

**सफलता की शुरुआत  
सिर्फ मोशन के साथ...**



**ICSE**

10th Board

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Semester 1 - 2021

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**PAPER WITH SOLUTION**

**MATHS**

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## JEE MAIN 2021 RESULT

AIR  
**1**



Guramrit Singh

AIR  
**11**



Kumar Satyadarshi

AIR  
**53**



Ayush Agarwal

AIR  
**90**



Sanket Singh

Students Qualified for JEE ADVANCED  $2994/4087 = 73.25\%$

## JEE ADVANCED 2021 RESULT

AIR  
**26**



Guramrit Singh

AIR  
**32**



Rudransh Aggarwal

AIR  
**61**



Harsh Poonia

AIR  
**88**



Tejas Kumar

AIR  
**100**



Rajat Golechha

24 Student Under 500

41 Student Under 1000

Motion's Selection  $1256/2994 = 41.95\%$

## NEET 2020 RESULT

AIR  
**21**



Kartikey Agarwal

AIR  
**51**



Ronit Singh

AIR  
**161**



Cyril Joel Deva Asir

AIR  
**164**



Rahul Yadav

Above  
650 Marks

**12**

Above  
625 Marks

**47**

Above  
600 Marks

**137**

Students Qualified  $2663 / 2843 = 93.66\%$

1. If  $(x + 2)$  is a factor of the polynomial  $x^3 - kx^2 - 5x + 6$  then the value of  $k$  is:  
(A) 1 (B) 2 (C) 3 (D) -2

Ans. (B)

2. The solution set of the inequation  $x - 3 \geq -5, x \in R$  is:  
(A)  $\{x : x > -2, x \in R\}$  (B)  $\{x : x \leq -2, x \in R\}$   
(C)  $\{x : x \geq -2, x \in R\}$  (D)  $\{-2, -1, 0, 1, 2\}$

Ans. (C)

3. The product  $AB$  of two matrices  $A$  and  $B$  is possible if:  
(A)  $A$  and  $B$  have the same number of rows.  
(B) the number of columns of  $A$  is equal to the number of rows of  $B$ .  
(C) the number of rows of  $A$  is equal to the number of columns of  $B$ .  
(D)  $A$  and  $B$  have the same number of columns.

Ans. (B)

4. If 70, 75, 80, 85 are the first four terms of an Arithmetic Progression, then the 10<sup>th</sup> term is:  
(A) 35 (B) 25 (C) 115 (D) 105

Ans. (C)

5. The selling price of a shirt excluding GST is ₹800. If the rate of GST is 12% then the total price of the shirt is:  
(A) ₹704 (B) ₹96 (C) ₹896 (D) ₹848

Ans. (C)

6. Which of the following quadratic equations has 2 and 3 as its roots?  
(A)  $x^2 - 5x + 6 = 0$  (B)  $x^2 + 5x + 6 = 0$   
(C)  $x^2 - 5x - 6 = 0$  (D)  $x^2 + 5x - 6 = 0$

Ans. (A)

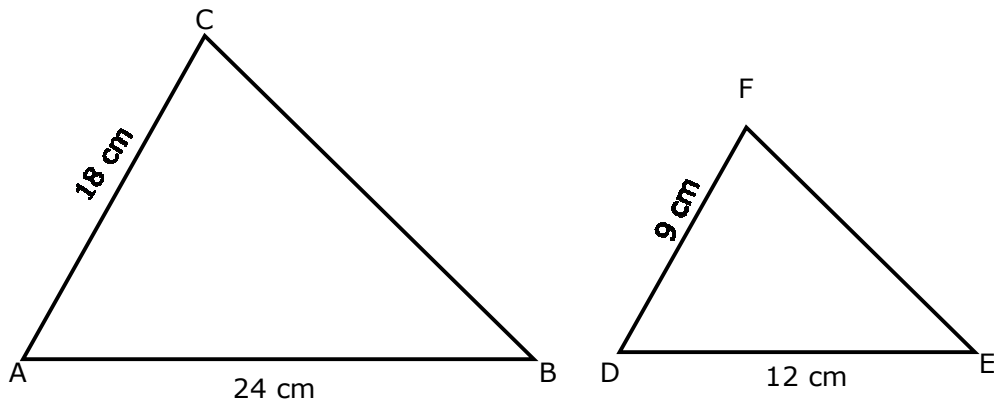
7. If  $x, 5.4, 5, 9$  are in proportion then  $x$  is:  
(A) 3 (B) 9.72 (C) 25 (D) 25/3

Ans. (A)

8. Mohit opened a Recurring deposit account in a bank for 2 years. He deposits ₹1000 every month and receives ₹25500 on maturity. The interest he earned in 2 years is:  
(A) ₹13500 (B) ₹3000 (C) ₹24000 (D) ₹1500

Ans. (D)

9. In the given figure  $AB = 24\text{cm}$ ,  $AC = 18\text{cm}$ ,  $DE = 12\text{cm}$ ,  $DF = 9\text{cm}$  and  $\angle BAC = \angle EDF$ . Then  $\triangle ABC \sim \triangle DEF$  by the condition:



- (A) AAA (B) SAS (C) SSS (D) AAS

Ans. (B)

10. If  $A = \begin{bmatrix} 5 & 10 \\ 3 & -4 \end{bmatrix}$  and  $I = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$  then  $AI$  is equal to

- (A)  $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$  (B)  $\begin{bmatrix} 5 & 10 \\ -3 & 4 \end{bmatrix}$  (C)  $\begin{bmatrix} 5 & 10 \\ 3 & -4 \end{bmatrix}$  (D)  $\begin{bmatrix} 15 & 15 \\ -1 & -1 \end{bmatrix}$

Ans. (C)

11. The polynomial  $x^3 - 2x^2 + ax + 12$  when divided by  $(x + 1)$  leaves a remainder 20, then 'a' is equal to:

- (A) -31 (B) 9 (C) 11 (D) -11

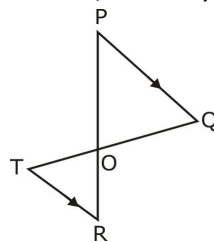
Ans. (D)

12. In an Arithmetic Progression (A.P.) if, first term is 5, common difference is -3 and the  $n^{\text{th}}$  term is -7, then  $n$  is equal to:

- (A) 5 (B) 17 (C) -13 (D) 7

Ans. (A)

13. In the given figure  $PQ$  is parallel to  $TR$ , then by using condition of similarity:



- (A)  $\frac{PQ}{RT} = \frac{OP}{OT} = \frac{OQ}{OR}$  (B)  $\frac{PQ}{RT} = \frac{OP}{OR} = \frac{OQ}{OT}$   
 (C)  $\frac{PQ}{RT} = \frac{OR}{OP} = \frac{OQ}{OT}$  (D)  $\frac{PQ}{RT} = \frac{OP}{OR} = \frac{OT}{OQ}$

Ans. (B)

14. If  $a, b, c$  and  $d$  are proportional then  $\frac{a+b}{a-b}$  is equal to:

- (A)  $\frac{c}{d}$  (B)  $\frac{c-d}{c+d}$  (C)  $\frac{d}{c}$  (D)  $\frac{c+d}{c-d}$

Ans. (D)

15. The first four terms of an Arithmetic Progression (A.P.), whose first term is 4 and common difference is -6, are:  
 (A) 4, -10, -16, -22 (B) 4, 10, 16, 22 (C) 4, -2, -8, -14 (D) 4, 2, 8, 14

Ans. (C)

16. One of the roots of the quadratic equation  $x^2 - 8x + 5 = 0$  is 7.3166. The roots of the equation correct to 4 significant figures is:  
 (A) 7.3166 (B) 7.317 (C) 7.316 (D) 7.32

Ans. (B)

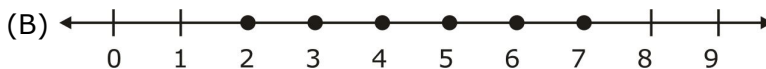
17.  $(x + 2)$  and  $(x + 3)$  are two factors of the polynomial  $x^3 + 6x^2 + 11x + 6$ . If this polynomial is completely factorized the result is:  
 (A)  $(x - 2)(x + 3)(x + 1)$  (B)  $(x + 2)(x - 3)(x - 1)$   
 (C)  $(x + 2)(x + 3)(x - 1)$  (D)  $(x + 2)(x + 3)(x + 1)$

Ans. (D)

18. The sum of the first 20 terms of the Arithmetic Progression 2, 4, 6, 8, ... is:  
 (A) 400 (B) 840 (C) 420 (D) 800

Ans. (C)

19. The solution set on the number line of the linear inequation:  
 $2y - 6 < y + 2 \leq 2y, y \in \mathbb{N}$  is



Ans. (B)

20. If  $x, y, z$  are in continued proportion then  $(y^2 + z^2) : (x^2 + y^2)$  is equal to:  
 (A)  $z : x$  (B)  $x : z$  (C)  $zx$  (D)  $(y + z) : (x + y)$

Ans. (A)

21. The marked price of an article is ₹ 5000. The shopkeeper gives a discount of 10%. If the rate of GST is 12%, then the amount paid by the customer including GST is:  
 (A) ₹ 5040 (B) ₹ 6100 (C) ₹ 6272 (D) ₹ 6160

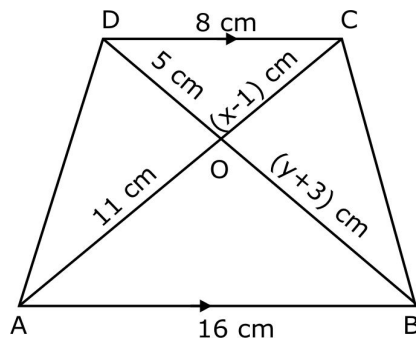
Ans. (A)

22. If  $A = \begin{bmatrix} 3 & 5 \\ 1 & 4 \end{bmatrix}$ ,  $B = \begin{bmatrix} 2 & 4 \\ 0 & 3 \end{bmatrix}$  and  $c = \begin{bmatrix} 1 & -1 \\ 2 & 1 \end{bmatrix}$ , then  $5A - BC$  is equal to:

(A)  $\begin{bmatrix} -5 & -23 \\ 1 & 17 \end{bmatrix}$  (B)  $\begin{bmatrix} 5 & 23 \\ 1 & 17 \end{bmatrix}$  (C)  $\begin{bmatrix} -2 & 8 \\ -3 & 3 \end{bmatrix}$  (D)  $\begin{bmatrix} 5 & 23 \\ -1 & 17 \end{bmatrix}$

Ans. (D)

- 23.** In the given figure ABCD is a trapezium in which DC is parallel to AB. AB= 16 cm and DC= 8 cm. OD= 5 cm, OB= (y + 3) cm, OA= 11 cm and OC= (x - 1) cm. Using the given information answer the following questions.



- (i)** From the given figure name the pair of similar triangles:  
 (A)  $\triangle OAB, \triangle OBC$       (B)  $\triangle COD, \triangle AOB$       (C)  $\triangle ADB, \triangle ACB$       (D)  $\triangle COD, \triangle COB$

**Ans. (B)**

- (ii)** The corresponding proportional sides with respect to the pair of similar triangles obtained in (i):

(A)  $\frac{CD}{AB} = \frac{OC}{OA} = \frac{OD}{OB}$       (B)  $\frac{AD}{BC} = \frac{OC}{OA} = \frac{OD}{OB}$   
 (C)  $\frac{AD}{BC} = \frac{BD}{AC} = \frac{AB}{DC}$       (D)  $\frac{OD}{OB} = \frac{CD}{CB} = \frac{OC}{OA}$

**Ans. (A)**

- (iii)** The ratio of the sides of the pair of similar triangles is:  
 (A) 1 : 3      (B) 1 : 2      (C) 2 : 3      (D) 3 : 1

**Ans. (B)**

- (iv)** Using the ratio of sides of the pair of similar triangles the values of x and y are respectively:

(A) x = 4.6, y = 7      (B) x = 7, y = 7  
 (C) x = 6.5, y = 7      (D) x = 6.5, y = 2

**Ans. (C)**

- 24.** Two cars X and Y use 1 litre of diesel to travel x km and (x + 3) km respectively. If both the cars covered a distance of 72 km, then:

- (i)** The number of litres of diesel used by car X is

(A)  $\frac{72}{x-3}$  litres      (B)  $\frac{72}{x+3}$  litres  
 (C)  $\frac{72}{x}$  litres      (D)  $\frac{12}{x}$  litres

**Ans. (C)**

(ii) The numbers of litres of diesel used by car Y is:

(A)  $\frac{72}{x-3}$  litres

(B)  $\frac{72}{x+3}$  litres

(C)  $\frac{72}{x}$  litres

(D)  $\frac{12}{x+3}$  litres

**Ans. (B)**

(iii) If car X used 4 litres of diesel more than car Y in the journey, then:

(A)  $\frac{72}{x-3} - \frac{12}{x} = 4$

(B)  $\frac{72}{x+3} - \frac{72}{x} = 4$

(C)  $\frac{72}{x} - \frac{72}{x+3} = 4$

(D)  $\frac{72}{x-3} - \frac{72}{x+3} = 4$

**Ans. (C)**

(iv) The amount of diesel used by the car X is:

(A) 6 litres

(B) 12 litres

(C) 18 litres

(D) 24 litres

**Ans. (B)**

25. Joseph has a recurring deposit account in a bank for two years at the rate of 8% per annum simple interest.

(i) If at the time of maturity Joseph receives ₹ 2000 as interest then the monthly instalment is:

(A) ₹ 1200

(B) ₹ 600

(C) ₹ 1000

(D) ₹ 1600

**Ans. (C)**

(ii) The total amount deposited in the bank:

(A) ₹ 25000

(B) ₹ 24000

(C) ₹ 26000

(D) ₹ 23000

**Ans. (B)**

(iii) The amount Joseph receives on maturity is:

(A) ₹ 27000

(B) ₹ 25000

(C) ₹ 26000

(D) ₹ 28000

**Ans. (C)**

(iv) If the monthly instalments is ₹ 100 and the rate of interest is 8%, in how many months Joseph will receive ₹ 52 as interest?

(A) 18

(B) 30

(C) 12

(D) 6

**Ans. (C)**

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