



[PAPER-I]

SET-A

IPEC EXPLOSIVE MIND TEST

SAMPLE PAPER

CLASS-X

(For X to XI Moving Students)

Time : 3 Hrs.]

[Maximum Marks : 168

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

INSTRUCTIONS

1. The booklet is your Question Paper. Do not break the seal of this booklet before being instructed to do so by the invigilator.
2. Blank spaces and blank pages are provided in the question paper for your rough work. No additional sheets will be provided for rough work.
3. Blank papers, clipboards, log tables, slide rules, calculators, cameras, cellular phones, pagers and electronic gadgets are **NOT** allowed inside the examination hall.
4. The answer sheet, a machine-readable Optical Response Sheet (**ORS**), is provided separately.
5. On breaking the seal of the booklet check that it contains **10** pages and all the **45** questions.
6. A candidate has to write his / her answers in the ORS sheet by darkening the appropriate bubble with the help of **Black ball point pen** as the correct answer of the question attempted.
7. **Question Paper Format :**
This question paper consists of **4 Parts**:

Part - I (IQ)	15 single correct type
Part - II (Maths)	Section - I (2 Comprehensions in 4 single correct type question)
	Section - II (6 single correct type)
Part - III (Physics)	Section - I (2 Comprehensions in 4 single correct type question)
	Section - II (6 single correct type)
Part - IV (Chemistry)	Section - I (2 Comprehensions in 4 single correct type question)
	Section - II (6 single correct type)
8. **Marking Scheme :**
Please see the Marking scheme as mentioned in all **Part and sections**

FOR ANSWER KEY VISIT OUR WEBSITE- www.ipeeciit.com

PART - I [10]

[SINGLE CORRECT TYPE]

Each question has four choices (A), (B), (C) and (D) out of which only one is correct. You will be awarded +4 marks for correct answer. -1 mark will be awarded for wrong answer.

Directions (Questions 1 to 3) :

In each of the following letter series, some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

1. C ___ bba ___ cab ___ ac ___ ab ___ ac
(A) abcabc (B) acbcb (C) babcc (D) bcacb
2. cccbb ___ aa ___ cc ___ bbaa ___ c
(A) acbc (B) baca (C) baba (D) acba
3. ___ a ___ b ___ abaa ___ bab ___ abb
(A) aaabb (B) ababb (C) babab (D) babba

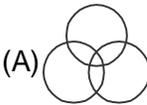
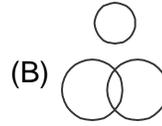
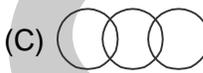
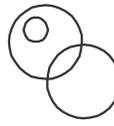
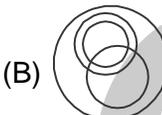
Directions (Questions 4 to 6) :

In each of the following questions, four pairs of words are given out of which the words in three pairs bear a certain common relationship. Choose the pair in which the words are differently related.

4. (A) Cat : Paw (B) Lizard : Pad (C) Horse : Hoof (D) man : Leg
5. (A) Oil : Lamp (B) Water : Tap (C) Oxygen : Life (D) Power : Machine
6. (A) Stamp : Letter (B) Ticket : Train (C) Ink : Pen (D) Car : Engine
7. In a certain code, PLEADING is written as FMHCQMFB. How is SHOULDER written in that code ?
(A) KCDQTIPV (B) QDCKVPIT (C) QDCKTIPV (D) TIPVQDCK
8. In a certain code, RAIL is written as KCTN and SPEAK is written as CGRUM. How will AVOID be written in that code ?
(A) FKQXC (B) KQXCF (C) KRXCF (D) KQVCB
9. In a certain code, MOTHER is written as ONHURF. How will ANSWER be written in that code ?
(A) NBXSSE (B) NBWRRF (C) MAVSPE (D) NBWTRF
10. Pointing out to a lady, a girl said, " She is the daughter-in-law of the grandmother of my father's only son," How is the lady related to the girl ?
(A) Sister-in-law (B) Mother (C) Aunt (D) Mother-in-law

(Space for rough work)



11. Rasik walks 20 m North. Then he turns right and walks 30m. Then he turns right and walks 30 m. Then he turns right and walks 35m. Then he turns left and walks 15 m. Then he again turns left and walks 15 m. In which direction and how many metres away is he from his original position ?
 (A) 15 metres West (B) 30 metres East (C) 30 metres west (D) 45 metres East
12. Some of the cricket players are tennis players, some tannis players are hockey players, no cricket player is a hockey player. Which of the following diagrams correctly represents the above statements ?
- (A)  (B)  (C)  (D) 
13. In a dinner party both fish and meat were served. Some took only fish and some only meat. There were some vegetarians who did not accept either. The rest accepted both fish and meat. Which of the following logic diagrams correctly reflects this situation ?
- (A)  (B)  (C)  (D) 
14. Richard is fifteenth from the front in a column of boys. There were thrice as many behind him as there were in front. How many boys are there between Richard and the seventh boy from the end of the column ?
 (A) 33 (B) 34 (C) 35 (D) Data inadequate
15. Forty boys are standing in a row facing the North. Amit is eleventh from the left and Deepak is thirty-first from the right end of the row. How far will Shreya, who is third to the right of Amit in the row, be from Deepak ?
 (A) 2nd (B) 3rd (C) 4th (D) 5th

(Space for rough work)



PART - II (MATHS)

SECTION - I

[COMPREHENSION TYPE]

This section contains 2 Comprehension (4 Single Correct Type Questions). Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

All Question carries +3 marks for correct answer and No Negative marks for wrong answer

Comprehension#1

A two digit number which has a and b as units and tens digit respectively is equal to $10b + a$ and the number obtained by interchanging the order of digits is $10a + b$

16. The sum of two digit number and the number formed by interchanging the digits is 132. If 12 is added to the number, the new number becomes 5 times the sum of the digits. Find the number.
 (A) 132 (B) 39 (C) 48 (D) 88
17. The sum of a two digit number and the number obtained by reversing the order of its digits is 121 and the two digits differ by 3. Find the number.
 (A) 62 or 26 (B) 47 or 74 (C) 41 or 14 (D) 87 or 78

Comprehension#2

If S_n is the sum of n terms of an A.P., then the n^{th} term t_n of the sequence can be determined by $t_n = S_n - S_{n-1}$.

18. If the sum of n terms of an A.P. is given by $S_n = (3n^2 + 2n)$, Find its n^{th} term.
 (A) $6n+1$ (B) $6n-1$ (C) $4n-2$ (D) $4n-1$
19. If sum of n terms of an A.P. is $4n^2 + 7n$, find the 15^{th} term.
 (A) 123 (B) 142 (C) 153 (D) 136

SECTION - II

[SINGLE CORRECT TYPE]

This section contains 6 Single Correct Type Questions). Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

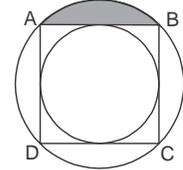
All Question carries +4 marks for correct answer and -1 marks for wrong answer

20. If LCM of $f(x)$ and $g(x)$ is $6x^2 + 13x + 6$, then which of the following cannot be the HCF of $f(x)$ and $g(x)$?
 (A) $2x+3$ (B) $3x+1$ (C) $(2x+3)(3x+2)$ (D) $3x+2$

(Space for rough work)



21. Two arithmetic progressions have equal common differences. The first term of one of these is 3 and that of the other is 8, then the difference their 100th terms is
 (A) 4 (B) 5 (C) 6 (D) 3
22. If ABCD is a cyclic quadrilateral, then the value of $\cos^2 A - \cos^2 B - \cos^2 C + \cos^2 D$ is
 (A) 0 (B) 1 (C) -1 (D) 2
23. In ΔPQR , $PQ = 6\text{cm}$, $PR = 9\text{cm}$ and M is a point on QR such that it divides QR in the ratio 1:2, $PM \perp QR$. Find QR.
 (A) $\sqrt{18}\text{cm}$ (B) $3\sqrt{12}\text{cm}$ (C) $3\sqrt{15}\text{cm}$ (D) $\sqrt{20}\text{cm}$
24. In the following figure, a circle is inscribed in square ABCD and the square is circumscribed by a circle. If the radius of the smaller circle is r cm, then find the area of the shaded region (in cm^2).
 (A) $\left(\frac{\pi-2}{4}\right)r^2$ (B) $\left(\frac{3\pi-4}{2}\right)r^2$ (C) $\left(\frac{\pi+2}{4}\right)r^2$ (D) $\left(\frac{\pi-2}{2}\right)r^2$
25. A two-digit number is seven times the sum of its digits. The number formed by reversing the digits is 6 more than half of the original number. Find the difference of the digits of the given number.
 (A) 2 (B) 3 (C) 4 (D) 5



PART - III (Physics)

SECTION - I

[COMPREHENSION TYPE]

This section contains 2 Comprehension (4 Single Correct Type Questions). Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

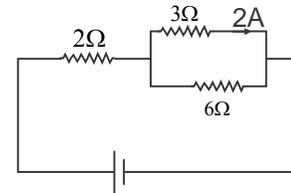
All Question carries +3 marks for correct answer and No Negative marks for wrong answer

Comprehension#1

Solve the following question with help of above diagram

26. Find the current through 6Ω resistance:

- (A) 2A (B) 1.5A (C) 1A (D) None of these

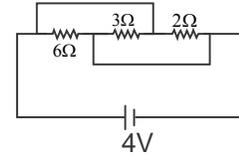


(Space for rough work)

27. Find the potential drop in 2Ω resistance.
 (A) 5V (B) 6V (C) 12V (D) None of these

Comprehension -2

Solve the following questions with the help of above diagram.



28. Find the current from the 4V battery.
 (A) 2A (B) 4A (C) 3A (D) None of these
29. Find the net resistance across 4V battery
 (A) 1Ω (B) 2Ω (C) 3Ω (D) None of these

SECTION - II

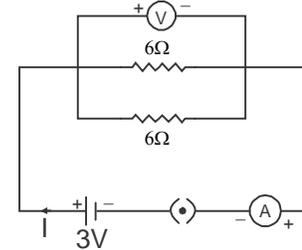
[SINGLE CORRECT TYPE]

This section contains 6 Single Correct Type Questions. Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

All Question carries +4 marks for correct answer and -1 marks for wrong answer

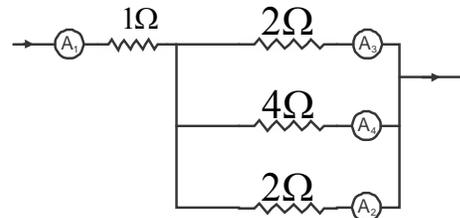
30. In the circuit below the voltmeter and ammeter reading would be respectively :

- (A) 0V and 0A each
 (B) 3V and 1A
 (C) 1V and 3A
 (D) 3V and 3A



31. Four ammeter A_1, A_2, A_3 and A_4 are connected to different resistors in a circuit given here. maximum current will be recorded by the ammeter :

- (A) A_1 (B) A_2
 (C) A_3 (D) A_4



32. The name of the device which converts electrical energy into mechanical energy is :
 (A) electrical generator (B) electric cell
 (C) microphone (D) electric motor
33. The induced current produced in a coil by moving a magnet does not depend upon :
 (A) the speed of the magnet (B) mass of the magnet
 (C) strength of the magnet (D) the number of turns in the coil

(Space for rough work)

34. When a straight conductor is carrying current :
- (A) there are circular magnetic field lines around it
 (B) there are magnetic field lines parallel to the conductor
 (C) there are no magnetic field lines
 (D) none of the above
35. 'Miniature circuit Breaker' (MCB) which is used in place of the fuse works on the :
- (A) magnetic effect of current (B) chemical effect of current
 (C) heating effect of current (D) none of these

PART - IV (CHEMISTRY)

SECTION - I

[COMPREHENSION TYPE]

This section contains 2 Comprehension (4 Single Correct Type Questions). Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

All Question carries +3 marks for correct answer and No Negative marks for wrong answer

Comprehension#1

An organic acid X is a liquid which often freezes during winter time in cold countries. It has molecular formula $C_2H_4O_2$. On warming with ethanol in the presence of a few drops of conc. H_2SO_4 , a compound Y with sweet smell is formed.

36. In the given reactions Y is
- (A) CH_3COOH (B) $CH_3COOCH_2CH_3$
 (C) CH_3CHO (D) $CH_3COC_2H_5$
37. What is the name of the process
- (A) Addition reaction (B) Substitution reaction
 (C) Saponification (D) Esterification

Comprehension#2

A non-metal X exists in two different forms Y and Z. Y is hardest natural substance, where as Z is a good conductor of electricity.

38. Identify Z
- (A) Graphite (B) Diamond (C) Hydrogen (D) None of these
39. Identify X, Y
- (A) Graphite, Diamond (B) Diamond, Hydrogen
 (C) Hydrogen, Graphite (D) Carbon, Diamond

(Space for rough work)

SECTION - II

[SINGLE CORRECT TYPE]

This section contains 6 Single Correct Type Questions). Each question has four choices (A), (B), (C) and (D) out of which ONLY ONE is correct.

All Question carries +4 marks for correct answer and -1 marks for wrong answer

40. The sodium salt of a long-chain carboxylic acid, possessing cleansing property is
(A) an ester (B) a detergent (C) a soap (D) a fat
41. Bleaching powder is represented by the formula
(A) $CaO.CaCl_2$ (B) $Ca(OCl)Cl$ (C) $CaCl_2$ (D) $CaCl_2.CaCO_3$
42. The number of electrons in the outermost shell of a non-metal can be
(A) 1, 2, 3 or 4 (B) 2, 3, 4 or 5 (C) 4, 5, 6, 7 or 8 (D) 4, 5, 0 or 2
43. The reaction, $Pb(OH)_2 + HNO_3 \longrightarrow Pb(OH)NO_3 + H_2O$ shows that $Pb(OH)NO_3$ is
(A) an acid salt (B) a basic salt (C) a base (D) an acid
44. Which of the statements about the following reactions is correct? $ZnO + CO \longrightarrow Zn + CO_2$
(A) ZnO is being oxidized (B) CO is being reduced
(C) CO_2 is being oxidized (D) ZnO is being reduced
45. Aqueous solutions of $Al_2(SO_4)_3$ and $CuSO_4$ were taken in two test tubes by each of the four students A, B, C and D. Pieces of iron and aluminium were dropped in the two solutions respectively and observations made after several hours were recorded in the form of a table as given below.

Observation by	Metal	Solution	Colour change of solution	Deposit/Residue observed
A	Fe	$Al_2(SO_4)_3$	Turned green	No Change
	Al	$CuSO_4$	Turned colourless	Grey residue
B	Fe	$Al_2(SO_4)_3$	No Change	No Change
	Al	$CuSO_4$	Colour faded	Grey deposit
C	Fe	$Al_2(SO_4)_3$	Turned green	Grey deposit
	Al	$CuSO_4$	Turned green	Black residue
D	Fe	$Al_2(SO_4)_3$	No Change	No deposit or residue
	Al	$CuSO_4$	Turned colourless	Reddish brown deposit

The student who made the correct observations and recording is

- (A) A (B) B (C) C (D) D

(Space for rough work)