

# PACE - IIT & MEDICAL

## ACE of PACE

### SCHOLARSHIP CUM ENTRANCE EXAM

(A litmus test to check your aptitude & earn scholarship)

### Grade X moving to XI

DATE : 21<sup>st</sup> December 2025

DURATION: 90 Mins.

ENGINEERING (2026-28) Aspirants

MAX. MARKS: 100

#### General Instructions :

- This booklet is your question paper. Answers have to be marked on the provided OMR sheet.
- Blank space is provided for rough work in the question paper.
- USE ONLY BALL PEN TO DARKEN YOUR ANSWERS.
- There are total 30 questions in this paper.
- Only one choice is correct. From Section- A : 20 Question (+3 marks)
- Section- B : 5 Question (+5 marks) Section- C : 5 Question (+3 marks) **There is no negative marking.**
- If a student is caught copying, he / she will not be allowed to write the exam.
- Answer Key & Solution will be available on our website by 6pm.
- **Note :** The **RESULT** of this entrance exam will be declared by 22<sup>nd</sup> December at end of the day.  
on our website: [www.iitianspace.com](http://www.iitianspace.com)

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## **Section – A: Only One Option Correct**



#### SPACE FOR ROUGH WORK

7. 8 Women and 12 men can complete a work in 10 days while 6 women and 8 men can complete the same work in 14 days. Find the time taken by one women alone to finish the work.  
 (A) 420 days      (B) 280 days      (C) 70 days      (D) 140 days
8. If  $\alpha$  and  $\beta$  are zeroes of the polynomial  $x^2 + 4x + 3$ , find the polynomial whose zeroes are  $1 + \frac{\beta}{\alpha}$  and  $1 + \frac{\alpha}{\beta}$ .  
 (A)  $3x^2 + 16x + 16$       (B)  $3x^2 - 16x + 16$       (C)  $x^2 - \frac{8}{3}x + \frac{8}{3}$       (D)  $x^2 + \frac{8}{3}x + \frac{8}{3}$
9. If  $\sqrt{2}$  is a zero of  $6x^3 + \sqrt{2}x^2 - 10x - 4\sqrt{2}$ , find product of the other 2 roots.  
 (A)  $\frac{2\sqrt{2}}{3}$       (B)  $\frac{-2\sqrt{2}}{3}$       (C)  $\frac{2}{3}$       (D)  $\frac{\sqrt{2}}{2}$
10. On selling a T.V. at 5% gain and a fridge at 10% gain, a shopkeeper gain ₹ 2000. But if he sells the T.V. at 10% gain and fridge at 5% loss, he gains ₹ 1500 on the transaction. Find the actual price of the T.V.  
 (A) 20,000      (B) 10,000      (C) 5,000      (D) 3500
11. If two roots of the polynomial  $x^3 - 5x^2 - 16x + 80$  are equal in magnitude but opposite in sign, find the third root.  
 (A) 5      (B) 16      (C) -16      (D) 0
12. Which of the following is one of the factors of  $x^4 + x^2 + 1$ ?  
 (A)  $x^2 + 1$       (B)  $x - 1$       (C)  $x^2 - x + 1$       (D)  $x^3 + x + 1$

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#### SPACE FOR ROUGH WORK

13. If the polynomial  $3x^2 + 5x + 12$  can be written as  $a \cdot (x+b)^2 + c$ , find the value of  $c$ ?  
 (A) 12      (B)  $\frac{25}{36}$       (C)  $\frac{5}{6}$       (D)  $\frac{119}{12}$
14. If the zeroes of the polynomial  $x^3 - 3x^2 + x + 1 = 0$  are  $a - b, a, a + b$ . Find the value of  $b^2$ .  
 (A) 0      (B) 1      (C) 2      (D) 3
15. Sunita has some ₹ 50 and ₹ 100 notes amounting to a total of ₹ 15,500. If the total number of notes is 200, then find how many notes of ₹ 50 and ₹ 100 each, she has.  
 (A) 50, 150      (B) 125, 75      (C) 90, 110      (D) 100, 100
16. If  $\alpha$  and  $\beta$  are roots of the equation  $2x^2 + 5x + k = 0$  such that  $\alpha^2 + \beta^2 + \alpha\beta = 24$ , find the value of  $k$ .  
 (A)  $\frac{-71}{2}$       (B)  $\frac{71}{2}$       (C) 24      (D) -24
17. If  $\sqrt{ax} - \sqrt{b}y = b - a$  and  $\sqrt{bx} - \sqrt{a}y = 0$ , then the value of  $x - y = ?$   
 (A)  $a + b$       (B)  $\sqrt{a} - \sqrt{b}$       (C)  $\sqrt{b} - \sqrt{a}$       (D)  $-\sqrt{ab}$
18. ₹ 4900 is distributed among 150 children. If each girl gets ₹ 50 and each boy gets ₹ 25, then the number of boys is :  
 (A) 100      (B) 102      (C) 104      (D) 105
19. A 2-digit number is 3 more than 4 times the sum of its digits. If 18 is added to the number, the digits are reversed. Find the number.  
 (A) 27      (B) 57      (C) 35      (D) 79
20. Find the all possible values of  $k$  for which the equation  $3x^2 + 2x + k$  has real roots.  
 (A)  $k \geq \frac{1}{3}$       (B)  $k \leq \frac{1}{3}$       (C)  $k > \frac{1}{3}$       (D)  $k < \frac{1}{3}$

## SPACE FOR ROUGH WORK

## **Section – B : Challenge Yourself**

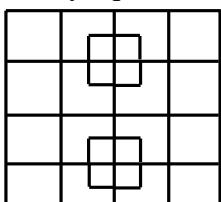


## SPACE FOR ROUGH WORK

## **Section – C: Logical Reasoning**



- 27.** How many squares in the picture?





- 28. Statements:** No women teacher can play. Some women teachers are athletes.

### **Conclusions:**

- ### I. Male athletes can play.

- ## II. Some athletes can play.

- (A) Only conclusion I follows

- (B) Only conclusion II follows



- 29.** Here are some words translated from an artificial language.

*gorblflur* means fan belt

*pixngorbl* means ceiling fan

*arhtusl* means tile roof

Which word could mean “ceiling tile”?

- (A) gorbltusl      (B) flurgorbl      (C) arthflur      (D) pixnarth

- 30.** *X* introduces *Y* saying, “He is the husband of the grand daughter of the father of my father.

How is  $Y$  related to  $X$ , if  $X$  is a male?

- (A) Brother                  (B) Uncle                  (C) Son                  (D) Brother in law

## SPACE FOR ROUGH WORK