AP EAMCET Mathematics Previous Questions with Key – Test 6

1)If f: R → R is defined by f(x) =[2x] – 2[x] for x∈R, then the range of f is (Here [x] denotes the greatest integer not exceeding x)

1)Z, the set of all integers

2)N, the set of all natural numbers

3)R, the set of all real numbers

4){0,1}

2)Given that a, b and c are real numbers such that $b^2 = 4ac$ and a > 0. The maximal possible set D ⊆ R on which the function f: D → R given by f(x) = log{$ax^3 + (a + b)x^2 + (b + c)x + c$} is defined, is

1) $R-\left\{-\frac{b}{2a}\right\}$

2) $R-\left(\left\{-\frac{b}{2a}\right\}\cup(-\infty,-1)\right)$

3) $R-\left(\left\{-\frac{b}{2a}\right\}\cup\{x : x\geq 1\}\right)$

4) $R-\left(\left\{-b/2a\right\}\cup(-\infty,-1)\right)$

3)For any natural number n, $(15 \times 5^{2n}) + (2 \times 2^{3n})$ is divisible by

1)7

2)11

3)13

4)17

4)For the matrix $A=\begin{bmatrix}3 & -3 & 4\\ 2 & -3 & 4\\ 0 & -1 & 1\end{bmatrix}, A^{-1}=$

1)A

2)A^2

3)A^3

4)A^4

5)If $A=\begin{bmatrix}k/2 & 0 & 0\\ 0 & l/3 & 0\\ 0 & 0 & m/4\end{bmatrix}$ and $A^{-1}=\begin{bmatrix}1/2 & 0 & 0\\ 0 & 1/3 & 0\\ 0 & 0 & 1/4\end{bmatrix}$ then k + l + m =

1)1

2)9

3)14

4)29

6)If A and B are the two real values of k for which the system of equations x + 2y + z = 1, x + 3y + 4z = k, x + 5y + 10z = k^2 is consistent, then A + B =

1)3

2)4

3)5

4)7

7)Let z = x +iy and a point P represent z in the Argand plane. If the real part of $\frac{z-1}{z+i}$ is 1, then a point that lies on the locus of P is

1)(2016, 2017)

2)(-2016, 2017)

3)(-2016, -2017)

4)(2016, -2017)

8)If $13e^{iTan^{-1}\frac{5}{12}} = a+ib$, then the ordered pair (a, b) =

1)(12, 5)

2)(5, 12)

3)(24, 10)

4)(10, 24)

9)If $z_1 = 1 - 2i$; $z_2 = 1 + i$ and $z_3 = 3 + 4i$, then $\left(\frac{1}{z_1}+\frac{3}{z_2}\right)\frac{z_3}{z_2} =$

1)13 – 6i

2)13 – 3i

3)$6-\frac{13}{2}i$

4)$\frac{13}{2}-3i$

10)If 1, ω, ω^2 are the cube roots of unity, then $\frac{1}{1+2\omega}+\frac{1}{2+\omega}-\frac{1}{1+\omega}=$

1)1

2)ω

3)ω^2

4)0

11)The number of integral values of x satisfying $5x - 1 < (x + 1)^2 < 7x - 3$ is

1)0

2)1

3)2

4)3

12)For real number x, if the minimum value of $f(x) = x^2 + 2bx + 2c^2$ is greater than the maximum value of $g(x) = -x^2 - 2cx + b^2$, then

1)$c^2 > 2b^2$ 2)$c^2 < 2b^2$ 3)$b^2 = 2c^2$ 4)$c^2=2b^2$

13)If a, b and c are the roots of $x^3 + qx + r = 0$, then $(a - b)^2 + (b - c)^2 + (c - a)^2 =$

1)-6q

2)-4q

3)6q

4)4q

14)If the sum of two roots of the equation $x^3 - 2px^2 + 3qx - 4r = 0$ is zero, then the value of r is

1)$\frac{3pq}{2}$

2)$\frac{3pq}{4}$

3)pq

4)2pq

15)The sum of the four digit even numbers that can be formed with the digits 0, 3, 5, 4 with out repetition is

1)14684

2)43536

3)46526

4)52336

16)If x is the number of ways in which six women and six men can be arranged to sit in a row such that no two women are together and if y is the number of ways they are seated around a table in the same manner, then x : y =

1)12 : 1

2)42 : 1

3)16 : 1

4)6 : 1

17)The number of 5-letter words that can be formed by using the letters of the word SARANAM is

1)1120

2)6720

3)480

4)720

18)The number of rational terms in the binomial expansion of $\left(\sqrt[4]{5}+\sqrt[5]{4}\right)^{100}$ is

1)50

2)5

3)6

4)51

19)The numerically greatest term in the binomial expansion of $(2a - 3b)^{19}$ when $a=\frac{1}{4}$ and $b=\frac{2}{3}$ is

1)$^{19}C_5 \cdot 2^{11}$

2)$^{19}C_3 \cdot \frac{1}{2^{11}}$

3)$^{19}C_4 \cdot \frac{1}{2^{13}}$

4)$^{19}C_3 \cdot 2^{13}$

20)If $\frac{x^2+5x+7}{(x-3)^3}=\frac{A}{(x-3)}+\frac{B}{(x-3)^2}+\frac{C}{(x-3)^3}$, then the equation of the line having slope A and Passing through the point (B, C) is

1)x + y – 20 = 0

2)x – y + 20 = 0

3)x + y + 20 = 0

4)x – y – 20 = 0

21)If $\cos\left(x-\frac{\pi}{3}\right),\cos x,\cos\left(x+\frac{\pi}{3}\right)$ are in a harmonic progression, then cos x =

1)$\frac{3}{2}$

2)1

3)$\frac{\sqrt{3}}{2}$

4)$\sqrt{\frac{3}{2}}$

22)$\cos^3 110° + \cos^3 10° + \cos^3 130° =$

1)$\frac{3}{4}$ 2)$\frac{3}{8}$

3)$\frac{3\sqrt{3}}{8}$ 4)$\frac{3\sqrt{3}}{4}$

23)If the general solution of sin5x = cos2x is of the form $a_n \cdot \frac{\pi}{2}$ for n =0, ±1, ±2, …, then a_n =

1) $\frac{2n}{5+2(-1)^n}$

2) $\frac{2n+(-1)^n}{5+2(-1)^n}$

3) $\frac{2n+1}{5+2(-1)^n}$

4) $\frac{2n-1}{5+2(-1)^n}$

24)let x, y be real numbers such that x ≠ y and xy ≠ 1. If ax + bsec(Tan^{-1}x) = c and ay + bsec(Tan^{-1}y) = c, then $\frac{x+y}{1-xy}$ =

1) $\frac{2ab}{a^2-b^2}$ 2) $\frac{2ac}{a^2+c^2}$ 3) $\frac{2ab}{a^2+b^2}$ 4) $\frac{2ac}{a^2-c^2}$

25) $\tanh^{-1}\frac{1}{2}+\coth^{-1}3=$

1)$\log\sqrt{6}$

2)log 6

3)-$\log\sqrt{6}$

4)-log 6

26)If the median of a ΔABC through A is perpendicular to AC, then $\frac{\tan A}{\tan C} =$

1)$1+\sqrt{2}$

2)$-\frac{1}{\sqrt{3}}+1$

3)-2

4)$1+\frac{2}{\sqrt{3}}$

27)In ΔABC, $\tan\frac{A}{2}+\tan\frac{B}{2} =$

1) $\frac{c\cot\frac{C}{2}}{4s}$

2) $\frac{2c\cot\frac{C}{2}}{a+b+c}$

3) $\frac{2c\tan\frac{C}{2}}{s}$

4) $\frac{c\tan\frac{C}{2}}{a+b+c}$

28)In a ΔABC, D, E and F respectively are the points of contact of the incircle with the sides AB, BC and CA such that AD = α, BE = β and CF = γ, then $\frac{\alpha\beta\gamma}{\alpha+\beta+\gamma}=$

1)R^2

2)2R

3)2r

4)r^2

29)Let $\bar{a}, \bar{b}$ and $\bar{c}$ be three non-coplanar vectors. The vector equation of a line which passes through the point of intersection of two lines, one joining the points $\bar{a}+2\bar{b}-5\bar{c}, -\bar{a}-2\bar{b}-3\bar{c}$ and the other joining the points $-4\bar{c}, 6\bar{a}-4\bar{b}+4\bar{c}$ is

1)$\bar{r}=2\bar{a}-4\bar{b}+3\bar{c}+\mu(\bar{a}-6\bar{b}+4\bar{c})$

2)$\bar{r}=3\bar{a}+6\bar{b}-\bar{c}+\mu(\bar{a}+2\bar{b}+\bar{c})$

3)$\bar{r}=2\bar{a}+3\bar{b}-\bar{c}+\mu(\bar{a}+\bar{b}-\bar{c})$

4)$\bar{r}=2\bar{b}+3\bar{c}+\mu(\bar{a}-4\bar{b}+3\bar{c})$

30)In ΔPQR, M is the mid-point of QR and C is the mid-point of PM. If QC when extended meets PR at N then $\frac{\overline{|QN|}}{\overline{|CN|}}=$

1)1 2)2 3)3 4)4

31)If $\bar{a}=\bar{i}-2\bar{j}-3\bar{k},\bar{b}=2\bar{i}+\bar{j}-\bar{k},\bar{c}=\bar{i}+3\bar{j}-2\bar{k},$ then $\left[\left(\bar{a}\times\bar{b}\right)\times\left(\bar{b}\times\bar{c}\right)\left(\bar{b}\times\bar{c}\right)\times\left(\bar{c}\times\bar{a}\right)\left(\bar{c}\times\bar{a}\right)\times\left(\bar{a}\times\bar{b}\right)\right]=$

1)160000

2)-8000

3)400

4)-40

32)If $\bar{a}=\bar{i}+2\bar{j}+3\bar{k},\ \bar{b}=-\bar{i}+2\bar{j}+\bar{k},\ \bar{c}=\bar{i}+2\bar{j}-2\bar{k},\ \bar{n}$ is perpendicular to both $\bar{a}$ and $\bar{b}$, and θ is the angle between $\bar{c}$ and $\bar{n}$ then sinθ =

1)$\sqrt{\frac{2}{3}}$ 2)$\frac{\sqrt{2}}{3\sqrt{3}}$ 3)$\frac{2}{\sqrt{3}}$ 4)$\frac{\sqrt{3}}{2}$

33)If $\bar{a},\bar{b}\ and\ \bar{c}$ are mutually perpendicular vectors of the same magnitude, then the cosine of the angle between $\bar{a}$ and $\bar{a}+\bar{b}+\bar{c}$ is

1)$\frac{1}{\sqrt{2}}$ 2)$\frac{1}{\sqrt{3}}$ 3)$\frac{1}{2}$ 4)$\frac{\sqrt{3}}{2}$

34)If $\bar{a},\bar{b}\ and\ \bar{c}$ are non-coplanar vectors and the four points with position vectors $2\bar{a}+3\bar{b}-\bar{c},\bar{a}-2\bar{b}+3\bar{c},3\bar{a}+4\bar{b}-2\bar{c}$ and $k\bar{a}-6\bar{b}+6\bar{c}$ are coplanar, then k =

1)0

2)1

3)2

4)3

35)The mean and the standard deviation of a data of 8 items are 25 and 5 respectively. If two items 15 and 25 are added to this data, then the variance of the new data is

1)29

2)24

3)26

4)$\sqrt{29}$

36)The mean deviation from the median for the following distribution (corrected to two decimals) is

x_i	6	9	3	12	15	13	21	22
f_i	4	5	3	2	5	4	4	3

1)13.42

2)5.45

3)4.97

4)11.25

37)If a die is rolled three times, then the probability of getting a larger number on its face than the previous number each time, is

1)$\frac{15}{216}$ 2)$\frac{5}{54}$ 3)$\frac{13}{216}$ 4)$\frac{1}{18}$

38)A man is known to speak the truth 2 out of 3 times. If he throws a die and reports that it is six, then the probability that it is actually five, is

1) $\frac{3}{8}$

2) $\frac{1}{7}$

3) $\frac{2}{7}$

4) $\frac{4}{5}$

39)If the probability function of a random variable X is defined by $P(X=k)=a\left(\frac{K+1}{2^k}\right)$ for k = 0, 1, 2, 3, 4, 5 then the probability that X takes a prime value is

1) $\frac{13}{20}$

2) $\frac{23}{60}$

3) $\frac{11}{20}$

4) $\frac{19}{60}$

40)If X is a binomial variate with mean 6 and variance 2, then the value of P(5 ≤ X ≤ 7) is

1) $\frac{4762}{6561}$ 2) $\frac{4672}{6561}$ 3) $\frac{5264}{6561}$ 4) $\frac{5462}{6651}$

41)Let A(2, 3), B(3, -6), C(5, -7) be three points. If P is a point satisfying the condition $PA^2 + PB^2 = 2PC^2$, then a point that lies on the locus of P is

1)(2, -5)

2)(-2, 5)

3)(13, 10)

4)(-13, -10)

42) If the coordinates of a point P changes to (2, -6) when the coordinate axes are rotated through an angle of 135°, then the coordinates of P in the original system are

1)(-2, 6)

2)(-6, 2)

3)$(2\sqrt{2}, 4\sqrt{2})$

4)$(\sqrt{2}, -\sqrt{2})$

43)If the portion of a line intercepted between the coordinate axes is divided by the point (2, -1) in the ratio 3 : 2, then the equation of that line is

1)5x -2y -20 =0 2)2x –y -5 = 0 3)3x –y -7 = 0 4)x -3y –5 = 0

44)The equation of the line passing through the point of intersection of the lines 2x + y -4 = 0, x -3y + 5 = 0 and lying at a distance of $\sqrt{5}$ units from the origin, is

1)x -2y – 5 = 0 2)x + 2y – 5 = 0

3)x + 2y + 5 = 0 4)x -2y + 5 = 0

45)The equation of the line joining the centroid with the orthocentre of the triangle formed by the points (-2, 3), (2, -1), (4, 0) is

1)$x + y - 20 = 0$

2)$11x - y - 14 = 0$

3)$x - 11y + 6 = 0$

4)$2x - y - 2 = 0$

46)The lines represented by the equations $23x^2 - 48xy + 3y^2 = 0$ and $2x + 3y + 4 = 0$ form

1)an isosceles triangle

2)a right angled triangle

3)an equilateral triangle

4)a scalene triangle

47)If the line $x + 2y = k$ intersects the curve $x^2 - xy + y^2 + 3x + 3y - 2 = 0$ at two points A and B and if O is the origin, then the condition for $\underline{|AOB} = 90°$ is

1)$k^2 + k + 1 = 0$

2)$k^2 - 2k + 1 = 0$

3)$2k^2 + 9k - 10 = 0$

4)$3k^2 + 8k - 1 = 0$

48)If $2x^2 + 3xy - 2y^2 = 0$ represents two sides of a parallellogram and $3x + y + 1 = 0$ is one of its diagonals, then the other diagonal is

1)$x - 3y + 1 = 0$

2)$x - 3y + 2 = 0$

3)$x - 3y = 0$

4)$3x - y = 0$

49)If the lengths of the tangents drawn from P to the circles $x^2 + y^2 - 2x + 4y - 20 = 0$ and $x^2 + y^2 - 2x - 8y + 1 = 0$ are in the ratio 2:1, then the locus of P is

1)$x^2 + y^2 + 2x + 12y + 8 = 0$

2)$x^2 + y^2 - 2x + 12y + 8 = 0$

3)$x^2 + y^2 + 2x - 12y + 8 = 0$

4)$x^2 + y^2 - 2x - 12y + 8 = 0$

50)The equation of a circle touching the coordinate axes and the line $3x - 4y = 12$ is

1)$x^2 + y^2 + 6x + 6y + 9 = 0$ 2)$x^2 + y^2 + 6x + 6y - 9 = 0$

3)$x^2 + y^2 - 6x - 6y + 9 = 0$ 4)$x^2 + y^2 - 6x - 6y - 9 = 0$

51)The pole of the straight line $9x + y - 28 = 0$ with respect to the circle $2x^2 + 2y^2 - 3x + 5y - 7 = 0$ is

1)(3, 1) 2)(3, -1) 3)(-3, 1) 4)(4, -8)

52)The point of intersection of the direct common tangents drawn to the circles $(x + 11)^2 + (y - 2)^2 = 225$ and $(x - 11)^2 + (y + 2)^2 = 25$ is

1)$\left(\frac{-11}{2}, 1\right)$

2)(-22, 4)

3)$\left(\frac{11}{2}, -1\right)$

4)(22, -4)

53)In List-I, a pair of circles is given in A, B, C and in List-II, angle between those pair of circles is given. Match the items from List-I to List –II.

List-I	List-II
A) $(x-2)^2 + y^2 = 2$	I) 90°
$(x-2)^2 + (y-1)^2 = 1$	
B) $x^2 + y^2 - 6x - 6y + 9 = 0$	II) 135°
$x^2 + y^2 - 4x + 4y - 9 = 0$	
C) $x^2 + y^2 + 4x - 14y + 28 = 0$	III) 60°
$x^2 + y^2 + 4x - 5 = 0$	
	iv) 30°

The correct matching is

1)A-I, B-II, C-III

2)A-II, B-I, C-III

3)A-III, B-I, C-IV

4)A-IV, B-III, C-I

54)If the radical axis of the circles $x^2 + y^2 + 2gx + 2fy + c = 0$ and $2x^2 + 2y^2 + 3x + 8y + 2c = 0$ touches the circle $x^2 + y^2 + 2x + 2y + 1 = 0$, then

1) $g = \frac{3}{4} or\ f = 2$ 2) $g \neq \frac{3}{4},\ f = 2$ 3) $g = \frac{3}{4},\ f \neq 2$ 4) $g = \frac{2}{5} or\ f = 1$

55)The line y =6x + 1 touches the parabola $y^2 = 24x$. The coordinates of a point P on this line from which the tangent to $y^2 = 24x$ is perpendicular to the line y = 6x + 1, is

1)(-1, -5)

2)(-2, -11)

3)(-6, -35)

4)(-7, -41)

56)A point on the parabola whose focus is S(1, -1) and whose vertex is A(1, 1) is

1)$\left(3, \frac{1}{2}\right)$

2)(1, 2)

3)$\left(2, \frac{1}{2}\right)$

4)(2, 2)

57)An ellipse having the coordinate axes as its axes and its major axis along Y-axis, passes through the point(-3, 1) and has eccentricity $\sqrt{\frac{2}{5}}$. Then its equation is

1)$3x^2 + 5y^2 - 15 = 0$

2)$5x^2 + 3y^2 - 32 = 0$

3)$3x^2 + 5y^2 - 32 = 0$

4)$5x^2 + 3y^2 - 48 = 0$

58)The product of the perpendicular distances drawn from the points (3, 0) and (-3, 0) to the tangent of the ellipse $\frac{x^2}{36}+\frac{y^2}{27}=1$ at $\left(3,\frac{9}{2}\right)$ is

1)36

2)27

3)9

4)63

59)The equation of the hyperbola whose asymptotes are the lines 3x + 4y -2 = 0, 2x + y + 1 = 0 and which passes through the point (1, 1) is

1)$6x^2 + 11xy + 4y^2 - 30x + 2y + 7 = 0$

2)$6x^2 + 11xy + 4y^2 - x + 2y - 22 = 0$

3)$6x^2 + 11xy + 4y^2 - x + 2y + 22 = 0$

4)$6x^2 + 11xy + 4y^2 - 3x - 7y - 11 = 0$

60)If the orthocentre and the centroid of a triangle are (-3, 5, 2) and (3, 3, 4) respectively, then its circumcentre is

1)(6, 2, 5)

2)(6, 2, -5)

3)(6, -2, 5)

4)(6, -2, -5)

61)A Plane cuts the coordinate axes X, Y, Z at A, B, C respectively such that the centroid of the ΔABC is (6, 6, 3). Then the equation of that plane is

1)x + y + z – 6 = 0

2)x + 2y + z -18 = 0

3)2x + y + z -18 = 0

4)x + y +2z -18 = 0

62)If the foot of the perpendicular drawn from the origin to a plane is (1, 2, 3), then a point on that plane is

1)(3, 2, 1)

2)(7, 2, 1)

3)(7, 3, -1)

4)(6, -3, 4)

63)If [x] denotes the greatest integer ≤x, then

$$\lim_{n\to\infty}\frac{1}{n^3}\left\{\left[1^2x\right]+\left[2^2x\right]+\left[3^2x\right]+\ldots+\left[n^2x\right]\right\}=$$

1)$\frac{x}{2}$

2)$\frac{x}{3}$

3)$\frac{x}{6}$

4)0

64)If a function f defined by f(x) = $\begin{cases} \dfrac{1-\sqrt{2}\sin x}{\pi-4x}, & if\ x \neq \dfrac{\pi}{4} \\ k, & if\ x = \dfrac{\pi}{4} \end{cases}$

is continuous at $x=\frac{\pi}{4}$, then k =

1) $\frac{1}{4}$

2)1

3) $\frac{-1}{4}$

4)2

65)The derivative of f(x) = $x^{Tan^{-1}x}$ with respect to g(x) = $\sec^{-1}\left(\frac{1}{2x^2-1}\right)$ is

1) $\frac{1}{2}\sqrt{1-x^2}\,x^{Tan^{-1}x}\left[\frac{\log x}{1+x^2}+\frac{Tan^{-1}x}{x}\right]$

2) $-\frac{1}{2}\sqrt{1-x^2}\,x^{Tan^{-1}x}\left[\log\left(Tan^{-1}x\right)+x\left(1+x^2\right)Tan^{-1}x\right]$

3) $\dfrac{-2Tan^{-1}x\left[\frac{\log x}{1+x^2}+\frac{Tan^{-1}x}{x}\right]}{\sqrt{1-x^2}}$

4) $-\frac{1}{2}\sqrt{1-x^2}\,x^{Tan^{-1}x}\left[\frac{\log x}{1+x^2}+\frac{Tan^{-1}x}{x}\right]$

66)If x = 3cos t and y = 4sin t, then $\frac{d^{2y}}{dx^2}$ at the point $(x_0, y_0) = \left(\frac{3}{2}\sqrt{2}, 2\sqrt{2}\right)$,is

1) $\frac{4\sqrt{2}}{9}$

2) $-\frac{4\sqrt{2}}{9}$

3) $\frac{8\sqrt{2}}{9}$

4) $-\frac{8\sqrt{2}}{9}$

67)If $y = \frac{2}{\sqrt{a^2 - b^2}} Tan^{-1}\left[\sqrt{\frac{a-b}{a+b}} \tan\frac{x}{2}\right], than \left.\frac{d^2y}{dx^2}\right|_{x=\frac{\pi}{2}} =$

1) $\frac{b}{2a^2}$ 2) $\frac{b}{a^2}$ 3) $\frac{2b}{a}$ 4) $\frac{b^2}{2a}$

68)If $f(x) = x^3 + ax^2 + bx + 5\sin^2 x$ is an increasing function on R, then

1) $a^2 - 3b - 15 < 0$ 2) $a^2 - 3b + 15 > 0$

3) $a^2 - 3b - 15 > 0$ 4) $a^2 + 3b + 15 > 0$

69)The approximate value of cos31° is (Take 1° = 0.0174)

1)0.7521

2)0.866

3)0.7146

4)0.8573

70)If x and y are two positive numbers such that x + y = 32, then the minimum value of $x^2 + y^2$ is,

1)500

2)256

3)1024

4)512

71)The constant 'c' of Lagrange's mean value theorem for the function $f(x)=\frac{2x+3}{4x-1}$ defind on [1, 2] is

1)$\frac{1+\sqrt{15}}{3}$ 2)$\frac{1+\sqrt{21}}{4}$

3)$\frac{5}{3}$ 4)$\frac{3}{2}$

72)$\int\frac{\sin 2x\,dx}{\sin^4 x+\cos^4 x}=Tan^{-1}\left(f(x)\right)+c$, then $f\left(\frac{\pi}{3}\right)=$

1)1

2)2

3)3

4)$\frac{1}{3}$

73) $\int \left(\frac{\log x - 1}{1 + (\log x)^2} \right)^2 dx =$

1) $\frac{\log x}{1+(\log x)^2} + c$

2) $\frac{x}{x^2+1} + c$

3) $\frac{x}{1+(\log x)^2} + c$

4) $\frac{-x}{1+(\log x)^2} + c$

74) $\int \frac{dx}{x^3 + 3x^2 + 2x} =$

1) $\log|x| + \log\left|\frac{x+2}{x+1}\right| + c$

2) $\log|x| - \log|x+1| + \log|x+2| + c$

3) $\frac{1}{2}\left[\log|x| + \log|x+1| + \log|x+2|\right] + c$

4) $\frac{1}{2}\log\left(\frac{|x^2+2x|}{(x+1)^2}\right) + c$

75)For n ≥ 2, If $I_n = \int \sec^n x dx$, then $I_4 - \frac{2}{3} I_2 =$

1)$\sec^2 x \tan x + c$

2)$\frac{1}{3}\sec^2 x \tan x + c$

3)$\frac{2}{3}\sec^2 x \tan x + c$

4)$\frac{1}{3}\log|\sec x + \tan x| + c$

76) $\lim_{n\to\infty}\left(\frac{\sqrt{1}+2\sqrt{2}+3\sqrt{3}+...+n\sqrt{n}}{n^{\frac{5}{2}}}\right) =$

1)1 2)$\frac{5}{2}$ 3)0 4)$\frac{2}{5}$

77) $\int_0^{\alpha/3} \frac{f(x)}{f(x)+f\left(\frac{\alpha-3x}{3}\right)} dx =$

1)$\frac{2\alpha}{3}$

2)$\frac{\alpha}{2}$

3)$\frac{\alpha}{3}$

4)$\frac{\alpha}{6}$

78)The area (in sq. units) of the region bounded by the X-axis and the curve $y = 1 - x - 6x^2$ is

1) $\frac{125}{216}$

2) $\frac{125}{512}$

3) $\frac{25}{216}$

4) $\frac{25}{512}$

79)If m and n are respectively the order and degree of the differential equation of the family of parabolas with focus at the origin and X-axis as its axis, then mn – m + n =

1)1 2)4 3)3 4)2

80)The general solution of $\left(1+e^{\frac{x}{y}}\right)dx+e^{\frac{x}{y}}\left(1-\frac{x}{y}\right)dy=0$ is

1) $ye^{\frac{y}{x}}+x=c$

2) $ye^{\frac{x}{y}}-x=c$

3) $ye^{\frac{x}{y}}+y=c$

4) $ye^{\frac{x}{y}}+x=c$

APEAMCET-2018 -- Engineering Stream
Final Key
Date: 22-04-18 FN (Shift 1)

1	4	41	4
2	4	42	3
3	4	43	4
4	3	44	2
5	4	45	2
6	1	46	3
7	4	47	3
8	1	48	3
9	4	49	4
10	4	50	3
11	2	51	2
12	1	52	4
13	1	53	2
14	1	54	1
15	2	55	3
16	2	56	1
17	3	57	4
18	3	58	2
19	4	59	2
20	2	60	1
21	4	61	4
22	3	62	2
23	2	63	2
24	4	64	1
25	1	65	4
26	3	66	4
27	2	67	2
28	4	68	1
29	2	69	4
30	4	70	4
31	1	71	2
32	2	72	3
33	2	73	3
34	2	74	4
35	1	75	2
36	3	76	4
37	2	77	4
38	2	78	1
39	2	79	3
40	2	80	4