this is guessing questions for old session now we will provide all new questions in class

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Time Table for Session 2013-2014

Maths by SUHAG KARIYA

INDRAPURI (BHEL) C-69	Class 11th: MON, WED, FRI: 4 pm to 6pm
	Class 12th: TUE, THU, SAT: 4pm to 6pm

SUNDAY : Test & Doubt Discussion

M.P. Nagar R-1, Zone 2.	Class 11th: MON, WED, FRI,: 6:30pm to 8:30pm
	Class 12th: TUE, THU, SAT, 6:30 pm to 8:30pm

CRASH COURSE FOR JEEMAIN Daily 8am to 11am

[illegible] ([illegible]) for Q29 – 31 Ques of Integration

SARTH.

Sheet 1; Differential Calculus; F., L., C., D., MOD, AOD,

It is final practice on MATHEMATISS for IIT JEE/AIEEE

SINGLE CORRECT ANSWER TYPE (Q.1 to 7) (SUHAG SIR) 2012.

Q.1. Which of the following equations have the same graph.

I. $y = x - 2$ II. $y = \frac{x^2-4}{x+2}$ III. $(x+2)y = x^2-4$

10,12,1,1,1

(A) I & II only (B) I & III only (C) II & III only (D) All have different Graphs.

Q.2. If $\lim_{x \to -2} \frac{(2(a-3)(x+2) - 6\sin^{-1}(x+2))\tan^{-1}(5x+10)}{(x+2)^2} = 0$ then the value of "a" is equal to (WWW.TEKOCLASSES.COM) 10,12,1,1,2

(A) 9 (B) 6 (C) 3 (D) 12

Que3. Let $f(x) = 11 - 8\sin x - 2\cos^2 x$. If the maximum & min. values of f(x) are denoted by M & m respectively then $(M-1)/m$ has the value equal to: 10,12,1,1,4

(A) 6 (B) 18 (C) 5 (D) 0

Que.4. Let f be a real valued function defined on R given by $f(x) = \{x\} + 2[x]$; where { } FPF & [ ] GIF. Then f(x) is 10,12,1,1,5

(A) Continous & Differentiable at $x \in R$

(B) Continous $\forall x \in R$ but not differentiable at Integral points

(C) neither continous nor derivable at Integral points

D) No where differentiable. [Draw Graph Also]

Q.5. If the right hand derivative of $f(x) = [x]\tan \pi x$ (GIF) at $x = 7$ is $k\pi$, then k is equal to 10,12,1,1,6

(A) 6 (B) 7 (C) –7 (D) 49 www.tekoclasses.com.

Q.6. Let
$$f(x) = \begin{cases} (\sin x + \cos x)^{\operatorname{cosec} x} & ; -\frac{\pi}{2} < x < 0 \\ a & ; x = 0 \\ \dfrac{e^{\frac{1}{x}} + e^{\frac{2}{x}} + e^{\frac{3}{|x|}}}{ae^{\frac{2}{x}} + be^{\frac{3}{|x|}}} & ; 0 < x < \frac{\pi}{2} \end{cases}$$
is continous at $x = 0$ then $a^2 + b^2 =$ 10,12,1,1,8

Maths by SUHAG KARIYA
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(A) $2e^2$ (B) $e^2 + e^{-2}$ (C) $e + e^{-1}$ (D) $\frac{2}{e^2}$

Q.7. Paragraph for question 7(a) & 7(b) www.tekoclasses.com

Consider a quadratic expression $f(x) = tx^2 - (2t-1)x + (5t-1)$ www.tekoclasses.com

Q.7(a) If f(x) take both positive and negative values then t must lie in the interval P.T.O.

(A) $\left(-\frac{1}{4},\frac{1}{4}\right)$ (B) $\left(-\infty,-\frac{1}{4}\right)\cup\left(\frac{1}{4},\infty\right)$ ✗RH.

(C) $\left(-\frac{1}{4},\frac{1}{4}\right)-\{0\}$ (D) $(-4,4)$ 10,12,1,1, 12&13.

Q.7(b); If $f(x)$ is non negative $\forall\ x\geq 0$ then t lies in the interval.

(A) $\left[\frac{1}{5},\frac{1}{4}\right]$ (B) $\left[\frac{1}{4},\infty\right)$ (C) $\left[-\frac{1}{4},\frac{1}{4}\right]$ (D) $\left[\frac{1}{5},\infty\right)$

More than one may correct (Q.8 to Q.12) 10,12,1,1,14&18

Que8. Which of the following statement(s) is (are) correct?

(A) Let $f:R\to R$ be defined as $f(x)=\frac{e^x}{1+e^{2x}}$ then $f(c)=\frac{1}{4}$ for some $c\in R$. www.tekoclasses.com

(B) If $f(a)$ & $f(b)$ possesses opposite signs then there must exist atleast one solution of the equation $f(x)=0$ in (a,b).

(C) If the function $y=f(x)$ is continuous at $x=x_0$ such that $f(x_0)\neq 0$, then $f(x).f(x_0)>0\ \forall\ x\in(x_0-h,x_0+h)$ where h is sufficientlysmall positive quantity.

(D) Let f be a real valued continuous function on R and satisfying $f(-x)-f(x)=0\ \forall\ x\in R$. If $f(-5)=5$; $f(-2)=4$; $f(3)=-2$; $f(0)=0$ then the equation $f(x)=0$ has atleast 5 real roots. www.tekoclasses.com

Que.9. Let $f(x)=\max.\left(\sin^{-1}x,\ \frac{3\pi}{4},\ \cos^{-1}x\right)\ \forall\ x\in[-1,1]$ then

(A) $f(x)$ is not derivable at $x=\frac{1}{\sqrt{2}}$ Ph(0755)3200000

(B) $f(x)$ is discontinuous at $x=1/\sqrt{2}$ maths by SUHAG

(C) $f'(\pi/4)=3\pi/4$ (D) $f(x)$ is continuous but notderivable at $x=-\frac{1}{\sqrt{2}}$

Que.10 for an arbitrary function f with domain $(-\infty,\infty)$, define $F(x)=f(x)+f(-x)$ and $G(x)=f(x)-f(-x)$. which of the following MUST be an odd function?

(A) $F+G$ (B) $F.G$ (C) $\frac{F}{G}$ (D) GOG www.tekoclasses.com

Que.11. Let f be a differentiable function satisfying $f(x+y)=f(x)+f(y)+e^x.y\ \forall\ x\in R,\ y\in R$ and $f(1)=e-2$ Then which of the following statement(s) is(are) true?

(A) $\lim_{x\to 0}\frac{f(x)}{x}=0$ (B) $\lim_{x\to 0}\frac{f(x)}{x^2}=\frac{1}{2}$

(C) $\lim_{x\to 0}\left[\frac{f(x)+x}{x}\right]=1$ [GIF] (D) $\lim_{x\to 0}\left(\frac{f(x)-f(-x)}{x^3}\right)=\frac{1}{6}$

P.T.O.

Que:12: Let $f:R \to R$ be defined as

$$f(x)=\begin{cases}\lim\limits_{n\to\infty}\left(\frac{[x]}{1+n^2}+\frac{3[x]}{2+n^2}+\frac{5[x]}{3+n^2}+\cdots\cdots+\frac{(2n-1)[x]}{n+n^2}\right); x\neq\frac{\pi}{2}\\ 1 \quad ; \quad x=\frac{\pi}{2}\end{cases}$$

where $[y]$ denotes largest integer $\leq y$, then which of the following statement(s) is (are) correct?

(A) f(x) is injective but not surjective. www.tekoclasses.com

(B) f(x) is not derivable at $x=\frac{\pi}{2}$.

(C) f(x) is discontinuous at all integer and cont. at $x=\frac{\pi}{2}$

(D) f(x) is unbounded function. www.tekoclasses.com

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following two 13&14 questions are integer ans type (Upto 4 digits) Tekoclasses 10,12,1,1,125

Q.13. Let $g(x)=\begin{cases}a\sqrt{x+2}; & 0<x<2\\ bx+2; & 2\leq x\leq 5\end{cases}$. If g(x) is derivable on (0,5), then find (2a+b). Maths by SUHAG KARIYA

Q.14. For any real number x, let [x] denotes the lagest integer less than or equal to x. Let f be a real valued function defined on the interval [-3,3] by $f(x)=\begin{cases}-x-[x] & \text{if } [x] \text{ is even}\\ x-[x] & \text{if } [x] \text{ is odd}\end{cases}$. Ph(0755)3200000

If L denotes the number of points of dicontinuity and M denontes the number of points of non-derivability of f(x), then (L+M). Maths by suhag.

Single Correct Type

Que15. Let $f:(1,\infty)\longrightarrow(0,\infty)$ be a continous decreasing function with $\lim\limits_{x\to\infty}\frac{f(4x)}{f(8x)}=1$ Then $\lim\limits_{x\to\infty}\frac{f(6x)}{f(8x)}$ is 10,12,1,2,1

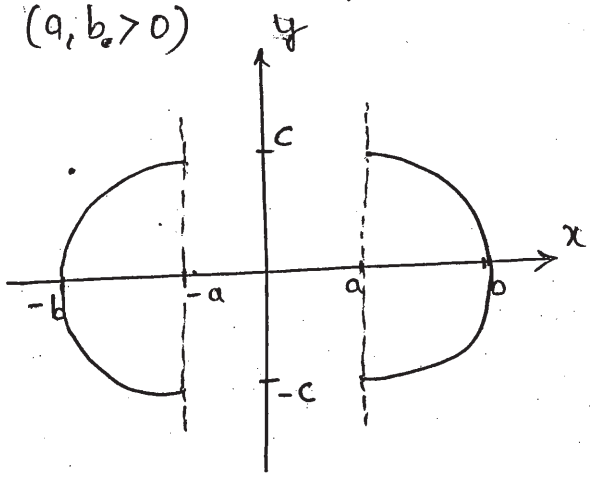
equal to (A) $\frac{4}{8}$ (B) $\frac{4}{6}$ (C) $\frac{6}{8}$ (D) 1.

Que16. The locus of the foot of the perpendicular from the origin upon chords of the circle $x^2+y^2-2x-4y-4=0$, which subtends a right angle at the origin is. 10,12,1,24,

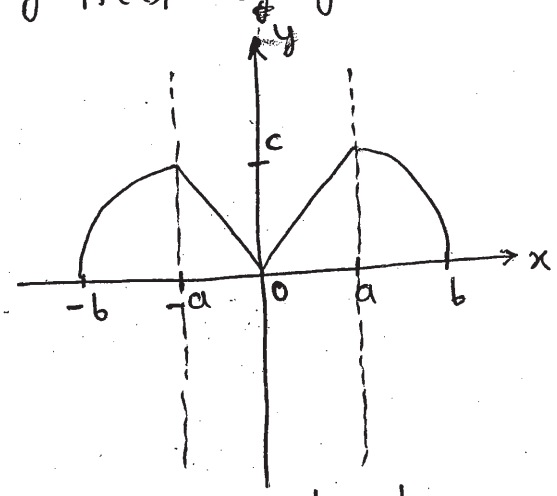
(A) $x^2+y^2-x-2y-2$ (B) $2(x^2+y^2)-2x-y+3=0$ P.T.O.

(C) $x^2+y^2-2x-4y+4=0$ (D) $x^2+y^2+x+2y-2=0$

Que17: If the graphs of $|y| = f(x)$ & $y = |f(x)|$ are given as below $(a, b > 0)$



$|y| = f(x)$



$y = |f(x)|$

Then identify the correct statement 10,12,1,2,6

(A) f(x) is discontinuous at 2 points in $[-b, b]$ and non-differentiable at 2 points in $(-b, b)$

(B) f(x) is dicontinuous at 2 points in $[-b, b]$ and non differentiable at 3 points in $(-b, b)$

(C) f(x) is dicontinuous at 3points in $[-b, b]$ and non differentiable at 3points in $(-b, b)$

(D) f(x) is dicontinuous at 3points in $[-b, b]$ and non diffesentiable at 3points in $(-b, b)$

Que 18, 19, 20 are on based upon this Paragraph 10,12,1,2,7,8,9

COMPREHENSION

Let $f(x) = f_1(x) - 2f_2(x)$ where $f_1(x) = \begin{cases} \min.(x^2, |x|); & -1 \le x \le 1 \\ x^2 ; & |x| > 1 \end{cases}$

& $f_2(x) = \begin{cases} |x|; & |x| > 1 \\ \max(x^2, |x|); & |x| < 1 \end{cases}$ also

$g(x) = \begin{cases} \min.\{f(t); -3 \le t \le x, \text{ for } -3 \le x < 0\} \\ \max.\{f(t): 0 \le t \le x, \text{ for } 0 \le x < 3\} \end{cases}$

Q18 Range of f(x) (A) $(-\infty, -1]$ (B) $(-\infty, 1]$ (C) $[1, \infty)$ (D) $[-1, \infty)$

Q.19 Number of values of x where g(x) fails to be differentiable is (A) 0 (B) 1 (C) 2 (D) 3

Q.20. $\lim_{x \to 0} f(g(x))$ is equal to

(A) 0 (B) 1 (C) -1 (D) Non existent.

Que21. Match Matrics Type

10,12,1,2,1,2

Column-I	COLOUMN II
(A) If $\lim_{x\to 3}\frac{f(x)-3}{x-2}=1$ then $\lim_{x\to 3} f(x)$ equals.	(P) 15
(B) A polynomial $P(x)$ has remainder of $2,-13,5$ respectively when divided by $(x+1),(x-4)$ & $(x-2)$. If the remainder when $P(x)$ is divided by $(x+1)(x-4)(x-2)$ is $r(x)$, then the value of $r(1)$ is.	(Q) 11
	(R) 8
	(S) 7
	(T) 4
(C) Consider the graphs of $y=\sin x$, $y=\cos x$, $y=\tan x$, $y=\cot x$, $y=\sec x$ and $y=\operatorname{cosec} x$. Let $R=\{(x,y)/0\le x\le \frac{\pi}{2}, 0\le y\le 100\}$. Number of points of R which lie on atleast two of the graphs, is	
(D) Suppose that $2-\sqrt{95}$ is a root of $x^2+Tx+b=0$ where b is negative real number and T is an integer. The largest possible value of T is.	

Que22 Column I

Column II
(A) The number of points of non derivability of function $f(x)=\left[\frac{2x}{\pi}\right]\operatorname{sgn}\left(\frac{1}{\{x\}}\right)$ in $(-2,2)$ is (where $[y]$, $\{y\}$ and $\operatorname{sgn}(y)$ denotes largest integer $\le y$, fractional part of y and signum func. of y respectively.
(B) The number of points of discontinuity of the function $f(x)=\lim_{n\to\infty}\frac{(2\sin x)^{2n}}{3^n-(2\cos x)^{2n}}$, is
(C) Let ABC be a variable triangle such that A is $(1,2)$, B & C lie on the line $y=x+\lambda$ (where λ is a variable). The locus of the orthocentre of triangle ABC is a straight line whose y intercept is equal to.
(D) The num of values of x satisfying $\frac{\left(2^{\frac{\pi}{\text{Fractional part of } x}}-4\right)(x-4)(x-9)}{\lvert x-1\rvert(x-1)}<0$, is

(P) 2
(Q) 3
(R) 4
(S) 5
(T) More than 5

Que 23. and Q.24 are subjective, means there answer in 4 digit. 10,12,12,1,3

Q.23. Let $f(x)=\lim_{\theta\to 0}\frac{\cos(x+4\theta)-4\cos(x+3\theta)+6\cos(x+2\theta)-4\cos(x+\theta)+\cos x}{\theta^4}$
then find the absolute value of difference between maximum & minimum value of $f(x)$.

Q.24. If $f(x)=\begin{cases}\frac{\sin[|x|]\pi}{ax^4}+ax^2+b\ ; & -2\le x<-1\\ 3\sec\pi x+\cot^{-1}x\ ; & -1\le x\le -\frac{3}{4}\end{cases}$

is differentiable in $\left(-2,\frac{-3}{4}\right)$ then $a=\frac{1}{\lambda_1}$ and $b=\frac{3\pi-\lambda_2}{4}$

find the value of $(\lambda_1+\lambda_2)$

Note: [y] denotes largest integer $\le y$.

single ans. correct type

Que 25. Let α be a real number such that $0\le\alpha\le\pi$. If $f(x)=\cos x+\cos(x+\alpha)+\cos(x+2\alpha)$ takes some constant number c for any $x\in R$, then the value of $[c+\alpha]$ is equal to. (Not [.] is G.I.F.) Ph(0755)3200000

(A) 0 (B) 1 (C) -1 (D) 2

Que 26. The Line L_1 given by $\frac{x}{5}+\frac{y}{b}=1$ passes through the point M(13, 32). The line L_2 is // to L_1 and has the equation $\frac{x}{c}+\frac{y}{3}=1$. Then the distance between L_1 & L_2 is. Maths by SUHAG KARIYA

(A) $\sqrt{17}$ (B) $\frac{17}{\sqrt{15}}$ (C) $\frac{23}{\sqrt{17}}$ (D) $\frac{23}{\sqrt{15}}$

Que 27. Let $g:R\to R$ be a differentiable function such that $g(2)=-40$ and $g'(2)=-5$. Then $\lim_{x\to 0}\left(\frac{g(2-x^2)}{g(2)}\right)^{\frac{4}{x^2}}$

(A) e^{32} (B) $\sqrt{e}$ (C) $1/\sqrt{e}$ (D) e^{-5} P.T.O.

Q28. If 6, 8 and 12 are l^{th}, m^{th} and n^{th} terms of an A.P. and $f(x) = nx^2 + 2lx - 2m$, then the equation $f(x) = 0$ has

(A) a root between 0 and 1 (B) both roots imaginary
(C) both roots negative (D) both roots greater than 1.

Paragraph for question nos. 29 to 31. 10,12,2,1,6to8

Let $f(x)$ be a polynomial function of degree 2 satisfying

$$\int \frac{f(x)}{x^3-1}\,dx = \ln\left|\frac{x^2+x+1}{x-1}\right| + \frac{2}{\sqrt{3}}\tan^{-1}\left(\frac{2x+1}{\sqrt{3}}\right) + C$$

where C is indefinite integration constant.

Q.29. The value of $f(1)$ is equal to

(A) 1 (B) 2 (C) −1 (D) −3

Q.30. $\int \frac{1-6\operatorname{cosec} x}{6+f(\sin x)}\,d(\sin x) = g(x) + K$, where $g(x)$ contains no constant term.

Then $\lim_{t\to\frac{\pi}{2}} g(t)$ is equal to (where K is integration constant)

(A) ln 1 (B) ln 2 (C) ln 3 (D) ln 4

Q.31. Let $\int \frac{5+f(\sin x)+f(\cos x)}{\sin x+\cos x}\,dx = h(x) + \lambda$

where $h(1) = -1$, (λ is integration constant)

The value of $\tan^{-1}(h(2)) + \tan^{-1}(h(3))$ is equal to

(A) $\frac{\pi}{4}$ (B) $-\frac{\pi}{4}$ (C) $\frac{3\pi}{4}$ (D) $\frac{-3\pi}{4}$

More than one answer may correct (Q.32 to Q.35) 10,12,2,1,9to12

Q.32 Which of the following limit vanishes?

(A) $\lim_{x\to 0^+}\left(x^{x^x} - x^x\right)$ (B) $\lim_{x\to 0^+} x^2 \cdot \ln\sqrt{1/x}$ (C) $\lim_{x\to 0^+} x^{\ln(x+1)}$

(D) $\lim_{x\to 0}(10^x - 2^x - 5^x + 1^x)/(x+\tan x)$

P.T.O.

Q.33. Which of the following statement(s) is(are) always correct?

(A) If $f(x)>1 \ \forall \ x\in R$ and $\lim_{x\to 0} f(x)$ exist then $\lim_{x\to 0} f(x)>1$.

(B) There exist a function f defined on R which is discontinuous $\forall \ x\in R$ but $|f|$ is continuous $\forall x\in R$.

(C) Let $f:R\to R$ be an even degree polynomial function then f is neither injective nor surjective.

(D) Let f be a function defined on the set of all real numbers such that $\lim_{x\to 0}\frac{f(x)}{x}=L$ (exists) and $f(0)=0$ then f is differentiable at $x=0$ and $\lim_{x\to 0} f(x)=0$

Q.34. Let $f:R\to[-1,1]$ be defined as $f(x)=\cos(\sin x)$ then which of the following is (are) correct?

(A) f is periodic with fundamental period 2π.

(B) Range of $f=[\cos 1, 1]$

(C) $\lim_{x\to\frac{\pi}{2}}\left(f\left(\frac{\pi}{2}-x\right)+f\left(\frac{\pi}{2}+x\right)\right)=2$

(D) f is neither even nor odd function.

Q.35. If the equation $\sin^2\theta - a\sin\theta + b = 0$ has only one solution in $(0,\pi)$, then

(A) $a\in(-\infty,1]\cup[2,\infty)$ (B) $b\in(-\infty,0]\cup[1,\infty)$

(C) $a=1+b$ (D) $a+b=1$

SINGLE CORRECT ANS. TYPE

10, 12, 2, 1, 1, C.

Q.36 Let $f(x)=\lim_{t\to 0}\frac{1}{t}\left(\tan^{-1}\left(\frac{1}{x+t}\right)-\tan^{-1}\left(\frac{1}{x}\right)\right)$

then absolute value of $f(0)$ equals to

(A) 4 (B) 1 (C) 6 (D) 7

P.T.O.

Q.37. If $\lim_{x\to 0} \frac{1-(1-\sin x)(1-\sin 2x)^2 \cdots\cdots (1-\sin 100x)^{100}}{x(67670)} = K$ then the value of K, is equal to 10,12,2,1,2C

(A) 3 (B) 5 (C) 40 (D) 10 (E) 13

Q.38. Let $\int \frac{(e^{2x}-e^x)}{(e^x+1)\sqrt{e^{3x}+e^{2x}+e^x}}\,dx = 2\tan^{-1}(\sqrt{f(x)})+C$ where $f(0)=3$. The minimum value of $f(x)$ is equal to (where C is indefinite integration constant)

(A) 3 (B) 5 (C) 40 (D) 10 (E) 13 10,12,2,1,2,D

Q.39. Let $f(x)=\frac{\tan x}{x}$ and $\lim_{x\to 0}\left([f(x)]+x^2\right)^{\frac{1}{\{f(x)\}}} = e^L$ then L equals to (Note [ ] is GIF & { } is FPF)

(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

Q.40. Number of integers in the range of function $f(x) = \sin(\sin^{-1}[x]) + \cos^{-1}(\cos[x])$ is equal to (Note [x] is GIF of x) (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

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single integer Answer type [Q.41 to 43] 10,12,2,2,1,66

Q.41. If the primitive of the function $f(x)=\frac{\sin^4 x}{\cos^2 x}$ with respect to x is $\tan x + g(x) + c$ where $g(0)=0$ and C is a constant of integration, then find the value of $8\left(\frac{\pi}{8}+g\left(\frac{\pi}{12}\right)\right)$.

Q.42. If a curve is represented parametrically by the equation

$$x = \sin\left(t+\frac{7\pi}{12}\right)+\sin\left(t-\frac{\pi}{12}\right)+\sin\left(t+\frac{3\pi}{12}\right),$$

$$y = \cos\left(t+\frac{7\pi}{12}\right)+\cos\left(t-\frac{\pi}{12}\right)+\cos\left(t+\frac{3\pi}{12}\right)$$

then find the value of $\frac{d}{dt}\left(\frac{x}{y}-\frac{y}{x}\right)$ at $t=\frac{\pi}{8}$. P.T.O.

Q.43. See next Page

Q.43. Let $f(x)=\frac{\pi}{4}+\cos^{-1}\left(\frac{x}{\sqrt{1+x^2}}\right)-\tan^{-1}x$ and a_i $(a_i<a_{i+1}\ ;\ \forall\ i=1,2,3,\ldots\ldots,n)$ be the positive integral values of x for which $\operatorname{sgn}(f(x))=1$. then find $\sum_{i=1}^{n} a_i^2$.

Four digit integer [0000 to 9999] answer type [Q.44 to Q.47]
10, 12, 2, 2, 1 to 6

Q.44. Let $f(x)=\begin{cases} a\cot^{-1}\left(\frac{b+x}{4}\right), & -\frac{2}{3}<x<0 \\ 2, & x=0 \\ \frac{\ln(1-cx)}{x}, & 0<x<\frac{2}{3} \end{cases}$

If the the function $f(x)$ is differentiable at $x=0$, then find the value of (b^2-2a+c^6).

Q.45. If the equation of tangent drawn to the curve $y=f(x)$ at its points $P(3,5)$ is $5x-4y+5=0$ and $\lim_{x\to 3}\frac{\left(3^{4f(x)}-2(1+3+3^2+\cdots\cdots+3^{19})-1\right)^2}{1-\cos(\ln(4-x))}=2\left(a\cdot 3^b\cdot \ln c\right)^2$ where a, b & c are prime numbers and $b\in N$, then find the value of $(a+b+c)$. Hint $\cos\theta\cdot\cos\frac{\theta}{2}\cdot\cos^2\frac{\theta}{2}\cdots$

Q.46. Let $L=\lim_{n\to\infty}\frac{1}{\frac{1}{\sqrt{2}}\sqrt{\frac{1}{2}+\frac{1}{2}\sqrt{\frac{1}{2}}}\sqrt{\frac{1}{2}+\frac{1}{2}\sqrt{\frac{1}{2}+\frac{1}{2}\sqrt{\frac{1}{2}}}}\cdots\cdots n\text{ term}}$

then find the value of $(2\sqrt{3}\cot L)$.

Q.47. Suppose $\int\frac{1-7\cos^2x}{\sin^7x\cdot\cos^2x}dx=\frac{g(x)}{\sin^7x}+C$ where C is arbitrary constant of integration. Then find the value of $g'(0)+g''\left(\frac{\pi}{4}\right)$.

P.T.O.

Single Correct Answer Type:

Q.48. If the function $f(x) = 2\tan x + (2a+1)\ln|\sec x| + (a-2)x$ is increasing in $(0, \frac{\pi}{2})$ then range of 'a' is equal to
(A) $(-\infty, 0]$ (B) $[0, 1]$ (C) $[0, 3]$ (D) $[0, \infty)$

Q.49. If $\ln(3\sin x - 4\cos x + 7 + 5y) = (\sin^2 x)y$, then $y'(\pi)$ is equal to.
(A) $\frac{5}{3}$ (B) 0 (C) $\frac{3}{5}$ (D) $-\frac{3}{5}$ (E) -2.

Q.50. Let $f:[0,1] \to R$ be a differentiable function with $f(0)=0$, then $\lim_{n\to\infty} n^2 \cdot \int_0^{3/n} f(t)\,dt$ equals
(A) 0 (B) $\frac{1}{2}f'(0)$ (C) $f'(0)$ (D) $2f'(0)$.

Q.51. Let $f(x) = [\tan x [\cot x]]$; $x \in [\frac{\pi}{12}, \frac{\pi}{2})$; where $[\,] \to$ G.I.F
Then number of points, where $f(x)$ is discontinuous is equal to
(A) One (B) Zero (C) three (D) Infinite

Q.52. Paragraph for question Q.52 & Q.53

Let C be the curve $f(x) = \ln^2 x + 2\ln x$ and $A(a, f(a))$ $B(b, f(b))$ where $(a<b)$ are the points of tangency of two tangents drawn from origin to the curve C.

Q.52. The value of the product "ab" is equal to:
(A) e (B) $\frac{1}{e}$ (C) e^2 (D) 1

Q.53 Number of values of x satisfying the equation $5xf'(x) - x\ln 10 - 10 = 0$ is equal to
(A) 0 (B) 2 (C) ∞ (D) 1

इस sheet के हर प्रश्न को आप स्वयं, copy-pen से Solve करें, और बस मेहनत करें आपका Selection तो हो ही गया समझो.
इसी तरह Next Sheets भी करें All The Best.
from SUHAAAAAG.

this is guessing questions for old session now we will provide all new questions in class

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ANSWER KEY

1(D) 2(B) 3(A) 4(C) 5(B) 6(B) 7(a→Q) 7(b→D) 8(ACD)
9(CD) 10(BCD) 11(AB) 12(CD) 13(0003) 14(0012) 15(D)
16____. 17(B) 18(D) 19(C) 20(D) 21(A→T, B→___, C→Q, D→___)
22(A→Q, B→T, C→Q, D→R), 23(0002), 24(0017 not confirm
25(D) 26(C) 27(C) 28(A) 29____, 30____, 31____,
32 BD, 33 BCD, 34 BC, 35 ABC, 36 B, 37 B, 38 A
39 C, 40 B, 41(0001), 42(0008), 43(0005), 44(0048)
45(0028), 46(0000) 47____, 48(D), 49(C), 50(B),
51(C), 52(D), 53(B).

Dear Students,

इस sheet को आप घर पर ईमानदारी से 1 hour में starting से Solve करना शुरू करें (as exam hall) अभी बार बार Answer न देखें, और Solve करते समय भी न देखें.

आप चेक करें आपने 1hr में कितने Questions पढ पाऐ ? कितने Solve किऐ ? कितने Attemp किए ? फिर अपने Answer match करें. सही Ans पर +3 & Wrong Ans पर −1 Marks दें. अपने Final Marks देखें.

आपको IIT JEE (Main/Advanced) में भी एक Subject का 1hr मिलेगा और 2 sheet Present JEE Exam Level की दी हैं.

ध्यान रहें कि IITJEE 2010 के I Paper में 28 que. on each subject पर आए थे, याने आपको इस level के 1 hr में 28 que Attemp करने कि Capability तो minimum होनी चाहिए.

इस प्रकार की सभी Topics पर sheets मे रे यहा Crash Course (starting from 21 March Daily 8am to 11pm) में करवाई जाऐंगी.

तो समय का उपयोग करे सबकुछ आसान हैं, कम से कम IITJEE Maths में आसानी से FULL Marks आसकते हैं. Maths by SUHAG; Join करे मेहनत करे, सफलता प्राप्त करे --- Thanks All The Best

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