



SET-A

# IPEC EXPLOSIVE MIND TEST

## SAMPLE PAPER

### CLASS-VII

### (For VII to VIII Moving Students)

Time : 3 Hrs.

Maximum Marks : 194

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 **8** pages and all the **50** 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 (Mental Ability), Part-II: Mathematics Part - III Physics and Part-IV: Chemistry**  
**Part -I (IQ):**           **Section - I** Contains 12 Single choice questions(SCQ) from 1 to 12,  
                                  **Section - II** Contains 2 Comprehensions of 4 questions each from 13 to 16 & from 17 to 20  
**Part -II :**               (Maths) Contains 3 Comprehensions and 8 Single correct type questions. Comprehensions 1 & 2 comprise of 3 questions each from 21 to 23 & from 24 to 26 and Comprehension 3 comprises of 4 questions from 27 to 30. Single Correct Type questions 31 to 38.  
**Part -III :**              (Physics) Contains 6 Single correct type questions(SCQ) from 39 to 44.  
**Part -IV :**              (Chestry) Contains 6 Single correct type questions(SCQ) from 45 to 50.
8. **Marking Scheme :**  
Please see the marking scheme as mentioned in all sections and comprehensions.

FOR ANSWER KEY VISIT OUR WEBSITE- [www.ipeeciit.com](http://www.ipeeciit.com)

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## PART -I [10]

## SECTION-I

## [SINGLE CORRECT TYPE]

Each question has four choices (A), (B), (C) and (D) out of which only one is correct. You will be awarded +2 marks for correct answer. No negative mark will be awarded for wrong answer.

1. Part is related to Whole in the same way as Arc is related to ..... ?  
(A) Trapezium (B) Circle (C) Triangle (D) Square
2. Shoes is related to Cobbler in the same way as Eyeglasses is related to ..... ?  
(A) Oculist (B) Ophthalmologist (C) Optometrist (D) Optician
3. Major is related to Lieutenant in the same way as Squadron Leader is related to ..... ?  
(A) Group captain (B) Flying Attendant (C) Flying Officer (D) Pilot Officer
4. Tennis is related to Court in the same way as Boxing is related to ..... ?  
(A) Pool (B) Ring (C) Arena (D) Course

**Directions (Questions 5 to 8):**

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.

5. \_ \_ aba \_ \_ ba \_ ab  
(A) abbba (B) abbab (C) baabb (D) bbaba
6. ab \_ \_ baa \_ \_ ab \_  
(A) aaaaa (B) aabaa (C) aabab (D) baabb
7. m \_ n m \_ n \_ an \_ a \_ ma \_  
(A) aamnan (B) ammanm (C) aammnn (D) amammn
8. a \_ ba \_ b \_ b \_ a \_ b  
(A) abaab (B) abbab (C) aabba (D) bbabb

**Directions (Questions 9 to 12) :**

In each of the following questions, there is a certain relationship between two given words on one side of :: and one word is given on another side of :: while another word is to be found from the given alternatives, having the same relation with this word as the words of the given pair bear. Choose the correct alternative.

9. Cricket : Bat :: Hockey : ?  
(A) Field (B) Stick (C) Player (D) Ball
10. Bird : wing :: Fish : ?  
(A) Gill (B) Fin (C) Tail (D) Scale
11. Coconut : Shell :: Letter : ?  
(A) Letter-box (B) stamp (C) Mail (D) Envelope
12. Smoke : Pollution :: war : ?  
(A) Destruction (B) Treaty (C) Victory (D) Peace

(Space for rough work)

**Directions (Questions 13 to 14):**

Read the following information carefully and answer the questions given below :

Ravi and Kunal are good in Hockey and Volleyball. Sachin and Ravi are good in Hockey and Baseball. Gaurav and Kunal are good in Cricket and Volleyball. Sachin, Gaurav and Michael are good in Football and Baseball.

13. Who is good in Hockey, Cricket and Volleyball ?  
 (A) Sachin (B) Kunal (C) Ravi (D) Gaurav
14. Who is good in Baseball, Cricket, Volleyball and Football?  
 (A) Sachin (B) Kunal (C) Gaurav (D) Ravi

**Directions (Questions 15 to 16):**

Read the following information to answer the given questions :

Seven children A,B,C,D,E,F and G are standing in a line. G is to the right of D and to the left of B. A is on the right of C. A and D have one child between them. E and B have two children between them. D and F have two children between them.

15. Who is on the extreme right ?  
 (A) B (B) E (C) F (D) G
16. Who is exactly in the middle ?  
 (A) A (B) C (C) D (D) E

**Directions (Questions 17 to 18) :**

Study the following information carefully and answer the questions given below:

Six friends A,B,C,D,E and F are sitting in a row facing towards North. C is sitting between A and E. D is not at the end. B is sitting immediate right to E. F is not at the right end.

17. How many persons are there to the right of D ?  
 (A) One (B) Two (C) Three (D) Four
18. Which of the following pairs is sitting to one side of D ?  
 (A) FB (B) FC  
 (C) cannot be determined (D) None of these

**Directions (Questions 19 to 20) :**

Study the given information carefully and answer the questions that follow :

(i) A,B,C,D,E, F and G are sitting on a wall and all of them are facing east.

(ii) C is on the immediate right of D.

(iii) B is at an extreme end and has E as his neighbour.

(iv) G is between E and F

(v) D is sitting third from the south end.

19. Who is sitting to the right of E ?  
 (A) A (B) C (C) D (D) None of these
20. Which of the following pairs of people are sitting at the extreme ends ?  
 (A) AB (B) AE (C) CB (D) Cannot be determined

(Space for rough work)

## PART -II [Mathematics]

## [COMPREHENSION TYPE]

This Part contains 3 Comprehensions. Comprehensions 1 & 2 comprise of 3 single choice questions each & Comprehension 3 comprises of 4 single choice questions. Each question has four choices (A), (B), (C) and (D) out of which only one is correct.

**Comprehension#1** - You will be awarded **+6 marks** for correct answer and **-1 Mark** for wrong answer

**Comprehension#2** - You will be awarded **+8 marks** for correct answer and **-2 Mark** for wrong answer

**Comprehension#3** - You will be awarded **+8 marks** for correct answer and **-3 Mark** for wrong answer

**Comprehension #1**

The focal length of a lense is given by the formula,  $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ .

21. Make  $f$  subject of the formula

(A)  $f = \frac{uv}{u+v}$

(B)  $f = \frac{u+v}{uv}$

(C)  $f = \frac{1}{u+v}$

(D)  $f = \frac{1}{uv}$

22. If  $u = 15\text{cm}$  and  $f = 6\text{cm}$  then find  $v$ .

(A) 12 cm

(B) 15cm

(C) 20cm

(D) 10cm

23. If  $f = 3\text{cm}$  and  $v = 4\text{cm}$ , then find  $u$ .

(A) 12cm

(B) 5cm

(C) 9cm

(D) 15cm

**Comprehension #2**

A sector is a closed figure formed by joining each of the end points of an arc of a circle & the centre of the circle. The length of the arc, the circumference of the circle and the central angle of the sector and the angle of the circle are in proportion i.e.

$$\frac{\text{Length of the arc}}{\text{Circumference of the circle}} = \frac{\text{Central angle of the sector}}{360^\circ}$$

Similarly,

$$\text{area of sector} = \frac{\theta}{360^\circ} \times \pi r^2, \text{ where } \theta \text{ is sector angle.}$$

24. If radius is 7cm, then the perimeter of the sector of angle  $45^\circ$  is

(A) 19.5

(B) 44

(C) 22

(D) 66

25. The minute hand of a clock is 14cm long. How far does the tip of the minute hand move in 60 minutes ?

(A) 22cm

(B) 44cm

(C) 33cm

(D) 88cm

26. The angle of a sector of a circle is  $108^\circ$  and radius of the circle is 15m. The ratio of the circumference of the circle and the length of the arc of the sector is. \_\_\_\_

(A) 3:10

(B) 10:3

(C) 1:3

(D) 3:1

(Space for rough work)

**Comprehension #3**

The arithmetic mean of a statistical data is defined as the quotient obtained when the sum of all the observations is divided by the total number of items. If the values of  $x_i$ , in the raw data are arranged either in increasing or decreasing order of magnitude, then the middle most value of this arrangement is called the median.

The most frequently found value in the data is called the mode.

27. The median of 11 observations is 10. Find the maximum number of possible observation in the data which are less than 10.  
 (A) 5 (B) 6 (C) 4 (D) 10
28. If the mode of 22,21,23,24,21,20,23,26, x and 26 is 23, then x is \_\_\_\_\_.  
 (A) 20 (B) 21 (C) 23 (D) 24
29. If the range of 10 observations is 15 and its highest score is 28, then the least score of the data is. \_\_\_\_\_  
 (A) 3 (B) 13 (C) 14 (D) 5
30. The mean of the data 15, 20, 20, 16, 22, 17, 23, 18, 24, 25; is \_\_\_\_\_.  
 (A) 26 (B) 22 (C) 20 (D) 18

**[SINGLE CORRECT TYPE]**

Each question has four choices (A), (B), (C) and (D) out of which only one is correct. You will be awarded +3 marks for correct answer and -1 mark for wrong answer

31. If x and y are the smallest and the greatest four-digit numbers formed by using 1,3,5 and 9, then find  $y - x$ .  
 (A) 5940 (B) 8172 (C) 3600 (D) 6336
32. If  $x + \frac{1}{x} = 2$ , then  $x^{2013} - \frac{1}{x^{2012}} =$  \_\_\_\_\_.  
 (A) 2 (B) 1 (C) 0 (D) -1
33.  $(a^4 - a^2) \div (a^3 + a^2) =$  \_\_\_\_\_.  
 (A)  $a^2 + 1$  (B)  $a - 1$  (C)  $a + 1$  (D)  $a^2 - 1$

(Space for rough work)

34. 50% of 150 + 70% of 300 = \_\_\_\_\_  
(A) 295 (B) 285 (C) 265 (D) 275
35. A can do 1/10th of a piece of work in a day. B can do the same work in 15 days. In how many days can they do the same work, working together ?  
(A) 5 (B) 6 (C) 8 (D) 9
36. Which of greater between  $5^{1014}$  and  $9^{676}$  ?  
(A) Both are equal (B)  $5^{1014}$  (C)  $9^{676}$  (D) Cannot be determined
37. One-fifth of a number is 5 more than one-tenth of the number. Find the number.  
(A) 50 (B) 75 (C) 25 (D) 100
38. Which of the following is a solution of  $2x - 5 > 4x - 3$  ?  
(A) 0 (B) 1 (C) -1 (D) -2

**PART - III****[Physics]****[SINGLE CORRECT TYPE]**

Each question has four choices (A), (B), (C) and (D) out of which only one is correct. You will be awarded +3 marks for correct answer and -1 mark for wrong answer .

39. Which among the following is the unit of density ?  
(A)  $\text{kg m}^{-3}$  (B)  $\text{g m}^{-3}$  (C)  $\text{kg cm}^{-3}$  (D) All of these
40.  $1 \text{ gm}^{-3} = \text{_____ kg cm}^{-3}$   
(A)  $10^9$  (B)  $10^6$  (C)  $10^{-6}$  (D)  $10^{-9}$
41. An athlete runs along a circular track of radius 14 m with a speed of  $11 \text{ ms}^{-1}$  then the time taken by the athlete to complete 6 rounds is \_\_\_\_\_  
(A) 48s (B) 0.8 min (C) 0.0133 h (D) All of above
42. Heat energy brings about \_\_\_\_\_  
(A) Chemical changes in matter (B) Change in dimensions  
(C) Change in temperature (D) All the above
43. An iron ball at  $40^\circ\text{C}$  is dropped in a mag containing oil at  $40^\circ\text{C}$ . Then  
(A) Heat flows from iron ball to oil  
(B) Heat flows from oil to iron ball.  
(C) Heat does not flow between oil and iron.  
(D) Temperature of oil increases and temperature of iron ball decreases.
44. The velocity of a wave is  $220 \text{ ms}^{-1}$ , the distance travelled by the wave in 2s is \_\_\_\_\_ m  
(A) 440 (B) 247.5 (C) 330 (D) 880

(Space for rough work)

## PART -IV

## [Chemistry]

## [SINGLE CORRECT TYPE]

Each question has four choices (A), (B), (C) and (D) out of which only one is correct. You will be awarded +3 marks for correct answer and -1 mark for wrong answer

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45. Acidic soil can be neutralised by  
(A) vinegar (B) quick lime (C) orange juice (D) tamarind juice
46. Calamine solution is applied on the area of ant bite. Calamine solution contains  
(A) sodium carbonate (B) sodium hydrogencarbonate  
(C) Sodium chloride (D) zinc carbonate
47. Acids present in fruits and vegetables are called  
(A) organic acids (B) mineral acids (C) strong acids (D) fruit acids
48. Crystallisation is the process in which  
(A) crystals of pure substance are obtained  
(B) crystals of impure substance are obtained  
(C) colourless crystals of a coloured substance are obtained  
(D) coloured crystals of a colourless substance are obtained
49. The simplest method of preventing rusting of iron is to coat it with oil, grease or paint. The reason being  
(A) this layer does not allow iron to come in contact with air  
(B) this layer does not allow iron to come in contact with water  
(C) this layer does not allow iron to come in contact with air and water  
(D) this layer does not allow iron to come in contact with outside heat
50. Which of the following compounds is formed when the ash formed by burning of magnesium in air is dissolved in water?  
(A) Magnesium oxide (B) Magnesium hydroxide  
(C) Magnesium carbonate (D) Magnesium chloride
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(Space for rough work)

