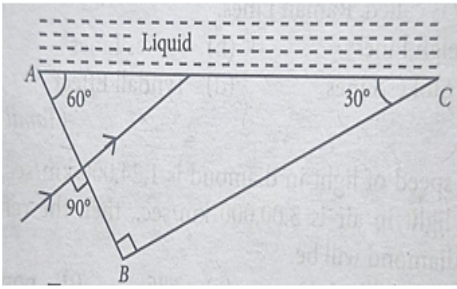
[+1]  
[-0]

- A.  $\frac{x}{m_2 - m_1}$
- B.  $\frac{m_2 - m_1}{x}$
- C.  $\frac{x}{m_1 - m_2}$
- D.  $\frac{m_1 - m_2}{x}$

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

- Q17.** A ray of light is incident normally on face AB of a prism as shown in the figure. A liquid of refractive index  $\mu$  is placed on the face AC of the prism. The prism is made of glass of refractive index  $\frac{3}{2}$ . The limit of  $\mu$  for which total internal reflection takes place on face AC is

[+1]  
[-0]

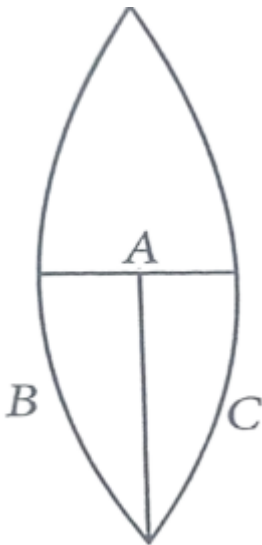


- A.  $\mu < \frac{3\sqrt{3}}{4}$                       B.  $\mu < \frac{3\sqrt{3}}{14}$   
 C.  $\mu > \frac{\sqrt{3}}{2}$                          D.  $\mu < \sqrt{3}$

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

- Q18.** A thin symmetric double convex lens of power P is cut into three parts A, B and C as shown. The power of

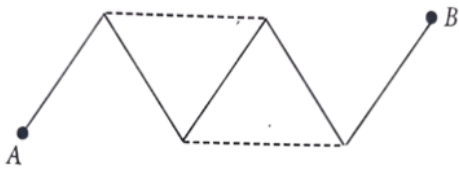
[+1]  
[-0]



- A. A is P, B is  $\frac{P}{4}$   
 B. A is 2P, B is  $\frac{P}{3}$   
 C. A is  $\frac{P}{2}$ , B is  $\frac{P}{4}$   
 D. A is P, B is  $\frac{P}{2}$   
 E. None of these

**Q19.** Five identical resistance wires  $1\ \Omega$  each, are connected as shown in figure as clear lines. If two similar wires are added as shown by dashed lines, find the change in resistance between A and B

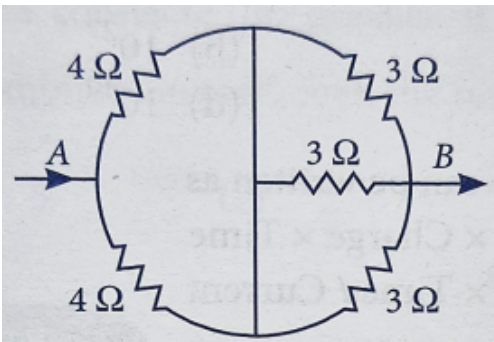
[+1]  
[-0]



- A.  $2\ \Omega$
- B.  $1\ \Omega$
- C.  $3\ \Omega$
- D.  $4\ \Omega$
- E. None of these

**Q20.** Resistors are connected as shown in the circuit diagram. The effective resistance between A and B is

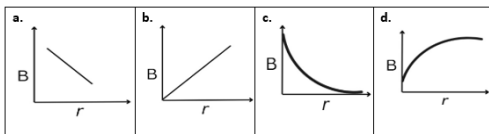
[+1]  
[-0]



- A.  $3\ \Omega$
- B.  $3.5\ \Omega$
- C.  $11\ \Omega$
- D.  $5.5\ \Omega$
- E. None of these

**Q21.** The magnetic field intensity (B) at a distance 'r' from a long straight conductor carrying a steady current varies with 'r' is shown by which figure.

[+1]  
[-0]



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

**Q22.** Which of the following statements are true about respiration?

[+1]  
[-0]

- P. Haemoglobin has greater affinity for CO<sub>2</sub> than O<sub>2</sub>
- Q. The gaseous exchange takes place in the alveoli.
- R. During inhalation ribs move inward and diaphragm is raised.
- S. Haemoglobin has greater affinity for O<sub>2</sub> than CO<sub>2</sub>.

- A. Q and S
- B. P and R
- C. Q and R
- D. P and Q
- E. None of these

**Q23.** Match the items in column I with those in column II and select the correct choice.

[+1]  
[-0]

	Column – I		Column – II
P	Autotrophic	I	Kidney
Q	Conducting tissue	II	Protein
R	Excretory Organ	III	Green Plants
S	Pepsin	IV	Xylem

	P	Q	R	S
a	III	IV	II	I
b	III	IV	I	II
c	IV	II	I	III
d	II	IV	III	I

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

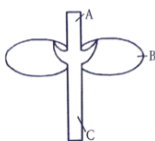
**Q24.** The breakdown of pyruvate release carbon dioxide, water and energy. This process takes place in

[+1]  
[-0]

- A. Cytoplasm
- B. Mitochondria
- C. Chloroplast
- D. Nucleus
- E. None of these

**Q25.** In the given figure parts marked A, B and C subsequently are

[+1]  
[-0]



	A	B	C
a	Cotyledon	Plumule	Radicle
b	Plumule	Cotyledon	Radicle
c	Plumule	Radicle	Cotyledon
d	Radicle	Plumule	Cotyledon

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

**Q26.** Read the following statements and select the correct option.

[+1]  
[-0]

P. Wind pollinating flowers need to produce more quantity of pollen grains.  
Q. Seed from cross pollinated flowers produce weaker and less healthy plants.

- A. 'P' is false 'Q' is true
- B. 'P' is true 'Q' is false
- C. Both 'P' and 'Q' are true
- D. Neither 'P' nor 'Q' are true
- E. None of these

**Q27.** Assertion (A) : Colour blindness is more common in males than in females.

[+1]  
[-0]

Reason (R) : Colour blindness defect is due to dominate genes which occur in the Y chromosomes.

Select the correct option from the given alternatives.

- A. 'A' is true and 'R' is false.
- B. 'A' is false and 'R' is true
- C. Both 'A' and 'R' are true and 'R' explains 'A'
- D. Both 'A' and 'R' are true but 'R' does not explain 'A'
- E. None of these

**Q28.** Mendel crossed tall plant with dwarf plant in his famous experiment on *Pisum sativum*. In the first generation, he got only tall plants, because

[+1]  
[-0]

- A. the parental plant were heterogeneous to their characters.
- B. the soil was fertile.
- C. the parental plants were pure to their character.
- D. the tallness character was a recessive character.
- E. None of these

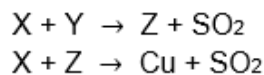
**Q29.** An atom 'A' belongs to III A group and another atom 'B' belongs to VI A group. The formula of the compound formed is

[+1]  
[-0]

- A.  $A_2B_3$
- B.  $A_3B_6$
- C.  $A_2B$
- D.  $A_3B_2$
- E. None of these

**Q30.** Identify X, Y and Z if

[+1]  
[-0]



	X	Y	Z
a	$\text{Cu}_2\text{O}$	$\text{H}_2\text{SO}_4$	$\text{Cu}_2\text{S}$
b	$\text{Cu}_2\text{S}$	$\text{H}_2\text{S}$	$\text{Cu}_2\text{O}$
c	$\text{Cu}_2\text{S}$	$\text{O}_2$	$\text{Cu}_2\text{O}$
d	$\text{Cu}_2\text{S}$	$\text{H}_2\text{SO}_4$	$\text{Cu}_2\text{O}$

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

**Q31.** Three test tubes contains the following :

[+1]  
[-0]

Test tube X : 5ml of HCL

Test tube Y : 5ml of  $\text{HNO}_3$

Test tube Z : 15ml of HCL + 5ml of  $\text{HNO}_3$

A small piece of metal was added in all the three test tubes. It dissolves only in test tube Z. The metal is

- A. Al
- B. Au
- C. Cu
- D. Ag
- E. None of these

**Q32.** The solution in which an immersed glass exhibits apparent disappearance is a mixture of

[+1]  
[-0]

- A. hydrogen fluoride and acetic acid
- B. hydrofluoric acid and sulphuric acid
- C. conc. HCL and  $\text{HNO}_3$  in the ratio of 3 : 1
- D. acetone and chloroform in suitable proportion
- E. None of these

**Q33.** Shyam and Hari have 2 identical pieces of marble chips with same mass. They take equal volumes of diluted HCL with the same concentration in two different test tubes. Shyam puts the marble piece directly into the acid whereas Hari powdered the marble piece and puts it into the test tube. What will be the correct observation made?

[+1]  
[-0]

- A. Reaction in Shyam's test tube will be faster.
- B. Reaction in Hari's test tube will be faster.
- C. Both reactions will happen with the same speed.
- D. No reaction happens in both the test tubes.
- E. None of these

**Q34.** An element 'X' forms two oxides 'XO' and 'XO<sub>2</sub>'. The oxide 'OX' is neutral but 'XO<sub>2</sub>' is acidic in nature. The element 'X' is [+1]  
[-0]

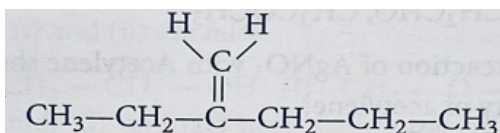
- A. Sulphur
- B. Calcium
- C. Hydrogen
- D. Carbon
- E. None of these

**Q35.** The following substances are arranged in the increasing order of their pH values. The correct option is [+1]  
[-0]

1. Tomato Juice      2. Toothpaste      3. Saliva (after meals)  
4. Coffee            5. Blood

- A. 2 3 5 1 4
- B. 2 5 3 4 1
- C. 2 1 3 5 4
- D. 1 4 3 5 2
- E. None of these

**Q36.** IUPAC name of following compound will be [+1]  
[-0]



- A. 3 – Methylene hexane
- B. 2 – Propyl – 1 - butene
- C. 4 – Ethyl – 4 – pentene
- D. 2 – Ethyl – 1 - pentene
- E. None of these

**Q37.** An organic compound A on treating with acidified potassium dichromate solution gives B with molecular mass 60g/mol. A on heating with conc. H<sub>2</sub>SO<sub>4</sub> at 443k produces a gas that decolourises bromine water. The compound A is [+1]  
[-0]

- A. n – propyl alcohol
- B. iso – propyl alcohol
- C. ethyl alcohol
- D. acetaldehyde
- E. None of these

**Q38.** A light bulb is placed between two plane mirrors inclined at angle of 60°. The number of images formed are [+1]  
[-0]

- A. 6
- B. 2
- C. 5
- D. 4
- E. None of these

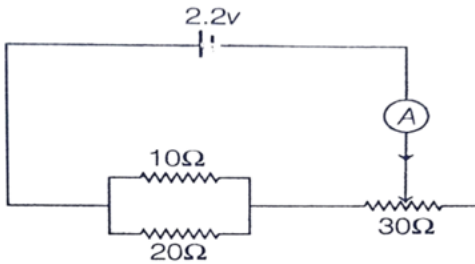
**Q39.** An element reacts with oxygen to give a compound with a high melting point. This compound is also soluble in water. The element is likely to be

[+1]  
[-0]

- A. Calcium
- B. Carbon
- C. Silicon
- D. Iron
- E. All of these

**Q40.** The resistance of rheostat shown in the figure is  $0.30 \Omega$ , Neglecting the resistance of ammeter and connecting wire the minimum and maximum currents through the ammeter will be

[+1]  
[-0]



- A. (0.08A , 0.33A)
- B. (0.06A , 0.08A)
- C. (0.06A , 0.33A)
- D. (0.33A , 0.09A)
- E. None of these

**Q41.** An object of height 2.0cm is placed on the principal axis of a concave mirror at a distance of 12cm from the pole. If the image is inverted, real and 5cm in height, then location of the image and focal length of the mirror respectively are

[+1]  
[-0]

- A. (-30cm , +8.6cm)
- B. (-30cm , -8.6cm)
- C. (+30cm , +8.6cm)
- D. (+30cm , -8.6cm)
- E. None of these

**Q42.** Aqua regia is a mixture of conc. Hydrochloric acid and conc. Nitric acid in ratio

[+1]  
[-0]

- A. 3 : 1
- B. 2 : 1
- C. 1 : 5
- D. 2 : 3
- E. None of these

**Q43.** Choose the correct sequence:

[+1]  
[-0]

- A. Pulmonary vein → Pulmonary artery → Left auricle → Right ventricle
- B. Pulmonary artery → Right auricle → Left ventricle → Pulmonary vein
- C. Right auricle → Pulmonary artery → Pulmonary vein → Left ventricle
- D. Left ventricle → Pulmonary vein → Pulmonary artery → Right auricle
- E. None of these

**Q44.** A student was performing an experiment to understand the enzyme – substrate reaction. The student measured the formation of coloured product using a calorimeter. The student plotted the graph below which shows the reaction rate versus the substrate concentration.

[+1]  
[-0]

Following interpretations were drawn by the student:

P. The higher concentration of substrate acts as an enzyme inhibitor.

Q. It is a sigmoidal curve with sharp transitions from low to high reaction rates over the increasing substrate concentration

R. The curve reaches a plateau and does not further increase with increasing substrate concentrations due to saturation of enzyme with the substrate.

Choose which of the interpretations of the graph are correct.



- A. P and Q
- B. P and R
- C. Only Q
- D. Q and R
- E. None of these

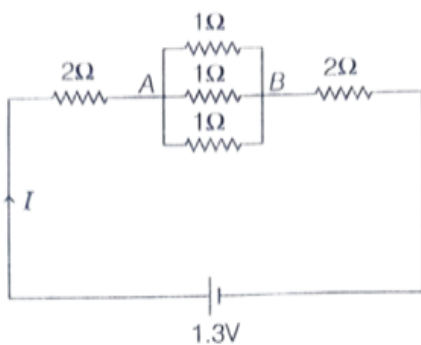
**Q45.** The gravitational potential energy difference per unit mass between the surface of a planet and a point 100m above it is 1000J/kg. How much work is required to be done in moving a 5kg object 100m on a slope at 30° to the horizontal on this planet?

[+1]  
[-0]

- A. 1250J
- B. 2500J
- C. 4350J
- D. 5000J
- E. None of these

**Q46.** In the circuit given, the ratio of work done by the battery to maintain the current between point A and B to the work done for the whole circuit is

[+1]  
[-0]



P.  $\frac{1}{117}$

Q.  $\frac{1}{13}$

R.  $\frac{1}{12}$

S. 1

- A. P
- B. Q
- C. R
- D. S
- E. None of these

**Q47.** You are provided with aqueous solutions of three salts – P, Q and R, two three drops of blue litmus solution, red litmus solution and phenolphthalein were added to each of these solutions in separate experiments. The change in colours of different indicators were recorded in the following table.

[+1]  
[-0]

Sample	With Blue Litmus solutions	With Red Litmus solution	With phenolphthalein solution
P	No Change	No change	No change
Q	Turns red	No change	No change
R	No change	Turns blue	Turns pink

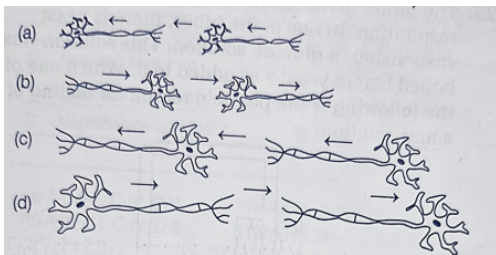
On the basis of above observations, identify P, Q and R from the following options.

	P	Q	R
(a)	$\text{NH}_4\text{Cl}$	$\text{NaCl}$	$\text{CH}_3\text{COONa}$
(b)	$\text{NH}_4\text{Cl}$	$\text{CH}_3\text{COONa}$	$\text{NaCl}$
(c)	$\text{NaCl}$	$\text{NH}_4\text{Cl}$	$\text{CH}_3\text{COONa}$
(d)	$\text{CH}_3\text{COONa}$	$\text{NH}_4\text{Cl}$	$\text{NaCl}$

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

**Q48.** Stimulus from the environment is detected by the nerve cells. The stimulus acquired is transmitted in the form of electrical impulse. From the options given below choose the correct scheme showing the direction in which the nerve impulse travels. (Arrows show the direction of impulse flow)

[+1]  
[-0]

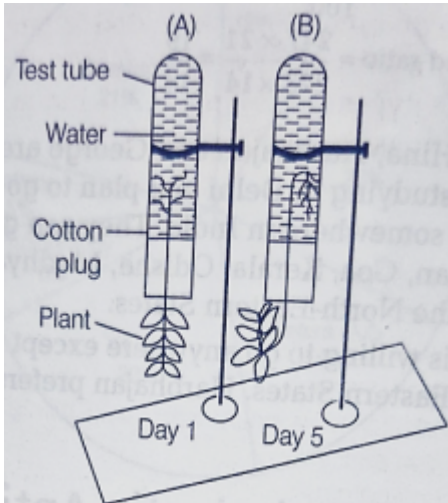


- A. (a)
- B. (b)
- C. (c)
- D. (d)
- E. None of these

**Q49.** Observe the experimental setup (A) and (B).

[+1]  
[-0]

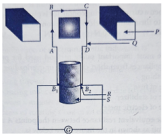
From the options given below, choose the combination of responses of shoot and root that are observed in B.



- A. Positive phototropism and positive geotropism
- B. Negative phototropism and positive geotropism
- C. Positive phototropism and negative geotropism
- D. Only negative phototropism
- E. None of these

**Q50.** Observe the diagram of 'Electric DC generator'; and select the correct pairing of labelling.

[+1]  
[-0]



	P	Q	R	S
a	Strong magnet	Armatures	Slip ring	Axle
b	Iron core	Armatures	Slip ring	Axle
c	Strong magnet	Iron core	Axle	Wire
d	Iron core	Axle	Slip ring	Strong magnet

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



CLASS / GRADE

Class 10

SUBJECT

IFSO

TOTAL QUESTIONS

50

MAX MARKS

50

## ANSWER SHEET — 50 QUESTIONS

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

## ◆ ALL IOF OLYMPIAD PROGRAMMES ◆

