

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 : 21st 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 22nd December at end of the day.
on our website: www.iitianspace.com

•BORIVALI (W): (022) 28985577 / 8108220689 •CHEMBUR (GOVANDI): 8655637781 / 7208013777 •DADAR (W): 9321149798 / 9321119508
•GIRGAON CHOWPATTY: 8591983016 •POWAI: 9920142169 / 8518000153 •NERUL(W): (022) 27720152 / 9004312557 / 9324413072
•PALAVA: 9082792330 / 9029051319 •KHARGHAR: 9699927061 / 7666927058 •KALYAN(W): 9029051319 / 9137708750
•THANE(W): 9819794728 / 9372784357 •GHODBUNDAR: 81083 00031 / 81083 00041 •ULWE: 8097730729 / 9431251101
•AIROLI: 9819925577 / 9372245314 •PANVEL: 9819925577 / 9372245314 •VIRAR: 7770005485 / 9163424000
•VASAI: 7770005489 / 9163424000 •MIRA ROAD: 9007190216 / 9769874255 •BARAMATI: 9168689002 / 9168689003
•SHIVAJINAGAR (FC ROAD): 9075677458 / 8976995814 •SWARGATE (SAHAKAR NAGAR): 8149661154 / 89769 95813
•PIMPLE SAUDAGAR: 9511816918 / 89769 95815 •VIMAN NAGAR: 8484970704 / 7620061475 •Visakhapatnam: 9963116369 / 8919601347
Hyderabad (chandanagar): 77770 68480 / 9059968480 •Hyderabad (financial District): 63005 05789

MUMBAI / DELHI-NCR / PUNE / HYDERABAD / AKOLA / GOA / JALGOAN / BOKARO / PATNA / AMRAVATI / BARAMATI

7&DSSOI

For more details visit www.iitianspace.com or contact us at ANDHERI (H.O.): (022) 61779777 / 7700050303

Section – A: Only One Option Correct

1. If $(k + y)$ is a factor of each of the polynomials $y^2 + 2y - 15$ and $y^3 + a$, find the values of $k + a$, where 'k' and 'a' are positive integers.
 (A) 45 (B) 22 (C) 30 (D) 130
2. If -5 is one of the root of the equation $2x^2 + px - 15$, and the roots of the equation $p(x^2 + x) + k$ are equal. Find the value of k .
 (A) $\frac{5}{4}$ (B) $\frac{7}{4}$ (C) $\frac{-5}{4}$ (D) $\frac{-7}{4}$
3. What should be added to the polynomial $x^3 - 3x^2 + 6x - 15$, so that it becomes completely divisible by $x - 3$?
 (A) -3 (B) 3 (C) 0 (D) $x - 3$
4. For what values of a and b the following pair of linear equations have infinite number of solutions:
 $2x + 3y = 7$
 $a(x + y) - b(x - y) = 3a + b - 2$
 (A) $a = 5, b = 1$ (B) $a = 1, b = 5$ (C) $a = 3, b = 2$ (D) $a = 2, b = 3$
5. A and B are two points 150 km apart on a highway. Two cars start with different speeds from A and B at same time. If they move in same direction, they meet in 15 hours. If they move in opposite direction, they meet in one hour. Find their speeds
 (A) 80 km/h, 70 km/h (B) 50 km/h, 60 km/h
 (C) 40 km/h, 100 km/h (D) 20 km/h, 80 km/h
6. The sum of the numerator and denominator of a fraction is 4 more than twice the numerator. If the numerator and denominator are increased by 3, they are in the ratio 2 : 3. Determine the fraction.
 (A) $\frac{9}{5}$ (B) $\frac{5}{6}$ (C) $\frac{9}{10}$ (D) $\frac{5}{9}$

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 α and β 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) $x^2 + \frac{8}{3} + \frac{8}{3}$
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) $x^3 + x + 1$

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 α and β 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 $\sqrt{a}x - \sqrt{b}y = b - a$ and $\sqrt{b}x - \sqrt{a}y = 0$, 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

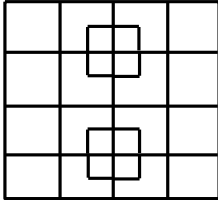
21. Vijay has some bananas and he divided them into two lots A and B . He sold the first lot at the rate of ₹ 2 for 3 bananas and the second lot at the rate of ₹ 1 per banana and got a total of ₹ 400. If he has sold the first lot at the rate of ₹ 1 per banana and the second lot at the rate of ₹ 4 for 5 bananas, his total collection would have been ₹ 460. Find the total number of bananas he has.
(A) 250 (B) 500 (C) 750 (D) 1000
22. The area of a rectangle gets reduced by a 9 square units, if its length is reduced by 5 units and the breadth is increased by 3 units. The area is increased by 67 square units if length is increased by 3 units and breadth is increased by 2 units. Find the perimeter of the rectangle.
(A) 18 units (B) 59 units (C) 45 units (D) 52 units
23. On dividing the polynomial $x^3 - 5x^2 + 6x - 4$ by a polynomial $g(x)$, quotient and remainder are $(x - 3)$ and $(-3x + 5)$ respectively. Find sum of roots of $g(x)$.
(A) -3 (B) 3 (C) -2 (D) 2
24. If a root of the equation $x^4 - 6x^3 - 26x^2 + 138x - 35 = 0$ is $2 + \sqrt{3}$. Find the positive rational root of the equation if it exists.
(A) 5 (B) 7
(C) -6 (D) No positive rational root
25. One says, "Give me a hundred, friend! I shall then become twice as rich as you". The other replies, "If you give me ten, I shall be six times as rich as you". Tell me what is the amount of their (respective) capital?
(A) 50, 150 (B) 10, 100 (C) 40, 170 (D) 70, 350

SPACE FOR ROUGH WORK

Section – C: Logical Reasoning

26. $81 : 27 :: 573 : ?$
 (A) 67 (B) 181 (C) 191 (D) 243

27. How many squares in the picture?



- (A) 33 (B) 39 (C) 41 (D) 40

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
 (C) Either I or II follows (D) Neither I nor II follows

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

gorblflur means fan belt

pixngorbl means ceiling fan

arthtusl 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