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DVOC (Ref. & Air Cond., Auto. Servicing, ITM, PT, SD, SMT, FP, EMS, GM)

Subject : Applied Mathematics-II

Time : 2 Hrs. M.M. : 50

SECTION-A

Note: Very short answer type questions . Attempt all ten question (10x1=10)

Q.1 A matrix can be evaluated.(True/False)

Q.2 The value of determinant becomes_____when any two rows or two columns are same.

Q.3 If x lies in third quadrant and tan x =1 then x is equal to

a) 225^0

b) 120^0

c) 45^0

d) 330^0

Q.4 If x lies in 2nd quadran rhen the value of $\sin^{-1}(1/2)$is

a) 225^0

b) 240^0

c) 150^0

d) None of these

Q.5 The value of given limit : $\lim (2+x^2)$ when x--0 is

a) 0

b) 2

c) 1

d) 1/0

Q.6 Every differentiable function is alwayss continous. (True/False)

Q.7 If $y^2 = 4ax$ then fine $\frac{dy}{dx}$

Q.8 Integeral of 1 with respect to x is _____.

Q.9 if i ,j,k are unit vectors then fine unit vector along vector a = 2i+3j-k is_____.

Q.10 A plane is _____(2dimensional/3dimensional)

SECTION-B

Note: Short answer type questions. Attempt any six questions out of Eight questions. (6x5=30)

Q.11 Fine AB when $A=\begin{bmatrix} 5 & 2 \\ 1 & 3 \end{bmatrix}$ & $B=\begin{bmatrix} 1 & 0 \\ 2 & 5 \end{bmatrix}$

Q.12 Evaluate = $\begin{vmatrix} 1 & -2 & 3 \\ 3 & -2 & 4 \\ 2 & -0 & 2 \end{vmatrix}$

Q.13 If $y=\sqrt{\text{Log}x+\sqrt{\log x+\cdots\ldots\ldots}}$ ¥ then prove that $(2y-1)\frac{dy}{dx}=\frac{1}{x}$

Q.14 If r is the radius of circle then find rate of change area of circle with respect to r when r=5c.m

Q.15 Integerate x cos x^2 with respect to x by substitution method.

Q.16 Evaluate $\int_0^{p/2} \cos^5 x \sin^3 x dx$. also write its formula

Q.17 Solve the differential equation $\frac{dy}{dx} = y \sin 3x$

Q.18 Calculate angle between two vectors whose direction ratios are <1, -2, 3> & <3, -2, 1>

SECTION-C

Note: Long answer type questions. Attempt any one questions out of two questions. (10x1=10)

Q.19 If $y = 4x^3 + 12x^2+12x+10$ then fine the points of maxima & minima and their corresponding maximum and minimum values.

Q.20 Solve the following linear programming problem graphically minimize z=200x500y subject to constraints $x+2y \geq 10$, $3x+4y \leq 24$ & $x \geq 0 + y \geq 0$