Ace of Pace

Sample Paper (Engineering)

Grade X moving to XI

Section (A) : Only One Option Correct

Q.1 If $6x^4-2x^2+7x+10$ is divided by $1-2x$, then remainder will be:

(a) $\frac{107}{8}$ (b) $-\frac{107}{8}$ (c) $\frac{57}{8}$ (d) $-\frac{57}{8}$

Q.2 If one of the zeroes of the quadratic polynomial $Kx^2+(K-2)x+4$ is 1, then the value of K is:

(a) $\frac{1}{2}$ (b) –1 (c) 1 (d) $-\frac{1}{2}$

Q.3 Which of the following is polynomial?

(a) $x^2+\sqrt{x}+7$ (b) $x^3+\frac{1}{x}+2$ (c) $x^{3/2}-2x$ (d) $4x^2+1$

Q.4 If $x^2+bx+c=(x-\alpha)(x-\beta)$, then $\alpha+\beta+\alpha\beta$ is :

(a) $c+b$ (b) $c-b$ (c) bc (d) 0

Q.5 $(3a-2b)(9a^2+6ab+4b^2)=$

(a) $27a^3-8b^3$ (b) $27a^3+8b^3$ (c) $9a^3-4b^3$ (d) $9a^3+4b^3$

Q.6 Find $x^2+\frac{1}{x^2}$ if $x-\frac{1}{x}=1$.

(a) 1 (b) 2 (c) 3 (d) 4

Q.7 What is the common value of x and y for $x+4y=14$ and $7x-3y=5$?

(a) $x = 1, y = 2$ (b) $x = 2, y = 3$ (c) $x = 3, y = 4$ (d) None of these

Q.8 The condition for which the system of linear equation $a_1x+b_1y+c_1=0$ and $a_2x+b_2y+c_2=0$ has no solution is :

(a) $\frac{a_1}{a_2}=\frac{b_1}{b_2}\neq\frac{c_1}{c_2}$ (b) $\frac{a_1}{a_2}=\frac{b_1}{b_2}=\frac{c_1}{c_2}$ (c) $\frac{a_1}{a_2}\neq\frac{b_1}{b_2}$ (d) None of these

Q.9 If $\frac{12}{x}+\frac{3}{y}=3$ and $x=6$, then value of y is :

(a) 0 (b) 1 (c) 2 (d) 3

Q.10 For quadratic equation $x^2 - 2x - 35 = 0$, then sum of square of roots is
(a) –2 (b) 35 (c) –74 (d) 74

Q.11 Find the value of discriminant of the quadratic equation $2x^2 - 3x + 1 = 0$.
(a) 0 (b) 1 (c) 2 (d) 3

Q.12 Roots of $2^x + 2^{1-x} = 3$ are :
(a) 1, 2 (b) –1, 0 (c) 0, 1 (d) 0, 2

Q.13 If the fourth term of an A.P. is –1 and ninth term is –16, then the first term is :
(a) 8 (b) 6 (c) –8 (d) –6

Q.14 If the third term of an G.P. is $\frac{1}{12}$ and sixth term is $-\frac{1}{96}$, then the common ratio of G.P. is :
(a) $\frac{1}{2}$ (b) $-\frac{1}{2}$ (c) $-\frac{1}{4}$ (d) $\frac{1}{4}$

Q.15 If p, q, r are in A.P. and x, y, z are in G.P. then $x^{q-r} \cdot y^{r-p} \cdot z^{p-q}$ is equal to
(a) $p + q + r$ (b) $x\,y\,z$ (c) 1 (d) $px + qy + rz$

Q.16 If $2k + 3, k + 7, 3k - 4$ are three consecutive terms of an A.P. then k is :
(a) 2 (b) –3 (c) –5 (d) 5

Q.17 If the first term of G.P. is 7 and common ratio is 2 then the sum of first 9 terms is :
(a) 3577 (b) 7171 (c) 1785 (d) 2789

Q.18 If $|3x - 5| = \frac{17}{2}$ then sum of all values of x is :
(a) $-\frac{10}{3}$ (b) $\frac{10}{3}$ (c) $\frac{10}{6}$ (d) None of these

Q.19 Graph of $ax + by + c = 0$ is of the form :
(a) Straight line (b) Circle (c) Parabola (d) Ellipse

Q.20 If one zero of $3x^2 - 5x + 6k$ is reciprocal to the other, then the value of k is :
(a) 0 (b) $\frac{1}{2}$ (c) $\frac{2}{3}$ (d) $-\frac{1}{2}$

Section (B) : Challenge Yourself

Q.21 If the A.M between the roots of a quadratic equation is 15 and the G.M is 12, then the equation is :
(a) $x^2 + 30x - 144$ (b) $x^2 - 30x + 144$ (c) $x^2 - 15x + 12$ (d) $x^2 + 15x + 12$

Q.22 Find the value of $\sqrt{30 + \sqrt{30 + \sqrt{30 + ...\infty}}}$.
(a) 6 (b) – 5 (c) – 6 (d) 5

Q.23 Some students planned for a picnic. The budget for food was Rs. 400. But 10 of these failed to go and thus the cost of food for each member increased by Rs. 20. How many students attended the picnic?
(a) 30 (b) 10 (c) 40 (d) 20

Q.24 If the sum of first p terms of an A.P. is equal to the sum of the first q terms, then the sum of first $(p+q)$ is $(p \neq q)$
(a) 0 (b) 1 (c) 2 (d) 3

Q.25 A man saves Rs. 1000/- each year upto 10 years. If the rate of interests is 12% per annum and the interest is compounded annually, find the amount the man will receive at the end of the 10^{th} year.
(a) 18652.5 (b) 19652.5 (c) 17652.5 (d) 20652.5

Section (C) : Logical Reasoning

Q.26 Let XYZ be a three-digit number, where $(X + Y + Z)$ is not a multiple of 3.
Then $(XYZ + YZX + ZXY)$ is not divisible by
(a) 3 (b) 9 (c) 37 (d) $X + Y + Z$

Q.27 A man walks down the backside of his house straight 25 metres, then turns to the right and walks 50 metres again, then he turns towards left and again walk 25 metres. If his house face to the East. What is the his direction from the starting point?
(a) South-East (b) South-West (c) North-East (d) North-West

Q.28 2, 6, 12, 20, 30, X, 56
Then X = ?
(a) 42 (b) 40 (c) 47 (d) 54

Q.29 In the sum $\otimes+1\otimes+5\otimes+\otimes\otimes+\otimes1=1\otimes\otimes$ for which digit does the symbol $\otimes$ stand?
(a) 2 (b) 3 (c) 4 (d) 5

Q.30 The letters from A to Z are numbered from 1 to 26 respectively. If GHI = 1578 and DEF = 912, then what is ABC equal to?
(a) 492 (b) 468 (c) 262 (d) 246