

# INTERNATIONAL TALENT SEARCH EXAMINATION 2024 - 2025

## Class – 10

### Set - C

**Question1 :  $7 \times 11 \times 13 \times 6$  is:**

- a) a prime number
- b) a composite number
- c) an even number
- d) None

**Question2 : If  $p^n = (a \times 5)^n$ , for  $p^n$  to end with the digit zero  $a = \underline{\hspace{2cm}}$  for any natural number  $n$ :**

- a) any natural number
- b) an odd number
- c) any even number
- d) None

**Question3 : HCF is always:**

- a) multiple of LCM
- b) factor of LCM
- c) divisible by LCM
- d) Option a and c both

**Question4 : In Euclid's division lemma where  $a = bq + r$  and  $a, b$  are positive integers, which one is correct:**

- a)  $0 < r \leq b$
- b)  $0 \leq r < b$
- c)  $0 < r < b$
- d)  $0 \leq r \leq b$

**Question5: If  $p$  is a positive rational number which is not a perfect square then,  $\sqrt{p}$  is:**

- a) an integer
- b) rational number
- c) irrational number
- d) Option a) and c) both

**Question6 :  $2 - \sqrt{5}$  is:**

- a) a rational number
- b) a natural number
- c) equal to zero
- d) an irrational number

**Question7 : The ascending order of  $\sqrt{2}$ ,  $\sqrt[3]{4}$ ,  $\sqrt[4]{6}$  is:**

- a)  $\sqrt{2}$ ,  $\sqrt[3]{4}$ ,  $\sqrt[4]{6}$
- b)  $\sqrt{2}$ ,  $\sqrt[4]{6}$ ,  $\sqrt[3]{4}$
- c)  $\sqrt[3]{4}$ ,  $\sqrt{2}$ ,  $\sqrt[4]{6}$
- d)  $\sqrt[4]{6}$ ,  $\sqrt[3]{4}$ ,  $\sqrt{2}$

**Question8 : if the polynomial  $f(x) = 2x^3 + mx^2 + nx - 14$  has  $(x-1)$  and  $(x+2)$  its factors, find the value of  $m \times n$ .**

- (a)  $1/27$
- (b) 27

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(c) 36

(d) -2

**Question9 :** The expression  $(5x-8)^3 - (3x-8)^3 - 6x(5x-8)(3x-8)$  when simplified gives...

(a)  $8x^3$

(b)  $-8x^3$

(c)  $16x^3$

(d)  $-16x^3$

**Question10 :** Find the value of x if  $(x-4)^3 + (x-9)^3 + (x-8)^3 = 3(x-4)(x-9)(x-8)$

(a) 4

(b) 5

(c) 6

(d) 7

**Question11 :** The condition that the roots of the equation  $ax^2 + bx + c = 0$  be such that one root is n times the other is

(a)  $na^2 = bc(n+1)^2$

(b)  $nb^2 = ca(n+1)^2$

(c)  $nc^2 = ab(n+1)^2$

(d) None of these

**Question12 :** If the root of the equation  $ax^2 + bx + c = 0$  are in the ratio m : n, then

(a)  $mna^2 = (m+n)c^2$

(b)  $mnb^2 = (m+n)ac$

(c)  $mnb^2 = (m+n)^2ac$

(d) None of these

**Question13 :** The sum of the reciprocals of the roots of the equation  $x^2 + px + q = 0$  is

(a)  $p/q$ .

(b)  $-p/q$ .

(c)  $q/p$ .

(d)  $-q/p$ .

**Question14 :** The roots of the equation  $3x^2 - 4x + 3 = 0$  are -

(a) real and unequal

(b) real and equal

(c) imaginary

(d) none of these

**Question15 :** For the quadratic equation  $x^2 - 2x + 1 = 0$ , the value of  $x + 1/x$  is -

(a) -1

(b) 1

(c) 2

(d) -2

**Question16 :** If one root of the equation  $px^2 - 14x + 8 = 0$  is six times the other, then p is equal to -

(a) 2

(b) 3

(c) 1

(d) None of these

**Question17 :** The roots of  $x^2 - 2x - (r^2 - 1) = 0$  are :

(a)  $1 - r, r - 1$

(b)  $1 - r, r + 1$

(c)  $1, r$

(d)  $1 - r, r$

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**Question18 : Which of the following equations has the sum of its roots as 3?**

- (a)  $x^2 + 3x - 5 = 0$
- (b)  $-x^2 + 3x + 3 = 0$
- (c)  $2x^2 - 3/2x - 1 = 0$
- (d)  $3x^2 - 3x - 3 = 0$

**Question19 : If the sum and product of the roots of the quadratic equation  $ax^2 - 5x + c = 0$  are each equal to 10, then the values of a and c are**

- (a)  $1/2$  and  $-5$
- (b)  $1/2$  and  $5$
- (c)  $5$  and  $3/2$
- (d)  $3/2$  and  $5$

**Question20 : If the nth term of an AP is  $(7 - 4n)$ , then its common difference is :**

- a) 7.
- b) 4.
- c)  $-3$ .
- d)  $-4$ .**

**Question21 : A student reading a 426-page book finds that he reads faster as he gets into the subject. He reads 19 pages on the first day, and his rate of reading then goes up by 3 pages each day. The number of days in which he will finish the book is :**

- a) 12**
- b) 11
- c) 10
- d) 8

**Question22 : The first negative term of A.P. 24, 21, 18, 15, .... is :**

- a) 9th term
- b) 10th term**
- c) 11th term
- d) 13th term

**Question23 : The 17th term of an AP exceeds its 10th term by 7. The common difference is :**

- a) 10
- b) 7
- c) 2
- d) 1**

**Question24 : If five times the fifth term of an A.P. is equal to 8 times its eighth term, then its 13th term is :**

- a) 0**
- b) 1
- c) 2
- d) 3

**Question25 : The sum of all the three digit numbers, which leave the remainder 3 when divided by 5 is :**

- a) 99060.
- b) 99070.

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- c) 99080.
- d) 99090.

**Question26 : For an A.P.  $-9, -6, -3 \dots$  if  $S_n = 66$  then  $n$  is :**

- a)  $-4$
- b) 11**
- b) Both A & B
- d) None of these

**Question27 : The probability of getting a number greater than 2 or an even number in a single throw of a fair die is**

- (a)  $5/6$
- (b)  $2/3$
- (c)  $1/3$
- (d)  $1/2$

**Question28 : The chance that a non leap year contains 53 Saturdays is**

- (a)  $2/7$
- (b)  $1/7$
- (c)  $2/365$
- (d)  $1/365$

**Question29 : In a single throw of two dice, the probability of getting a sum of 10 is**

- (a)  $1/36$
- (b)  $1/18$
- (c)  $1/12$
- (d)  $1/6$

**Question30 : When two dice are thrown, the probability of getting same numbers on both the dice is**

- (a) 1.
- (b)  $1/6$
- (c)  $1/36$
- (d) 0

**Question31 : Find the probability that a non-leap year, selected at random will have 53 Mondays :**

- (a)  $1/4$
- (b)  $2/3$
- (c)  $4/5$
- (d)  $1/7$

**Question32 : To construct a triangle similar to a given  $\triangle ABC$  with its sides  $8/5$  of the corresponding sides of  $\triangle ABC$ , first draw a ray  $BX$  such that  $\angle CBX$  is an acute angle and  $X$  lies on the opposite side of  $A$  with respect to  $BC$ . The minimum number of points to be located at equal distances on ray  $BX$  is :**

- (a) 5
- (b) 8**
- (c) 13
- (d) 3

**Question33 : To construct a triangle similar to a given  $\triangle ABC$ , with its sides  $3/7$  of the corresponding sides of  $\triangle ABC$ , first draw a ray  $BX$  such that  $\angle CBX$  is an acute angle and  $X$  lies on the opposite side of  $A$  with respect to  $BC$ . Then locate points  $B_1, B_2, B_3 \dots$  on  $BX$  at equal distances and next step to join :**

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- (a) B10 to C
- (b) B3 to C
- (c) B7 to C**
- (d) B4 to C

**Question34 :** The angle between tangent at a point on a circle and the radius through the point is-

- (a)  $45^\circ$
- (b)  $60^\circ$
- (c)  $90^\circ$**
- (d)  $120^\circ$

**Question35 :** The radius of a circle is 7 cm. What is the perimeter of the semi circle?

- a) 36 cm
- b) 14 cm
- c) 7p
- d) 14p

**Question36 :** The radius of two circles are 13 cm and 6 cm respectively. What is the radius of the circle which has circumference equal to the sum of the circumference of two circles?

- a) 19 p
- b) 19 cm
- c) 25 cm
- d) 32 cm

**Question37 :** The circumference of two circles are in the ratio 4 : 5 what is the ratio of the areas of these circles.?

- a) 4:5
- b) 16:25
- c) 64:125
- d) 8:10

**Question38 :** The volume of a cuboid is  $440 \text{ cm}^3$ . The area of its base is  $66 \text{ cm}^2$ . **What is its height?**

- a)  $40/3 \text{ cm}$
- b)  $20/3 \text{ cm}$
- c) 440 cm
- d) 66 cm

**Question39 :** Volume of two cubes is in the ratio of 8 : 125. The ratio of their surface areas is

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- a) 8:125
- b) 2:5
- c) 4:25
- d) 16:25

**Question40 :** If the perimeter of a sector is 'l' and radius is 'r' then the area of the sector is

- a)  $l \cdot r$
- b)  $l \cdot r^2$
- c)  $lr^2/2$
- d)  $l^2 \cdot r$

**Question41.**The median of this distribution is:

- (a) 56.5
- (b) 57.5
- (c) 58.7
- (d) None of these**

**Question42 :** The median of 15, 17, 19, 14, 12 will be:

- a). 15**
- (b) 17
- (c) 14
- (d) 13

**Question43 :** What is the class size of 40 – 60?

- (a) 40
- (b) 50**
- (c) 60
- (d) 100

**Question44 :** There are 45 students in a class out of which 15 are girls. The average weight of 15 girls is 45kg and that of 30 boys is 52kg. The mean weight of entire class is:

- (a) 46.67kg
- (b) 47.67kg
- (c) 48.67kg
- (d) 49.67kg**

**Question45 :** Measure of central tendency is represented by the abscissa of the point where the 'less than ogive' and 'more than ogive' intersects is:

- (a) Mean
- (b) Mode
- (c) Median**
- (d) None of these