TS EAMCET Mathematics Previous Questions with Key – Test 2

1)The set of all values of x and the set of all values of a for which the real valued function $f(x)=\sqrt{\log_a(x-[x]}$ is defined are respectively

1)R-Z & (0, 1)

2)Z & R – {0, 1}

3)Z-&(1, ∞)

4)R&R

2)A function f: R-{0}→ R is defined as $\begin{cases} x^2+3x-7, & x>0 \\ h(x), & x<0 \end{cases}$ If f(x) is an odd function then h(x) =

1)x^2+3x+7

2)x^2+3x-7

3)$-x^2+3x+7$

4)$-x^2-3x+7$

3)$x^n + y^n$ is divisible by

1)x-y for all n∈N

2)x+y for all n∈N

3)x+y for all n = 2m -1, m∈N

4) x+y for all n = 2m, m∈N

4)Let A be the set of all 3×3 determinants with entries 0 or 1 only and B be the subset of A consisting of all determinants with value 1. If C is the subset of A consisting of all determinants with value -1, then

1)n(c)=0

2)n(B)=n(C)

3)A=B∪C

4)n(B) = 2n(A)

5) $\begin{vmatrix} 1 & bc+ad & b^2c^2+a^2d^2 \\ 1 & ca+bd & c^2a^2+b^2d^2 \\ 1 & ab+cd & a^2b^2+c^2d^2 \end{vmatrix} =$

1)(a-b)(b-c)(c-d)(a-d)(a-c)(d-b)

2)(a-b)(a-c)(b-c)(b-d)(a-d)(c-d)

3)(a-b)(a-c)(a-d)(b-c)(b-d)(d-c)

4)(a-b)(b-c)(c-d)(b-d)

6)The set of real values of α for which the system of linear equations:

x+(sinα)y + (cosα)z=0

x+(cosα)y + (sinα)z= 0

-x +(sinα)y –(cosα)=0

1) $\frac{n\pi}{2}+(-1)^n\frac{\pi}{4}+\frac{\pi}{8}$ (n is an integer)

2) $\frac{n\pi}{2}+(-1)^n\frac{\pi}{8}$ (n is an integer)

3) $\frac{n\pi}{2}+(-1)^n\frac{\pi}{8}-\frac{\pi}{8}$ (n is an integer)

4) $\frac{n\pi}{2}+(-1)^n\frac{\pi}{4}-\frac{\pi}{8}$ (n is an integer)

7)If $\frac{1-10i\cos\theta}{1-10\sqrt{3}i\sin\theta}$ is purely real, then one of the values of θ is

1) $\frac{\pi}{6}$

2) $\frac{\pi}{4}$

3) $\frac{\pi}{3}$

4) $\frac{\pi}{2}$

8)If z and w are complex numbers such that $\bar{z}-i\bar{w}=0$ and $\text{Arg}(zw)=\frac{3\pi}{4}$, then Arg z = 0

1) $\frac{\pi}{16}$ 2) $\frac{\pi}{8}$ 3) $\frac{\pi}{4}$ 4) $\frac{3\pi}{4}$

9)The number of complex roots of the quation $x^{11}-x^7+x^4-1 = 0$ whose arguments lie in the first quadrant is

1)2 2)3 3)7 4)9

10)If α is a root of $z^2 - z + 1 = 0$ then

$$\left(\alpha^{2014}+\frac{1}{\alpha^{2014}}\right)+\left(\alpha^{2015}+\frac{1}{\alpha^{2015}}\right)^2+\left(\alpha^{2016}+\frac{1}{\alpha^{2016}}\right)^3+\left(\alpha^{2017}+\frac{1}{\alpha^{2017}}\right)^4+$$

$$\left(\alpha^{2018}+\frac{1}{\alpha^{2018}}\right)^5=$$

1)8 2)5 3)3 4)-5

11)Let $E_1 \equiv ax^2 + bx + c$, $E_2 \equiv bx^2 + cx + a$, $E_3 \equiv cx^2 + a$ and $\frac{a^2}{bc}+\frac{b^2}{ca}+\frac{c^2}{ab}=3$. If these quadratic expressions have a common zero, then the quadratic expression having zeroes that are common to E_2 and E_3 and different form the zeroes of E_1 is

1) $x^2-\frac{a(b+c)}{bc}x+bc$ 2)$ax^2 + bx + c$

3)$x^2-b(c+a)x + ac$ 4) $x^2-\frac{a(b+c)}{bc}x+\frac{a^2}{bc}$

12)If for any real x, $\frac{11x^2+12x+6}{x^2+4x+2}=y$ is such that $y < a$ or $y \geq b$ then a, b are

1)3, 5 2) -5, 3 3)-4, 5 4)-6, 4

13)Given that that roots of $x^3 + 3px^2 + 3qx + r = 0$ are in harmonic progression. Then

1)$2q^3 = r(3pq-r)$ 2)$q^3 = r(3pq - r)$

3)$q^3=-r(3pr-r)$ 4)$q^3 = r(r + 3pq)$

14)α, β, γ are the roots of $x^3 + px^2 + qx + r = 0$, then $\alpha^3 + \beta^3 + \gamma^3 =$

1)$p^3-3pq + r$ 2)$p^2 - 2pq + r$ 3)$3pq - 3r - p^3$ 4)$3pq + 3r + p^3$

15)The number of proper divisors of the number obtained by dividing 13! With 100 is

1)216

2)430

3)214

4)790

16)In an admission test, there are 15 multiple choice questions. Each question is followed by 4 alternatives to choose. Out of these there may be one or more than one correct answers. If a student attempts all the 15 questions and marks the answers randomly, then number of different ways he can answer the questions paper is

1)$4 \times 15_{C4}$

2)15^{15}

3)4^{15}

4)$4!15!$

17)The absolute value of the numerically greatest term in the expansion of $(2x - 3y)^{12}$ when $x = 3, y = 2$ is

1)$12_{C5}\, 6^{12}$

2) $12_{C6}\, 6^{12}$

3) $12_{C4}\, 6^{12}$

4) $12_{C9}\, 6^{12}$

18)The sum to infinite terms of the series $\frac{3}{10}+\frac{3.7}{10.15}+\frac{3.7.9}{10.15.20}+....\text{to } \infty$ is

1) $\sqrt[4]{125}-1$

2) $\frac{5\sqrt{5}}{3\sqrt{3}}-\frac{8}{5}$

3) $\sqrt[3]{4}-\frac{4}{3}$

4) $\sqrt{\frac{5}{3}}-\frac{6}{5}$

19) If $\frac{3x+2}{(x+1)(2x^2+3)}=\frac{A}{x+1}+\frac{Bx+C}{2x^2+3}$ then $A-B+C=$

1)1

2)2

3)3

4)5

20)sin10° sin50° sin 60° = m and tan 20° tan 40° tan 60° tan 80° = n then $\frac{n}{m}=$

1) $\frac{3\sqrt{3}}{16}$ 2) $16\sqrt{3}$ 3) $\frac{16}{\sqrt{3}}$ 4) $8\sqrt{3}$

21)Assertion (A): If α = 12°, β = 15°, γ= 18° then tan2α tan 2β + tan 2β tan 2γ + tan 2γ tan 2α = 1

Reason (R): In ΔABC, $\tan\frac{A}{2}\tan\frac{B}{2}+\tan\frac{B}{2}\tan\frac{C}{2}+\tan\frac{C}{2}\tan\frac{A}{2}=1$

Which of the following is true?

1)Both (A) and (R) are true and (R) is the correct explanation of (A)

2)Both (A) and (R) are true and (R) is not he the correct explanation of (A)

3)(A) is true, but (R) is false

4)(A) is false, but (R) is true

22)cotθ - tanθ - 2tan 2θ - 4tan 4θ

1)4cotθ - tan6θ 2)cot8θ+tanθ

3)cot8θ + cot6θ 4)8cot8θ

23)If the general solution of sinx + 3sin 3x + sin5x = 0 is x = y then the set of all values of cos y is

1) $\left\{-1, -\frac{\sqrt{3}}{2}, \frac{\sqrt{3}}{2}, 1\right\}$ 2) {-1, ½, 1}

3) $\left\{-\frac{\sqrt{3}}{2}, 0, 1, \frac{\sqrt{3}}{2}\right\}$ 4) {-1, ½, ½, 1}

24)If $\cos^{-1}2x + \cos^{-1}3x = \frac{\pi}{3}$ then x =

1) $\frac{\sqrt{3}}{2\sqrt{7}}$ 2) $\frac{\sqrt{3}}{\sqrt{7}}$ 3) $\frac{\sqrt{2}}{\sqrt{5}}$ 4) $\frac{\sqrt{3}}{2\sqrt{5}}$

25)If coshβ = sec α cosθ, sinhβ = cosec α sinθ then $\sin h^2 \beta$ =

1)sinα cosα 2)$\cos^2\alpha$ 3)$\sin^2\alpha$ 4)sinα + cosα

26)In a ΔABC, sinA and Sin B satisfy $c^2x^2 - c(a+b)x + ab = 0$, then

1)the triangle is acute angled

2)the triangle is obtuse angled

3) $\sin C = \frac{\sqrt{3}}{2}$

4)$\sin A + \cos A = \frac{a+b}{c}$

27)Let ABC be and isosceles triangle with BC as its base. The rr_1 =

1)a^2 2) $\frac{a^2}{2}$ 3)$R^2\sin^2A$ 4)$R^2\sin^2 2B$

28)In ΔABC, $a^4 + b^4 + c^4 = 2b^2c^2 + 2a^2b^2$ then B =

1) $\frac{\pi}{4}$ or $\frac{3\pi}{4}$ 2) $\frac{\pi}{2}$ 3) $\frac{\pi}{3}$ or $\frac{2\pi}{3}$ 4) $\frac{\pi}{6}$ or $\frac{5\pi}{6}$

29)If $\bar{a} = 2\bar{i} + 3\bar{j} + k, \bar{b} = \bar{i} - 3\bar{j} - 5\bar{k}$ and $\bar{c} = 3\bar{i} - 4\bar{k}$ then match the items of List I with those of

List I	List-II
a)Unit vector in the direction opposite to that of $\bar{a} - \bar{b}$ is	i) $5\bar{i} + 3\bar{j} - 3\bar{k}$
b) If $\overline{AB} = \bar{a}, \overline{BC} = \bar{b}$ then $\overline{CA} =$	ii) $2\bar{i} - \frac{8}{3}\bar{k}$
c) If $\bar{a}, \bar{b}, \bar{c}$ are the position vectors of the vertices a triangle then, its centroid is	iii) $-3\bar{i} + 4\bar{k}$
d) if $\bar{d}$ is a vector of magnitude $2\sqrt{14}$ and parallel to the vector $\bar{a}$, then $\bar{b} - \bar{d} =$	iv) $-\frac{\bar{i}}{\sqrt{73}} - -\frac{6\bar{j}}{\sqrt{73}} - \frac{6\bar{k}}{\sqrt{73}}$
	v) $\frac{3}{\sqrt{43}}\bar{i} + \frac{5}{\sqrt{43}}\bar{j} - \frac{3}{\sqrt{43}}\bar{k}$

The correct answer is

1)a-iv, b-iii, c-ii, d-i

2)a-iv, b-iii, c-ii, d-v

3)a-iv, b-iii, c-I, d-ii

4)a-i, b-ii, c-iii, d-v

30) If $2\bar{i}-\bar{j}+3k, -12\bar{i}-3\bar{k}, -\bar{i}+2\bar{j}-4k$ and $\lambda\bar{i}+2\bar{j}-\bar{k}$ are the position vectors of four coplanaer points then λ =

1)-2

2)6

3)3

4)-6

31)A point lying on the plane that passes through the pints $\bar{i}-\bar{j}+k, \bar{i}-2\bar{j}+3\bar{k}$ and $\bar{i}+2\bar{j}-3\bar{k}$ is

1) $-\bar{i}+2\bar{j}-3\bar{k}$

2) $-\bar{i}+\bar{j}-\bar{k}$

3) $\bar{i}+\bar{j}-\bar{k}$

4) $4\bar{i}+2\bar{j}+3k$

32)A non zero vector $\bar{a}$ is parallel to the line of intersection of the plane determined by the vectors $\bar{i}, \bar{i}+\bar{j}$ and the plance determined by vectors $\bar{i}-\bar{j}, \bar{i}+\bar{k}$. The angle between $\bar{a}$ and $(\bar{a}-2\bar{j}+2\bar{k})$is

1) $\frac{\pi}{6}$ 2) $\frac{\pi}{4}$ 3) $\frac{\pi}{3}$ 4) $\frac{2\pi}{5}$

33)The equation of the plane passing through the points with position vectors $A(-2\bar{i}+6\bar{j}=6\bar{k}), B(-3\bar{i}+10\bar{j}-9\bar{k})$ and $C(-5\bar{i}-6\bar{k})$ is

1) $\bar{r}.(2\bar{i}-j-2k)=2$

2) $\bar{r}.(\bar{i}-2j-k)=1$

3) $\bar{r}.(2i+j-2k)=3$

4) $\bar{r}.(i+2j-2k)=3$

34)If $\bar{a}, \bar{b}$ and $\bar{c}$ are three vectors with magnitudes 1, 1 and 2 respectively and $\bar{a}\times(\bar{a}\times\bar{c})+\bar{b}=\bar{0}$, then the angle between $\bar{a}$ and $\bar{c}$ is

1) $\frac{2\pi}{5}$

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

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

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

35)The coefficient of variation of the first n natural numbers is

1) $\frac{100}{\sqrt{3}}(n-1)$ 2) $\frac{100}{\sqrt{3}}\sqrt{\frac{n+1}{n-1}}$ 3) $\frac{\sqrt{3}}{100}\sqrt{\frac{n+1}{n-1}}$ 4) $\frac{100}{\sqrt{3}}\sqrt{\frac{n-1}{n+1}}$

36)Two distributions A and B have the same mean. If their coefficients of variation are 6 and 2 respectively and σ_A, σ_B are their standard deviations, then

1) $\sigma_A = 3\sigma_B$ 2) $3\sigma_A = \sigma_B$ 3) $\sigma_A = 2\sigma_B$ 4) $2\sigma_A = \sigma_B$

37)From a certain population, the probability of choosing a colour blind man is $\frac{1}{20}$ and that of a colour blind woman is $\frac{1}{10}$. If a randomly choosen person is found to be colour blind, then the probability that the person is a man is

1) $\frac{2}{9}$ 2) $\frac{2}{3}$ 3) $\frac{1}{3}$ 4) $\frac{1}{9}$

38)From a lot containing n good and m bad articles, if 2 articles are picked at random in succession without replacement, then the probability that the second article picked is bad is

1) $\frac{m}{m+n}$ 2) $\frac{m-n}{m+n}$ 3) $\frac{(n-1)(m-1)}{(m+m)^2}$ 4) $\frac{mn}{(m+n)^2}$

39)In a class room 5% of the boys and 2% of the girls are taller than 1.6 metres. The class consists of 60% girl students. The probability that a randomly selected student is taken than 1.6 metres is

1) $\frac{121}{125}$ 2) $\frac{5}{8}$ 3) $\frac{3}{8}$ 4) $\frac{4}{125}$

40)The distribution of a random variable X is given below:

X=x	1	2	3	4
P(X=x)	2c	4c	6c	8c

Then standard deviation of X is

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

41)The probability of securing a success in a trial is three times that of a failure. The probability of getting atleas 4 successes in 5 trials is

1) $\frac{649}{1024}$

2) $\frac{81}{128}$

3) $\frac{27}{64}$

4) $\frac{243}{1024}$

42)If the line joining the points A(bcos α, bsin α) and B(a cos β, a sin β) is extended to the point N(x, y) such that AN : NB = b: a, then

1) $c\cos\frac{\alpha-\beta}{2}+y\sin\frac{\alpha+\beta}{2}=0$

2) $x\cos\frac{\alpha-\beta}{2}+y\sin\frac{\alpha-\beta}{2}=0$

3) $x\cos\frac{\alpha+\beta}{2}+y\sin\frac{\alpha-\beta}{2}=0$

4) $x\cos\frac{\alpha+\beta}{2}+y\sin\frac{\alpha+\beta}{2}=0$

43)A straight line x-2y-4 = 0 is shifted parallel to it by 3 units away from the origin and then rotated by an angle of 30° in the anticlockwise direction. If the slope of the new line formed is m, then the integral part of m is

1)-1

2)0

3)1

4)2

44)If α and β are the angles made by the normals drawn from the origin to the lines $x + y + \sqrt{2} = 0$ and $x-\sqrt{3}y - 2 = 0$ with the positive direction of the X-axis respectively measured in anti-clockwise direction, then $\alpha + \beta =$

1) $-\frac{13\pi}{12}$

2) $\frac{29\pi}{12}$

3) $-\frac{11\pi}{12}$

4) $\frac{35\pi}{12}$

45)The straight lines $x + 3y - 4 = 0$, $x + y - 4 = 0$ and $3x + y - 4 = 0$

1)form an isosceles triangle

2)are concurrent

3)form an equilateral triangle

4)form a right angled isosceles triangle

46)The combined equation of the straight lines passing through (1, 1) and making an angle of 45° with the straight line $x + y -1 = 0$

1)$2x^2 + 3xy - 2y2 - 7x + y + 1 = 0$

2)$xy - x - y +1 = 0$

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

4)$2x^2- xy - 3x + y + 1 = 0$

47)The centric of the triangle formed by the pair of straight lines $12x^2 - 20xy + 7y^2 = 0$ and the line $2x-3y + 4 = 0$ is (α, β). Then $\alpha + 2\beta =$

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

2)2

3)8

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

48)The equation of the bisectors of the angles between the lines joining the origin to the points of intersection of the curve $x^2 + xy + y^2 + x + 3y + 1 = 0$ and the straight line $x + y + 2 = 0$ is

1)$2x^2 - 4xy + y2 = 0$

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

3)$2x^2 + 4xy + y^2 = 0$

4)$x^2\ 3xy - y^2 = 0$

49)Consider the following statements

I. The intercept made by the circle $x^2 + y^2 - 2x - 4y + 1 = 0$ on Y-axis is $2\sqrt{3}$

II. The intercept made by the circle $x^2 + y^2 - 4x - 2y + 6 = 0$ on X-axis is $2\sqrt{2}$

III. The straight line $y = 2x +1$ cuts the circle $x^2 + y^2 = 9$ at two distinct points

Then which one of the following options is correct?

1)I True	II True	III True	2)I True	II True	III False
3)I True	II False	III True	4)I False	II False	III True

50)If the circles $x^2 + y^2 + 2kx – 4y + 1 = 0$ and $x^2 + y^2 – 8x – 12y + 43 = 0$ touch each other then k =

1)2

2)1

3)-1

4)-2

51)For all real values of k, the pint which lies on the polar of (k, k + 1) with respect to the circle $x^2 + y^2 + 4x – 8y – 5 = 0$ is

1)(3, -1)

2)(3, 1)

3)(2, -2)

4)(2, 3)

52)The number of common tangents to the circles $x^2 + y^2 + 4x = 0$ and $x^2 + y^2 – 2x = 0$ is

1)4

2)3

3)2

4)1

53)If $\frac{2}{\sqrt{5}}$ is the length of the common chord of the circles $x^2 + y^2 + 2x + 2y + 1 = 0$ and $x^2 + y^2 + ax + 3y + 2 = 0$, $\alpha \neq 0$ then α =

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

54)Match the items List –I with those of List-II

List-I	List-II
a)Equation of the tangent drawns (2, √8) on the curve $y^2 = 4x$ is	i)-36
b)Equation of the normal to the curve $y^2 = 16x$, that makes an angle of 45° with its axis is	ii)4
c)The chord joining the pints (x_1, y_1) and (x_2, y_2) on the curve $y^2 = 12x$ is a focal chord if $y_1y_2 =$	iii)8
d) A value of k for which x-3 = 0 is the directrix of the curve $y^2 – kx + 16 = 0$ is	iv)$x=\sqrt{2}\, y + 2 = 0$
	v)$x+y – 12 = 0$
	vi)$x-y – 12 = 0$

1)a-v, b-iv, c-iii, d-ii

2)a-vi, b-v, c-ii, d-i

3)a-iv, b-vi, c-I, d-ii

4)a-iv, b-vi, c-ii, d-iii

55)An equilateral triangle is inscribed in the parabola $y^2 = 16\ ax$ with one of its vertices at the origin. Then the centroid of that triangle is

1)(8a, 0) 2)(16a, 0) 3)(32a, 0) 4)(48a, 0)

56)If the straight line $8x + 3\sqrt{2}\, y = 36 = 36$ touches the ellipse $\frac{x^2}{9}+\frac{y^2}{4}=2$ at (a, b) then $a + \sqrt{2}\, b =$

1) $\frac{36}{5\sqrt{2}}$

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

3) $\frac{12+2\sqrt{2}}{3}$

4) $\frac{16}{3}$

57)For an ellipse with eccentricity ½, the centre is at the origin. If one of its directrices is x = 4, then the equation of the ellipse is

1)$3x^2 + 4y^2 = 12$

2)$3x^2 + 4y^2 = 49$

3)$3x^2 + 4y^2 = 1$

4)$4x^2 + 3y^2 = 12$

58)If the product of the slopes of the tangents drawn form an external point P to the hyperbola $\frac{x^2}{a^2}-\frac{y^2}{b^2}=1$ is a constant k^2, then the locus of P is

1)$y^2 + b^2 = k^2 (x^2 - a^2)$ 2)$y^2 - b^2 = k^2 (x^2 - a^2)$

3)$x^2 + b^2 = k^2 (y^2 - a^2)$ 4)$x^2 - b^2 = k^2 (y^2 - a^2)$

59)Let A, B, C be three points on $\overrightarrow{OX}, \overrightarrow{OY}, \overrightarrow{OX}$ respectively at the distances 3, 6, 9 from origin. Let Q be the point (2, 5, 8) and P be the pint equidistant from O, A, B, C. Then the coordinates of the point R which Divides PQ in the Ratio 3 : 2 is

1) $\left(\frac{17}{10}, \frac{29}{5}, \frac{43}{10}\right)$

2) $\left(\frac{7}{15}, \frac{16}{5}, 5\right)$

3) $\left(\frac{9}{15}, \frac{21}{5}, \frac{33}{5}\right)$

4) $\left(\frac{8}{5}, \frac{19}{5}, 6\right)$

60)If the direction cosines of two lines are such that l + m + n =0, $l^2 + m^2 - n^2 = 0$ then the angle between them is

1) $\frac{\pi}{6}$

2) $\frac{\pi}{4}$

3) $\frac{\pi}{5}$

4) $\frac{\pi}{2}$

61)If the line joining the points A(1, 0, 0) and B (0, 0, 1) is a normal to the plane π which passes through the point A, then the angle between the plane π and x + y + z = 6 is

1) $\frac{\pi}{6}$ 2) $\frac{\pi}{4}$ 3) $\frac{\pi}{3}$ 4) $\frac{\pi}{2}$

62)The number of points at which the function $f(x)=\frac{\sqrt{11+|x|-6\sqrt{2+|x|}}}{6-2\sqrt{2+|x|}}$ is discontinuous in (-∞, ∞) is

1)1

2) 0

3)2

4)3

63) If $(f)x\begin{cases}\frac{\sqrt{1+px}-\sqrt{1-px}}{x}, & -1\le x<0\\ \frac{2x+1}{x-2}, & 0\le x\le 1\end{cases}$ is continuous of [-1, 1], then p =

1)-½

2)-¼

3)½

4)2

64)If $\tan^{-1}(\sin\sqrt{x})+\text{cosec}^{-1}(e^{2x+1})$ then $\frac{dy}{dx}=$

1) $\frac{1}{\sqrt{x}(1+\sin^2\sqrt{x})}+\frac{1}{\sqrt{e^{4x+2}+1}}$

2) $\frac{\cos\sqrt{x}}{2\sqrt{x}(1+\sin^2\sqrt{x})}-\frac{2}{\sqrt{e^{4x+2}-1}}$

3) $\frac{\cos\sqrt{x}}{(1+\sin^2\sqrt{x})}+\frac{2}{\sqrt{e^{4x+2+1}}}$

4) $\frac{1}{2\sqrt{x}}\frac{\cos\sqrt{x}}{(1+\sin^2\sqrt{x}})-\frac{2}{\sqrt{e^{2x+1}-1}}$

65)If f:R $\rightarrow$ R is such that f(3) = 16, f′(3) = 4, them $\lim_{x\to 3}\frac{xf(3)-3f(x)}{x-3} =$

1)4

2)6

3)8

4)12

66) If y = e^x(log x), then xy_2 + 1(x-1)y =

1)(2x-1)y_1

2) (x-1)y_1

3) (4-2x)y_1

4) (3x-1)y_1

67)Let f(x) = e^x cos x+1. Which of the following statements is always true?

1)Between any two consecutive roots of f(x) = 0 there is always a root of e^x sin x+1 = 0

2)Between any two consecutive roots f(x) = 0 there is always a root of e^x sin x -1 = 0

3)Between any two consecutive roots f(x) = 0 there is always a root of e^x cosx = 0

4)Between any two consecutive roots of f(x) = 0 there is alwys a root of e^x sin x = 0

68)The radius of a circular plate is increasing at the rate of 0.01cm/sec. When the radius is 12cm. the rate at which the area increases is (in square cm/sec)

1)60π 2)24π 3)1.2π 4)0.24π

69)Let $f(x) = x^2e^{-2x}$, $x > 0$. The maximum value of f(x) is

1)0

2) $\frac{1}{e^2}$

3) $\frac{1}{4e^2}$

4) $\frac{1}{2e}$

70) Let f(x) be differentiable on [1, 6] and f(1) = -2. If f(x) has only one root in (1, 6) then there exists $c \in (1, 6)$ such that

1) $f'(c) = \frac{1}{10}$

2) $f'(c) < \frac{2}{5}$

3) $f'(c) < \frac{1}{5}$

4) $f'(c) > \frac{2}{5}$

71)If $\int\phi(x) = \psi(x)$ then $\int(\phi o h)$ 9x)h′(x)dx =

1)$(\phi oh)(x)\phi'(x) - \int(\phi oh)(x)h'(x)dx+c$

2)$(\psi oh)(x)h(x)-\int(\psi oh)(x)h'(x)dx +c$

3)$(\psi oh)(x)\phi(x)-\int(\psi oh)(x)\phi'(x)dx+c$

4)$(\psi o\phi)(x)h(x)-\int(\psi o\phi)(x)h'(x)dx+c$

72) If $f\left(\frac{t+1}{2t+1}\right) = t+1$, then $\int f(x)dx =$

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

2) log(2x-1)+½log(x+1)+c

3) ½log(2x-1)+c

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

73) $\int \frac{x^8 - 9x^2 + 18}{x^4 - 3x^2 + 3} dx =$

1) $\frac{x^4}{4} + x^3 + 6x^2 + c$

2) $\frac{x^5}{5} + \frac{x^4}{4} + 6x + c$

3) $\frac{x^5}{5} + x^3 + 6x + c$

4) $\frac{x^5}{5} - \frac{x^3}{2} + 6x^2 + c$

74) ∫(cot x cot (x+α)+1)dx =

1) $\cot\alpha \log\left(\left|\frac{\sin x}{\sin(x+\alpha)}\right|\right) + c$

2) log|sin x sin (x+α)+x+c

3) log|sin x cos(x+a)|+x+c

4) $\tan\alpha \log\left(\left|\frac{\cos x}{\sin(x+a)}\right|\right) + c$

75) If $\lim_{n\to\infty}\sum_{r=1}^{n}\frac{4r^3}{r^4+n^4}=p$, then $e^p =$

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

76) $e^{\int_0^{\frac{\pi}{2}}\sqrt{\frac{1-\sin 2x}{1+\sin 2x}}dx} =$

1)1 2)2 log2 3)2log√2 4)2

77)The area bounded by the curve $y=x^3 - 3x^2 + 2x$ and the X-asis is (in square units)

1)½ 2) $\frac{5}{2}$ 3)1 4)4

78)The general solution of the differential equation cos (x+y)dy = dx is

1)y = sec(x+y)+c 2) $y-\tan\frac{y}{2}=x+c$ 3) $y=\tan\left(\frac{x+y}{2}\right)+c$ 4)y=½ tan(x+y)+c

79)The general solution of the differential equation $(x3-3xy^2)dx = (y^3 -3x^2y)dy$ is

Where c is an arbitrary constant

1)$c^2(x^2+y^2) = (y^2-x^2)$ 2)$c^2(x^2+y^2) = (y^2-x^2)^2$
3)$c^2(x2+y^2)^2 = (y^2-x^2)$ 4)$c^2(x^2-y^2)^2 = (y^2-x^2)$

80)The differential equation corresponding to all the circles lying in the first quadrant and touching the coordinate axis is

1) $(x-y)^2\left[1+\left(\frac{dy}{dx}\right)^2\right]=\left(x+y\frac{dy}{dx}\right)^2$ 2) $(x-y)^2\left[1+\frac{dy}{dx}\right]^2=\left(x+y\frac{dy}{dx}\right)^2$

3) $(x-y)^2\left[1+\left(\frac{dy}{dx}\right)^2\right]=x+y\left(\frac{dy}{dx}\right)^2$ 4) $(x-y)^2\left[1+\left(\frac{dy}{dx}\right)^2\right]=x+y\left(\frac{dy}{dx}\right)^{½}$

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TS EAMCET 2018 Engineering Stream Final Key Date: 04-05-2018 AN (Shift 2)			
1	1	41	2
2	3	42	3
3	3	43	3
4	2	44	4
5	2	45	1
6	3	46	2
7	1	47	3
8	2	48	4
9	1	49	3
10	1	50	3
11	4	51	1
12	2	52	2
13	1	53	1
14	3	54	3
15	2	55	3
16	2	56	4
17	2	57	1
18	2	58	1
19	2	59	3
20	2	60	3
21	1	61	4
22	4	62	3
23	4	63	1
24	1	64	2
25	3	65	1
26	4	66	1
27	3	67	1
28	1	68	4
29	1	69	2
30	2	70	4
31	3	71	2
32	2	72	4
33	1	73	3
34	4	74	1
35	4	75	3
36	1	76	4
37	3	77	1
38	1	78	3
39	4	79	3
40	4	80	1