Syllabus for TS EAMCET - E Stream (Engineering Stream)

MODEL QUESTIONS – MATHEMATICS

1) The order and degree of the differential equation

$\frac{d^2y}{dx^2}$ $\frac{d^2y}{dx^2}+3\left(\frac{dy}{dx}\right)^2+2y=\log\left(\frac{dy}{dx}\right)$ are

1) 2 and 2
2) 1 and 2
3) order 2 and degree not defined
4) order not defined but degree is 2

2) Match the following:

	List A	List B
(I)	Example of bijective function	(a) $f(x+y) = f(xy)\ \forall x,y \in R$
(II)	Example of surjective function	(b) $f(x) = x^2$, $f: R \to R$
(III)	Example of neither surjective nor injective function	(c) $f(x) = 2^x$, $f: R \to (0,\infty)$
(IV)	Example of a constant function	(d) $f(x) = x^2$, $f: R \to (0,\infty)$
		(e) $f(x) = x^2$, $f: (0,\infty) \to R$

The correct match of List (A) from List (B) is

	I	II	III	IV
1)	d	b	e	a
2)	c	d	b	a
3)	a	b	e	d
4)	d	c	b	a

3) If $\sin^{-1} x + \sin^{-1} 2x = \pi/3$, then x=

1) $\sqrt{3} / 2\sqrt{7}$
2) $\sqrt{2} / 3\sqrt{7}$
3) $\sqrt{3} / 7\sqrt{2}$
4) $\sqrt{2} / 7\sqrt{3}$

4) The variance of 30 observations is 3. If each of the observations is multiplied by 3, then the variance of the resulting observations is :

1) 3
2) 9
3) 27
4) 81

5) If the sum of two positive numbers is k, then the sum of their squares will be minumum, when the numbers are

1) k/4, k/4
2) k/3, k/3
3) k/2, k/2
4) k,k

6) The inverse of the point (2,3) with respect to the circle $x^2+y^2=16$ is

1) (32/26, 48/26)
2) $(32/\sqrt{26}, 48/\sqrt{26})$
3) $(32/\sqrt{13}, 48/\sqrt{13})$
4) (32/13, 48/13)

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7. Assertion (A) : The system of linear equations

$x-y+z=0, x+2y-z=0, 2x+y+3z=0$ has only trivial solution

Reason(R): If rank of coefficient matrix is 3, then a system of 3 homogeneous linear equations in three variables has only trivial solution

1) Both A & R are True and R is the correct explanation of A
2) Both A & R are True and R is not correct explanation of A
3) A is True but R is False
4) R is True but A is False

8. Statement I : $\int_0^{\pi/2} \frac{sinx}{sinx+cosx}dx=\frac{\pi}{2}$

Statement II : $f(x)dx=¿\int_0^a f(a-x)dx.$

$\int_0^a ¿$

1. Statement I is True but statement II is false
2. Statement II is True but statement I is false
3. Statement I and statement II are True
4. Both Statements I and II are false.

9. If $\frac{3x+4}{(x+1)(x^2+x+1)^2} = \frac{A}{x+1} + \frac{Bx+C}{x^2+x+1} + \frac{Dx+E}{(x^2+x+1)^2}$. , then the value of A is

1. -2
2. -1
3. 1
4. 2

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