छत्तीसगढ़ माध्यमिक शिक्षा मण्डल, रायपुर

xf.kr

d{kk XII oh

i'u cd

¼fo|kfpr bdkb½

NÙkhlx< ek/;fed f'k{kk e.My] jk;iqj

vke|[k

jk"Vh; ikB;p;k dh :ij[kk 2005 e ftu fpUrkvk dk mYy[k fd;k x;k g mld rkjrE; e in'k d gkbLdy ,o gk;j ld.Mjh e v/;;u dju oky fo|kfFk;k d lc/k e fopkj dju ,o mudh leL;kvk dk lek/kku dju gr NRrhlx< ek/;fed f'k{kk e.My i;Ru'khy g] rkfd 'k{kf.kd y{;k dh ikflr gk ld ,o f'k{kk dh x.koRrk e l/kkj gk ldA

ijh{kkvk d le; fo|kfFk;k d eu e fpUrk ,o Hk; mRiUu gkrk g fd ijh{kk dlh gkxh\ ijh{kk e fdl idkj i'u iN tk;x\ dku lk i'u ijh{kk d fy, egRoi.k gk ldr g\ bl gr foxr o"kk e e.My i;klj jgk gA fo"k;okj ekMy i'u i= dk vc NRrhlx< ek/;fed f'k{kk e.My d ekU;rk ikIr fo|ky;k e Hktu d lkFk&lkFk mUg e.My d oclkbV e ykM fd;k tk;xkA ijh{kk d Hk; ,o ruko l eDr j[ku d fy, e.My }kjk gkbLdy ,o gk;j ld.Mjh d fo|kfFk;k d fy, fo"k;okj d{kk 9oh l 12oh rd i'u cd r;kj fd;k x;k gA i'u cd e ijEijkxr i'uk d vfrfjDr uohu i'uk dk lekos'k fd;k x;k gA i'u cd bdkbokj ,o e.My dh ijh{kk ;ktuk d vulkj r;kj fd;k x;k g ftlls vPN vd ikIr dju d lkFk&lkFk ijh{kkfFk;k e fo"k; d ifr :fp mRiUu gkxhA

i'u cd d vHkko e f'k{kdk] ikf'udk vkj fo|kfFk;k dk ikB; iLrd d vUr e fn; x, ijEijkxr i'uk ij fuHkj jguk iMrk gA bll fo"k; dk eY;kdu 0;fDrijd (Subjective) gk tkrk g rFkk fofHkUu 'k{kf.kd mÌ';k d vk/kkj ij eY;kdu ugh gkrk gA blh vko';drk dk /;ku e j[kr g, e.My u gkbLdy ¼9oh] 10oh½ rFkk gk;j ld.Mjh ¼11oh] 12oh½ d lHkh fo"k; d i'u cd dk fuek.k fd;k gA bl i'u cd l f'k{kdk ,o fo|kfFk;k e fur uohu i'uk d fuek.k dh vfHk:fp mRiUu gkxhA

i'u cd e fo"k; dh miyC/k 'kf{kd lkexh dk 'kkfey fd;k x;k gA ble uohu ekfyd i'uk dk] fo"k; oLr] f'k{k.k d mÌ';] dfBukb Lrj vkj vdu dh x.koRrk d vulkj llxfBr djd j[kk x;k gA i'u cd e e.My dh ijh{kk ;ktuk d vulkj vfry?kmÙkjh;] y?kmÙkjh; ,o nh?kmÙkjh; i'uk dk lekos'k fd;k x;k gA ifr;kxh ijh{kk d fy, vH;kl gr oLrfu"B i'uk dk Hkh lekos'k i'u cd e fd;k x;k gA ftlls ifr;kxh ijh{kkvk d vH;kl e lgk;rk feyxhA ifrfnu] ifr llrkg] ifrekg vkj ifro"k uohu i'uk d ckj e fo|kfFk;k] f'k{kdk] ikf'udk] ijh{kdk vkj lkekU; tu l fo"k;okj e.My uohu i'uk dk vkef=r fd;k tkoxkA vkid }kjk if"kr fo"k;okj uohu i'uk dk tkMdj ifro"k i'u cd dk l'kk/ku e.My }kjk fd;k tkoxk] ftlls i'u cd vf/kd ifji.k vkj vk/kfudre gkr jgA

e> vk'kk g fd e.My }kjk tkjh i'ucd fo|kfFk;k] f'k{kdk] ikf'udk ,o ijh{kdk d fy, mi;kxh fl) gkxkA

'kHkdkeukvk lfgr---

¼t- fe t½
vkb-,-, l-
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N-x- ek/;fed f'k{kk e.My] jk;ij

fo"k;%& xf.kr

ifjf'k"B

bdkb

1& chtxf.kr
2& ifryke f=dk.kfefr
3& lfn'kk dk x.kuQy
4& fun'kkd «;kfefr
5& vodyu
6& lekdyu
7& vody lehdj.k
8& lkf[;dh
9& ;kf=dh foKku
10& vkfdd fof/k;k
11& cyh;uy chtxf.kr
12& lpuk ik|kfxdh

fo"k;% xf.kr

bdkb & 01

ch t xf.kr

vfr y?kmÙkjh; i'u

i'u 1& $\frac{1}{x^2-4x+4}$ dk vkf'kd fHkUu e ifjofrr dhft, A

i'u 2& $\frac{1}{x^2-16}$ dk vkf'kd fHkUu e 0;Dr dhft, A

i'u 3& $\frac{1}{2x^2-10x+12}$ dk vkf'kd fHkUu e cnfy; A

i'u 4& $\frac{2x+5}{x^2-3x+2}$ dk vkf'kd fHkUu e 0;Dr dhft, A

i'u 5& lkjf.kd dk eku Kkr dhft, &

$$\begin{vmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{vmatrix}$$

i'u 6& ;fn $\begin{vmatrix} 3 & 2 \\ N & N \end{vmatrix} = 12$ gk rk N dk eku crkb; A

i'u 7& ;fn $A = \begin{bmatrix} 0 & 1 & 2 \\ 3 & -2 & 1 \end{bmatrix}$ $B = \begin{bmatrix} 1 & 0 & 4 \\ 7 & -8 & 9 \end{bmatrix}$ rk $-A+B$ dk eku Kkr dhft, A

i'u 8& ;fn $A = \begin{bmatrix} -1 & 2 & -4 \\ 4 & 7 & -2 \\ -3 & 7 & -2 \end{bmatrix}$ rk $5A$ dk eku crkb; A

i'u 9& ;fn $A = \begin{bmatrix} 1 & -3 \\ 2 & -4 \\ 4 & -1 \end{bmatrix}$ rk $-3A$ dk eku fyf[k; A\

y?kmÙkjh; i'u

i'u 10& $\frac{y^3}{(1-y)^4}$ dk vkf'kd fHkUu e foHkDr dhft, A

i'u 11& $\frac{1}{x(x-b)}$ dk vkf'kd fHkUu e cnfy; A

i'u 12& lkjf.kd $\begin{vmatrix} 2 & -3 & 5 \\ 4 & 2 & 1 \\ 1 & -1 & 1 \end{vmatrix}$ e vo;ok 2] &3] 5 d lg[kM Kkr dhft, A

i'u 13& efVDl $\begin{bmatrix} 2 & 1 \\ 3 & 2 \\ 1 & 3 \end{bmatrix}$ dk ;kT; ifryke Kkr dhft, A

i'u 14& ;fn $A=\begin{bmatrix} 2 & 1 \\ 4 & 2 \end{bmatrix}$ vkj $B=\begin{bmatrix} 4 & 1 \\ 6 & 4 \end{bmatrix}$ gk rk BA Kkr dhft, A

i'u 15& ;fn $A=\begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$ gk rk A^3 dk eku Kkr dhft, A

i'u 16& ;fn $B=\begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ gk rk fn[kkb; fd $B^2-5B+7I=0$

i'u 17& ;fn $A=\begin{bmatrix} -2 \\ 4 \\ -5 \end{bmatrix}$ vkj $B=[1\ 3\ -6]$ gk rk $(AB)^T$ vkj B^TA^T dk eku Kkr dhft, ,o crkb; fd D;k $(AB)^T$ vkj B^TA^T d eku cjkcj g A

i'u 18& efVDl $A=\begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 2 \\ 0 & 0 & 0 \end{bmatrix}$ dk lg[k.M Kkr dhft, A

nh?k mÙkjh; i'u

i'u 19& lehdj.k gy djd x dk eku Kkr dhft, A

$$\begin{vmatrix} x+1 & 3 & 5 \\ 2 & x+2 & 5 \\ 2 & 3 & x+4 \end{vmatrix} = 0$$

i'u 20& lkjf.kd dk i;kx djd fl) dhft, fd rhu fcn ftud fun'kkd] Øe'k% ¼2] &3½ ¼&6] 9½ ¼&2] 3½ lj[k g A

i'u 21& Øej d fu;e dk i;kx djd lehdj.k gy dhft, A

$$3x + y + z = 2$$

$$2x - 4y + 3z = 1$$

$$4x + y - 3z = -11$$

i'u 22& ;fn A ,o B nk 0;RØe.kh; efVDl ,d gh dkfV d g rk crkb; D;k efVDl AB Hkh 0;RØe.kh; efVDl gkxk A bl vk/kkj ij ;g Hkh crkb; fd $(AB)^{-1} = B^{-1} A^{-1}$ gkxk \

i'u 23 ;fn $\begin{bmatrix} \cos\alpha & -\sin\alpha \\ \sin\alpha & \cos\alpha \end{bmatrix}$ gk rk fl) dhft,

$$AA^{-1} = I = A^{-1} A$$

i'u 24& ;fn $A = \begin{bmatrix} 2 & -1 & 1 \\ 3 & 0 & -1 \\ 2 & 6 & 0 \end{bmatrix}$ gk rk $\dfrac{\text{adj } A}{|A|}$ dk eku Kkr dhft, A

i'u 25& fn; g, efVDl $A = \begin{bmatrix} a+ib, & c+id \\ -c+id & a-id \end{bmatrix}$ dk ifryke Kkr dhft,

;fn $a^2 + b^2 : c^2 + d^2 = 1 : 2$

&&00&&

bdkb & 02
ifryke f=dk.kferh

vfr y?kmÙkjh; i'u

i'u 1& e[; eku Kkr dhft, &

$$\cot^{-1}\left\{-\frac{1}{\sqrt{3}}\right\}$$

i'u 2& eku crkb; &

$$\tan\left[2\tan^{-1}\frac{1}{5}-\frac{\pi}{4}\right]$$

i'u 3& ;fn $\tan^{-1}a - \tan^{-1}b = \tan^{-1}x$ gk rk x dk eku Kkr dhft,A

i'u 4& ljyre :i e 0;Dr dhft, &

$$\frac{(\cos\theta \; - \; i\sin\theta)^{10}}{(\cos\theta \; + \; i\sin\theta)^{5}}$$

i'u 5& $\cos\left[\tan^{-1}(-1)\right]$ dk eku fdruk gkxk A

y?kmÙkjh; i'u

i'u 6& fl) dhft, & $\sin^{-1}(-x) = \sin^{-1}(x)$

i'u 7& ;fn $\sin^{-1}x+\sin^{-1}y=\frac{\pi}{2}$ gk rk fl) dhft, fd $x\sqrt{1-y^2}+y\sqrt{1-x^2}=1$

i'u 8& fl) dhft, &

$$\tan^{-1}\frac{x}{\sqrt{a^2-x^2}} = \sin^{-1}\frac{x}{a}$$

i'u 9& lehdj.k gy dhft, &

$$\tan(\cos^{-1} x) = \sin(\tan^{-1} 2)$$

i'u 10& $\tan^{-1}\left[\frac{\sqrt{1+x^2}-1}{x}\right]$ dk ljy :i e fyf[k; A

i'u 11& ljy :i e 0;Dr dhft, &

$$2\tan^{-1}\left[\cos ec(\tan^{-1} x) - \tan(\cot^{-1} x)\right]$$

i'u 12& fl) dhft, $\cos^{-1}\left[\frac{1+\sqrt{1+x^2}}{2\sqrt{1+x^2}}\right]^{\frac{1}{2}} = \frac{1}{2}\tan^{-1} x$

i'u 13& lehdj.k dk ljyre :i e ifjofrr dhft, &

$$\tan^{-1}\left[\frac{\cos x - \sin x}{\cos x + \sin x}\right]$$

i'u 14& $\sin^{-1}\left\{\frac{\sqrt{1+x}-\sqrt{1-x}}{2}\right\}$ dk ljy :i e 0;Dr dhft, A

i'u 15& fMekoj ie; d vk/kkj ij fl) dhft, fd

$\cos 4\theta = \cos^4\theta - 6\cos^2\theta.\sin^2\theta + \sin^4\theta$ vkj

$\sin 4\theta = 4\cos^3\theta \sin\theta - 4\cos\theta \sin^3\theta$

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bdkbZ & 03
lfn'kksa dk x.kuQy

vfr y?kqmÙkjh; iz'u

iz'u 1& P dk eku Kkr dhft, ftlls lfn'k $\vec{a}=3i+2j+gk$ vkSj $\vec{b}=i+pj+3k$ ijLij lekukUrj gksA

iz'u 2& "a" dk eku Kkr dhft, ftlds fy, lfn'k $8i+2j+9k$ vkSj $i+aj+3k$ ijLij yEcor gSA

iz'u 3& lfn'k a vkSj b ds chp dk dks.k Kkr dhft, ;fn $|\bar{a}|=4, |\bar{b}|=4$ rFkk $a-b=6$

iz'u 4& lfn'k $\vec{a}=4i+4j-10\hat{k}$ dk lfn'k $\vec{b}=i-2j+2\hat{k}$ dh fn'kk esa iz{ksi Kkr dhft,A

iz'u 5& ;fn $\vec{a}=i-2j+3k$

$\vec{b}=2i+j-k$

rFkk $c=j+2k$ gks rks $[\vec{a}\ \vec{b}\ \vec{c}]$ dk eku Kkr dhft,A

y?kqmÙkjh; iz'u

iz'u 6& ;fn $|\bar{a}|=2\ |\bar{b}|=5$ rFkk $|\bar{a}\times\bar{b}|=8$ gks rks $\bar{a}\times\bar{b}$ dk eku Kkr dhft,A

iz'u 7& lfn'k x.kuQy Øe fofue; fu;e dk ikyu ugha djrk fdUrq $\bar{a}\times\bar{b}=\bar{b}\times\bar{a}$ gksrk gSA

iz'u 8& dkslkbu lw= D;k gS A lfn'k fof/k ls fl) dhft, $\text{Cos}C=\frac{a^2+b^2-c^2}{2ab}$

iz'u 9& $(4i-j+3k)$,oa $(-2i+j-2k)$ dk yEcor lfn'k bdkbZ lfn'k Kkr dhft,A

iz'u 10& lekukUrj "kVQyd dk vk;ru Kkr dhft, ftldh lyXu rhu dksj

$\vec{a}=2i-3j+4k$

$\vec{b}=i+2j-k$

$\vec{c}=3i-j+2k$ gSA

i'u 11& nk cy tk lfn'kk $4i + j - 3k$ rFkk $3i + j - k$ l fu:fir g A ,d cy dk $i + 2j + 3k$ l $5i + 4j + k$ rd foLFkkfir dj nr g A cyk }kjk fd; x; dk;k dh x.kuk dhft, A

i'u 12& fcn $2i + 3j + k$ e l gkdj cy $i + j + k$ dk; dj jgk g A bl dk fcn $1 + 2j + 3k$ d ifjr% lfn'k vki.k Kkr dhft, A

i'u 13& lekukUrj prHkt dk {k=Qy Kkr dhft, ftud fod.kk d lfn'k $\vec{a} = 3i + j - 2k$ rFkk $\vec{b} = i - 3j + k$ g A

i'u 14& lfn'k x.kuQy dh lgk;rk l f=Hkt dk {k=Qy Kkr dhft, ftld 'kh"k dh fun'kkd Øe'k% A(3,-1,2) B(1,-1,-3) ,o c (4,-3,1) g A

i'u 15& ;fn $\vec{a} = i + j - k$] $\vec{b} = i + 2j + k$,o lfn'kk d chp dk.k θ g rk fl) dhft, fd $\sin^2\theta + \cos^2\theta = 1$

nh?k mÙkjh; i'u

i'u 16& lfn'k fof/k l fl) dhft, fd

$$\cos(A - B) = \cos A \cos B + \sin A \sin B$$

i'u 17& lfn'k fof/k l fl) dhft, fd] ,d gh vk/kkj vkj ,d gh lekukUrj j[kkvk d chp cu vk;r vkj lekUrj prHkt d {k= cjkcj gkr g A

i'u 18& lfn'k fof/k l fl) dhft, fd

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

i'u 19& fdlh f=Hkt ABC e Hktk BC dk e/; fcUn D g fl) dhft, fd

$$AB^2 + AC^2 = 2(AD^2 + BD^2)$$

i'u 20& ;fn lfn'k $\vec{a} = 2i - j + k,\ \vec{b} = i + 2j - k$ rFkk $\vec{c} = 2i + 3j$ rk $(\bar{a} \times \bar{b}) \times \bar{c}$ rFkk $\bar{a} \times (\bar{b} \times \bar{c})$ dk eku Kkr dhft, A

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bdkb & 04

fun'kkd T;kferh

vfr y?kmÙkjh; i'u

i'u 1& ey fcUn l lery 6x - 4y + 3z - 12 = 0 dh njh Kkr dhft, A

i'u 2& nk lekUrj leryk d chp dh njh Kkr dhft, ftud lehdj.k 2x - 2y + z +3 = 0 vkj 4x - 4y + 2z = -5 g A

i'u 3& fcUnvk A (2, -1, 3) ,o (4, 2, 1) l xtju okyh j[kk dk lehdj.k Kkr dhft, A

i'u 4& xy lery dk lfn'k lfedj.k Kkr dhft, A

i'u 5& leryk $\vec{r}.(2i-3j+4k)=1$ rFkk $\vec{r}.(-i+j)=4$ d e/; dk.k Kkr dhft, A

i'u 6& ml lery dk lehdj.k Kkr dhft, tk y v{k d lekUrj g A x v{k vkj z v{k l 3 vkj 5 vr%[kM dkVrk g A

y?kmÙkjh; i'u

i'u 7& lery 3(x+1) + 1 (y-3) +1 (z+3)= 0 dk lfn'k lehdj.k Kkr dhft, A

i'u 8& j[kk $\vec{r}=(2l+j-3k)+\lambda(i+j+k)$ vkj $\vec{r}.(4i-j-2k)=3$ d chp dk dk.k Kkr dhft, A

i'u 9& xky dk lfn'k lehdj.k Kkr dhft, ftud dUn dk fLFkfr lfn'k i+j+k ,o ft l fcn l xtjrk g ml dk fLFkfr lfn'k 5i-2j+4k g A

i'u 10& xky $|\vec{r}|=5$ ij lery $\vec{r}(i+j+k)=3$ }kjk dkV x; orh; ifjPNn dh f=T;k Kkr dhft, A

i'u 11& lery $2x+4y-z=3$ rFkk j[kk $\frac{x-1}{2}=\frac{y-2}{-3}=\frac{z+5}{4}$ dk ifrPNn fcn Kkr dhft, A

i'u 12& leryk $x+2y+2z-9=0$ vkj $4x-3y+12z+13=0$ d e/; dk.kk d lef}Hkktd Kkr dhft, A

i'u 13& ml j[kk dk lehdj.k Kkr dhft, tk ¼3] &1] 2½ l gkdj tkrh g ,o j[kkvk $\frac{x}{1}=\frac{y}{1}=\frac{z}{3}$,o $\frac{x+2}{-3}=\frac{y-1}{2}=\frac{z+1}{5}$ ij yc g A

i'u 14& mI xky dk lehdj.k Kkr dhft, ftIdk dUn ¼3] 2] 1½ g rFkk tk lery $x+2y+3z=0$ dk Li'k djrk g A

y?kmÙkjh; i'u

i'u 15& fI) dhft, fd j[kk; $\frac{x-2}{1}=\frac{y+3}{5}=\frac{z+5}{7}$,o $\frac{x-2}{1}=\frac{y-4}{3}=\frac{z-6}{5}$ ijLij ifrPNn djrh g A ifrPNn fcUn d fun'kkd Hkh Kkr dhft, A

i'u 16& fcn ¼&2] 5] &5½ dk lery xy ij ifrfcEc Kkr dhft, A

i'u 17& j[kkvk $\frac{x-6}{3}=\frac{y-7}{-1}=\frac{z-4}{1}$ vkj $\frac{x}{-3}=\frac{y-9}{2}=\frac{z-2}{4}$ d chp dh U;ure njh Kkr dhft, A

i'u 18& j[kkvk $\vec{r}=i+2j+3k+t(2i+3j+4k)$ vkj $\vec{r}=2i+4j+5k+s(3i+4j+5k)$ d chp dh U;ure njh Kkr dhft, A

i'u 19& j[kkvk $r=(\lambda-1)i+(\lambda+1)j-(1+\lambda)\hat{k}$ rFkk $r=(i-\mu)i+(2\mu-1)j+(\mu+2)\hat{k}$ d chp dh U;ure njh Kkr dhft, A

i'u 20& xky d dUn dk fLFkfr lfn'k $(3i+6j-4k)$ gA xkyk] lery $\vec{r}.(2i-2j-k)=10$ dk Li'k djrk g xky dh lfn'k lehdj.k Kkr dhft,A

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bdkbZ & 05
vodyu

vfr y?kqmÙkjh; iz'u

iz'u 1& 2^x dk x ds lkis{k vodfyr dhft, A

iz'u 2& $\sqrt{x^3}$ dk x ds lkis{k vodfyr dhft, A

iz'u 3& $e^x \log x$ dk x ds lkis{k vody x.kkad Kkr dhft, A

iz'u 4& $x^2 \sin x$ dk x ds lkis{k vody x.kkad Kkr dhft, A

iz'u 5& Qyu $\frac{e^x}{\sin x}$ dk x ds lkis{k vody x.kkad Kkr dhft, A

iz'u 6& $\cot x$ dk x ds lkis{k vody x.kkad Kkr dhft, A

iz'u 7& ;fn $x^3 y = 3$ gks rks $\frac{dy}{dx}$ dk eku Kkr dhft, A

iz'u 8& ;fn $y = x^y$ gks rks $\frac{dy}{dx}$ dk eku Kkr dhft, A

iz'u 9& x^3 dk x^2 ds lkis{k vodfyr dhft, A

iz'u 10& ,d d.k ljy js[kk esa xfr dj jgk gS A mldh t ld.M esa njh s ¼ehVj esa½ lEcU/k $s = 45t + 11t^2 - t^3$ }kjk nh tkrh gS A 9o ld.M esa d.k dk osx Kkr dhft, A

iz'u 11& $x^{-3/4}$ dk x ds lkis{k vodyt Kkr dhft, A

iz'u 12& ;fn $y = \sin^{-1}(\sin x)$ gks rks $\frac{dy}{dx}$ dk eku Kkr dhft, A

iz'u 13& ;fn $y = e^{\log x}$ gks rks $\frac{dy}{dx}$ dk eku Kkr dhft, A

y?kqmÙkjh; iz'u

iz'u 1& $\sin^2 x$ dk x ds lkis{k vodyt Kkr dhft, A

iz'u 2& $x.\sin x$ dk x ds lkis{k vodyt Kkr dhft, A i'u 3& $\tan(3x+1)$ dk x d lki{k vodyt Kkr dhft, A

i'u 4& $(\sqrt{x}+\frac{1}{\sqrt{x}})^2$ dk x d lki{k vody x.kkd Kkr dhft, A

i'u 5& $e^x \log\sin x$ dk x d lki{k vodfyr dhft, A

i'u 6& $\sin^{-1}(3x-4x^3)$ dk x d lki{k vodfyr dhft, A

i'u 7& $\cos^{-1}(4x^3-3x)$ dk x d lki{k vodfyr dhft, A

i'u 8& $\sec^{-1}\left(\frac{1}{2x^2-1}\right)$ dk x d lki{k vodfyr dhft, A

i'u 9& $\tan^{-1}(\sqrt{1+x^2}+x)$ dk x d lki{k vodfyr dhft, A

i'u 10& $\tan^{-1}\left(\frac{x}{\sqrt{a^2-x^2}}\right)$ dk x d lki{k vodfyr dhft, A

i'u 11& ;fn $y=\sin(x+y)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft, A

i'u 12& Qyu $(\log x)^x$ dk x d lki{k vodfyr dhft, A

i'u 13& ;fn $x=a\sec\theta$, vkj $y=b\tan\theta$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft, A

i'u 14& $\tan^{-1}\left(\frac{2x}{1-x^2}\right)$ dk $\tan^{-1}x$ d lki{k vodfyr dhft, A

i'u 15& $\sin^{-1}x$ dk $\cos^{-1}\sqrt{1-x^2}$ d lki{k vodfyr dhft, A

i'u 16& ,d d.k ,d ljy j[kk e fu;e $s=t^3-6t^2+9t^{-4}$ }kjk xfreku g] tgk s ehVj e ,o t ldM e gk rkA foLFkkiu Kkr dhft,] tcfd Roj.k 'kU; gkA

nh?k mÙkjh; i'u

i'u 1& $\frac{e^x-e^{-x}}{e^x+e^{-x}}$ dk x d lki{k vodfyr dhft, A

i'u 2& ;fn $(\cos x)^y=(\sin x)^y$ rk $\frac{dy}{dx}$ dk eku Kkr dhft, A i'u 3& ;fn $y=\tan^{-1}\left[\frac{\sqrt{1+x^2}+\sqrt{1-x^2}}{\sqrt{1+x^2}-\sqrt{1-x^2}}\right]$ rk $\frac{dy}{dx}$ dk eku Kkr dhft, A

i'u 4& $\sqrt{\cos x}$ dk x d lkis{k vodyt] iFke fl)kUr l Kkr dhft, A

i'u 5& ,d d.k] oØ $6y=x^3+2$ d vufn'k xfr djrk g A oØ ij o fcUn Kkr dhft, ftu ij y fun'kkd] x fun'kkd l 8 xuk vf/kd ifjofrr gk jg gA

&&00&&

bdkb & 06
lekdyu

vfr y?kmÙkjh; i'u

i'u 1& fdlh Qyu d vodyt l ml Qyu dk Kkr dju dh ifØ;k dk uke crkb; A

i'u 2& $\frac{1}{\sqrt[5]{x^3}}$ dk lekdfyr dhft, A

i'u 3& $\int e^{2x-3}dx$ dk eY;kdu dhft, A

i'u 4& $\int \frac{1}{(1+x)^4}dx$ dk eku Kkr dhft, A

i'u 5& $\int \frac{dx}{x^2+a^2}$ dk eku fyf[k, A

i'u 6& $\int x.e^x.dx$ dk eY;kdu dhft, A

i'u 7& $\int_1^4 \sqrt{x}dx$ dk eY;kdu dhft, A

i'u 8& $\int_0^1 \frac{1}{1+x^2}.dx$ dk eku Kkr dhft, A

i'u 9& oØ $y^2=4ax$ rFkk j[kk $y=mx$ d chp f?kj g, {k= dk j[kkdu dhft, A

i'u 10& $\int \frac{1}{\cos^2 x/2}.dx$ dk eY;kdu dhft, A

y?kmÙkjh; i'u

i'u 1& $\int 2x^2 \, e^{x^2} \, dx$ dk eY;kdu dhft, A

i'u 2& $\int e^x(\sin x + \cos x)\, dx$ dk eY;kdu dhft, A

i'u 3& $\int \sqrt{(x^2+8x+12)}\, dx$ dk eY;kdu dhft, A

i'u 4& $\int \frac{dx}{3+2\cos x}$ dk eY;kdu dhft, A

i'u 5& $\int \frac{2x+1}{(x+1)(x-2)}\, dx$ dk eY;kdu dhft, A

i'u 6& $\int \frac{\cos x}{(2+\sin x)(1-\sin x)}\, .dx$ dk eY;kdu dhft, A

i'u 7& $\int_0^{\pi/2} \frac{\sqrt{\sin x}}{\sqrt{\sin x}+\sqrt{\cos x}}\, .dx$ dk eY;kdu dhft, A

i'u 8& $\int_0^{\pi/2} \log(\tan x)\, .dx$ dk eY;kdu dhft, A

i'u 9& $\int e^x \left(\frac{2+\sin 2x}{1+\cos 2x}\right) dx$ dk eY;kdu dhft, A

i'u 10& $\int \left(\frac{\cos x}{(\cos \mu_1 + \sin \mu_1)^3}\right) dx$ dk eY;kdu dhft, A

nh?k mÙkjh; i'u

i'u 1& $\int_0^{\infty} \frac{x.\tan^{-1} x}{(1+x^2)^{3/2}}\, dx$ dk eku Kkr dhft, A

i'u 2& fl) dhft, fd

$$\int_{\pi/6}^{\pi/3} \frac{dx}{1+\sqrt{\tan x}} = \pi/12$$

i'u 3& oØ $\frac{x^2}{4}+\frac{y^2}{9}=1$ dk j[kkdu dhft, rFkk oØ vkj x & v{k l Åij f?kj g, {k= dk {k=Qy Kkr dhft, A

i'u 4& oØ $y=4x(x-1)(x-2)$ dk j[kkdu dhft, rFkk oØ dk x & v{k l Åij f?kj g, {k= dk {k=Qy Kkr dhft, A

i'u 5& nh?koRr $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ vkj j[kk $\frac{x}{a}+\frac{y}{b}=1$ d e/; f?kj {k= dk {k=Qy Kkr dhft, A

i'u 6& $\int\frac{dx}{2\sin^2 x+3\cos^2 x}$ dk eY;kdu dhft, A

i'u 7& $\int x.\log(1+x)dx$ dk eY;kdu dhft, A

i'u 8& $\int\frac{2x-3}{x^2+3x-18}.dx$ dk eY;kdu dhft, A

&&00&&

bdkb & 07
vody lehdj.k

vfr y?kmÙkjh; i'u

i'u 1& vody lehdj.k dh ifjHkk"kk fyf[k, A

i'u 2& ,d jf[kd vody lehdj.k fyf[k, A

i'u 3& vody lehdj.k $y=c\,e^{-x}$ dk gy Kkr dhft, A

i'u 4& vody lehdj.k $\frac{dy}{dx}-y/x=2x^2$ dk lekdyu x.kkd (I.F) Kkr dhft, A

i'u 5& vody lehdj.k $\frac{dy}{dx}=y.e^x$ dk gy dhft, A

y?kmÙkjh; i'u

i'u 1& fl) djks fd $y = \tan^{-1} x,$ vody lehdj.k $(1+x^2)\frac{d^2y}{dx^2} + 2x.\frac{dy}{dx} = 0$ dk ,d gy g A

i'u 2& vody lehdj.k $(1+x^2)dy = xy.dx$ dk gy dhft, A

i'u 3& vody lehdj.k $\sin^{-1}\left(\frac{dy}{dx}\right) = x+y$ dk gy dhft, A

i'u 4& vody lehdj.k $x.\frac{dy}{dx} = x+y$ dk gy dhft, A

i'u 5& vody lehdj.k $\frac{dy}{dx} + 2y = 6e^x$ dk gy dhft, A

y?kmÙkjh; i'u

i'u 1& vody lehdj.k $(1+e^{2x})dy + (1+y^2)e^x.dx = 0$ dk gy dhft,] tc $x = 0, y = 1$

i'u 2& ;fn $y = a\cos 2x + b\sin 2x$ g rk fl) djks fd $\frac{d^2y}{dx^2} + 4y = 0$

&&00&&

bdkbZ & 08
lkf[;dh

vfr y?kqmÙkjh; iz'u

iz'u 1& lg lEcU/k x.kkd dk nks mi;ksx fyf[k, A

iz'u 2& lg lEcU/k dh ifjHkk"kk fyf[k, A

iz'u 3& /kukRed lg&lEcU/k dk D;k vFkZ gS] fyf[k, A

iz'u 4& fuEu vkdM+ksa ls x vkSj y eas/; lekJk;.k x.kkd byx Kkr dhft, A

$$\sum x=24,\ \sum y=44,\ \sum xy=306,\ \sum x^2=164,\ \sum y^2=574,\ n=4$$

y?kqmÙkjh; iz'u

iz'u 1& vkf'kd :i ls u"V gq, iz;ksx'kkyk ds vfHkys[kk esa lg lEcU/k x.kkd fo'ys"k.k ds fuEufyf[kr ifj.kke iBuh; gSa A

lekJk;u js[kkvksa dk lehdj.k

$8x-10y+66=0$

$40x-18y=214$

x rFkk y ds ek/; eku Kkr dhft, A

&&00&&

bdkb & 08
lkf[;dh

vfr y?kmÙkjh; i'u

i’u 1& ifrn'k lef"V dk ifjHkkf"kr dhft, A

i'u 2& nk ikls dk ,d lkFk mNkyk tkrk g A bl ?kVuk dh ikf;drk Kkr dhft, fd mld Åij vku oky vdk dk x.kuQy 6 g A

i'u 3& ,d iklk dk Qdu ij Åijh Qyd ij 3 l cM vd vku dh D;k ikf;drk g \

i'u 4& ;fn pkj flDd ,d lkFk mNky tk; rk bl ?kVuk e de l de ,d 'kh"k iklr dju dh ikf;drk D;k gkxh A

i'u 5& fdlh ?kMnkM e ?kkM A d thru dh ikf;drk $\frac{1}{7}$ vkj ?kkM B d thru dh ikf;drk $\frac{1}{4}$ g rk mue l fdlh ,d ?kkM d }kjk nkM dk thru dh D;k ikf;drk gkxh \

i'u 6& A rFkk B nk ijLij vioth ?kVuk; g A ;fn P(A)=0.4; P(A+B)=5/6 rk P(B) dk Kkr dhft, A

y?kmÙkjh; i'u

i’u 1& 12 fVdVk ij 1 l 12 rd dh ¼iR;d ij ,d½ l[;k, fy[kh gb g rFkk dkb l[;k nkgjkb ugh xb g A ;fn A , lh ?kVuk gk ftle le l[;k, gk rFkk B ,d , lh ?kVuk gk ftle 3 l foHkkT; l[;k, gk rk P¼A ;k B½ Kkr dhft, A

i'u 2& vPNh rjg l QVh xb 52 rk'kk dh ,d xMMh e l ,d rk'k fudkyk tkrk gA ;g rk'k ,d bDdk ;k gDe dk g] bldh ikf;drk Kkr dhft, A

i'u 3& ,d iklk Qdk tkrk g rFkk ,d flDdk mNkyk tkrk g flDd d fpr vku ij] ikl ij 3 l[;k ¼vd½ vku dh ikf;drk Kkr dhft, A

i'u 4& ;fn nk ?kukdkj iklk dk ,d lkFk Qdk tk; rk nkuk dk ;kxQy 7 l vf/kd vku dh ikf;drk Kkr dhft, A

y?kmÙkjh; i'u

i'u 1& fuEu vkdMk d vk/kkj ij x dh y ij lekJ;.k j[kk dk lehdj.k Kkr dhft, A

x	4	2	3	4	2
y	2	3	2	4	4

i'u 2& foKkiu vkj [kp d lEcfU/kr fuEu vkdM fn; x; g&

	foKkiu [kp ¼yk[k :- e½	fcØh ¼yk[k :- e½
ek/;	10	90
ekud fopyu	3	12

lg lEcU/k x.kkd ¾ $ 0-8

;fn foKkiu [kp 15 yk[k :- g rk lEHkkfor fcØh fdruh gkxh A

i'u 3& dky fi;lu dh fof/k dk mi;kx djd fuEu vkdMk l lg lEcU/k x.kkd Kkr dhft, &

x	3	4	6	8	9
y	90	100	130	160	170

&&00&&

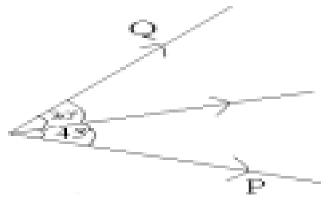
bdkb & 09

;kf=dh foKku

vfr y?kmÙkjh; i'u

i'u 1& ;fn nk cy P vkj Q] fd lh fcUn ij ijLij yEcor fØ;k 'khy gk rk mudk ifj.kkeh cy R dk eku Kkr dhft, A

i'u 2& fp= l cy d 20N ?kVd cy P dk eku Kkr dhft, A



i'u 3& 50 fdykxke dk cy {kfr t l 30^0 d dk.k ij fØ;k djrk g A {kfr t fn'kk e mld fo;kft r Hkkx Kkr dhft, A

i'u 4& ;fn fd lh i{kl; dk {kfr t d lkFk α dk.k ij μ ox l i{kfir fd;k tk; rk i{kl; }kjk ikIr {kfr t ijkl dk eku fyf[k, A

i'u 5& fdlh i{kl; dk {kfr t d lkFk fdl dk.k ij i{kfir fd;k fd og vf/kdre Åpkb ikIr dj ld A

y?kmÙkjh; i'u

i'u 1& ,d d.k 30^0 d mRFkku ij 49 ehVj@ld.M d ox l if{kIr fd;k tkrk g A mMM;u dky Kkr dhft, A

i'u 2& ,d d.k 24ehVj@ld.M d ox l pyuk ikjEHk djrk g A ;fn og ,d ljy j[kk e 2ehVj@ld.M d ,d leku Roj.k l pyrk g rk 4 ld.M e d.k }kjk pyh x;h njh Kkr dhft, A

i'u 3& ,d fØdV f[kykMh xn dk 100 ehVj dh njh ij Qd ldrk g A ogh f[kykMh mlh xn dk fdruh Åpkb rd Qd ldrk g \

nh?k mÙkjh; i'u

i'u 1& ,d d.k ftl i{ki fcUnxr {kfr t lery ij cu ,d y{; ij yf{kr dj if{kIr fd;k tkrk g] y{; l x ehVj bl vkj ¼ikl½ fxjrk g tcfd i{ki dk.k α g rFkk y{; l y ehVj m l vkj ¼nj½ fxjrk g tcfd i{ki dk.k β g A ;fn nkuk fLFkfr;k e i{ki ox ,d leku gk rk fl) dhft , fd

mi ;Dr mRFkku $\frac{1}{2}\sin^{-1}\left(\frac{x\sin 2\beta + y\sin 2\alpha}{x+y}\right)$ gkxk A

i'u 2& nk cyk P vkj Q dk R g A ;fn Q dk nxuk dj fn;k tk; rk R Hkh nxuk gk tkrk g vkj ;fn Q dh fn'kk myV nh tk; rk Hkh R nxuk gk tkrk gA fl) djk fd & $P^2 : Q^2 : R^2 = 2 : 3 : 2$

i'u 3& fd lh cy P dk nk Hkkxk e fo;kft r fd;k x;k g A mue l ,d fo;kft r Hkkx cy P ij yEc vkj ifj.kke e mld cjkcj gk A fl) djk fd nl jk fo;kft r Hkkx $\sqrt{2}$ P d cjkcj gkxk A

i'u 4& nk cy P+Q vkj P-Q dku lk dk.k cukr g, yxk, tk; fd mudk ifj.kkeh $\sqrt{A^2+B^2}$ gkxk A

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bdkb & 10
vkfdd fof/k;k

nh?k mÙkjh; i'u

i'u 1& U;Vu&jQlu fof/k l lehdj.k $x^3 - 18 = 0$ dk ey n'keyo d rhu LFkkuk dh 'k)rk rd Kkr dhft , A

i'u 2& U;Vu&jQlu fof/k l lehdj.k $x^3 - 8 = 0$ d ey n'keyo d rhu LFkkuk dh 'k)rk rd Kkr dhft , A

i'u 3& lekdy $\int_0^1 \frac{dx}{1+x}$ dk leyEc prHkth; fu;e l gy dhft ,] ft le vrjky dk 4 cjkcj Hkkxk e ckVk x;k g A

i'u 4& dkb oØ fuEu fcUnvk l gkdj tkrk g &

x	1	2	3	4
y	1	4	9	16

rk oØ }kjk x=1 vkj x=4 l ifjc) {k= dk {k=Qy Kkr dhft , A ¼flEil u fu;e½

i'u 5& ,d unh 60 ehVj pkMh g A unh d ,d fdukj l x ehVj dh njh ij xgjkb d ehVjk e fuEu lkj.kh e nh x;h g A

x	0	10	20	30	40	50	60
d	0	3	7	11	8	6	4

flEil u fu;e l unh d vuiLFk {k=Qy dk lfUudV eku Kkr dhft , A

&&00&&

bdkbZ & 11
cfy;u chtxf.kr

vfr y?kqmÙkjh; iz'u

iz'u 1& cyh; Qyu $x.y + y.z$ d fy, xsV ifjiFk tky dh vfHkdYiuk dhft, A

iz'u 2& fuEu fyf[kr dk rdZ ifjiFk [khafp, A

$$B = x(y + z + u)$$

iz'u 3& fl) dhft, fd $p \wedge q \Rightarrow p \vee q$ rkfdZd lk;kf/kd gS A

y?kqmÙkjh; iz'u

iz'u 1& fdlh cyh; chtxf.kr B esa fl) dhft, fd & $x.y + [(x + y^1).y] = 1, \ \forall \ x,y \in B$ tgk¡ y dk y^1 iwjd gS A

iz'u 2& fdlh cyh; chtef.kr B ls vo;o x, y gks rks fl) dhft, fd

$$(x^1 y^1)^1 + (x^1 y)^1 = 1$$

iz'u 3& dFku $(p \Rightarrow q) \wedge \square q$ dh lR;rk lkfj.kh cukb, A

iz'u 4& ^^;fn l{ke i<rk gS rks og ikl gksxk ;k ugha gksxk** fl) dhft, fd ;g dFku iqu:fDr gS A

nh?kZ mÙkjh; iz'u

iz'u 1& rkfdZd okD;ksa d fy, ^^fM&eksxZu d fu;e** fyf[k, vkSj fl) dhft, A

iz'u 2& cyh; Qyu $z = (a+b)(c+d)$ dk

(i) OR-AND }kjk rFkk

(ii) NOR- }kj dk mi;ksx djrs gq, rdZ ifjiFk [khafp, A

iz'u 3& fl) dhft, fd $p \leftrightarrow q \equiv (p \rightarrow q) \wedge (q \rightarrow p)$

iz'u 4& fuEufyf[kr fo|qr ifjiFk dk ljy fo|qr ifjiFk iklr dhft, &

$$(p + q) \cdot (q + r) \cdot (r + p)$$

&&00&&

bdkb & 12

lpuk ik|kfxdh

vfr y?kmÙkjh; i'u

i’u 1& lpuk ik|kfxdh; D;k g \

i'u 2& dEI;Vj dh fo'k"krk crkb; \

i'u 3& dEI;Vj d gkM o;j ,o lk¶Vo;j e D;k vrj g A

y?kmÙkjh; i'u

i’u 1& flLVe lk¶Vo;j d D;k dk; g \

i'u 2& dEI;Vj gkM o;j l vki D;k le>r g \

i'u 3& fVIi.kh fyf[k; &

¼1½ bVjiVj ¼2½ dEikbyj

i'u 4& prFk tuj'ku d dkb nk dEI;Vj d uke fyf[k; A

nh?k mÙkjh; i'u

i’u 1& dEI;Vj dh fo'k"krk; fyf[k; A

i'u 2& vui;kx en mikxe d ikp mi;kx fyf[k; A

i'u 3& dEI;Vj d fofHkUu tuj'ku dk le>kb; A

&&00&&

Long and very long Questions (6 marks & 4 marks)

i'u 1& fl) dhft, fd ml fcUn dk fcUniFk ftldh m fn, g, fcUnvk l nfj;k ,d vpj vuikr e jgh g] ,d xkyk g A

i'u 2& f=Hkt ABC e] lkbu fu;e lfn'k fof/k }kjk fl) dhft,

$$i.e. \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

i'u 3& fl) dhft, fd j[kk; $\vec{r} = 2\hat{i} - 2\hat{j} + 3\hat{k} + \lambda(\hat{i} + \hat{j} + 4\hat{k})$ lery $\vec{r} = (\hat{i} + 5\hat{j} + \hat{k}) = 5$ d lekUrj g A mud chp dh njh Kkr dhft,A

i'u 4& ;fn f=Hkt dh d.k ,o ,d Hktk dk ;kx fn;k g rk fn[kk, fd f=Hkt dk {k=Qy mfPp"B gkxk tcfd mud chp dk d.k $\frac{\pi}{3}$ gkxk A

i'u 5& ;fn $x = \frac{3at}{1+t^2}$, vkj $y = \frac{3at^2}{1+t^2}$ gk rk $\frac{dx}{dy}$ Kkr dhft, A

i'u 6& ;fn $y = e^{x+e^{x+e^{x+e^{\cdots\infty}}}}$ gk rk fl) dhft, fd $\frac{dy}{dx} = \frac{y}{1-y}$

i'u 7& ;fn ljy j[kk e xfr djr g, fdlh d.k d xfr dk fu;e $s = \sqrt{at^2 + bt + c}$ g rk fl) dhft, dh le; t ij d.k Roj.k s^{-3} d lekuikrh g A

i'u 8& $\frac{1}{ax+b}$ dk n ok vodyu Kkr dhft, A

i'u 9& ;fn $a\sqrt{y} + y\sqrt{x} = 1$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft, A

i'u 10& $\sec^{-1}\left(\frac{1}{2x^2-1}\right)$ dk $\sqrt{1-x^2}$ d lki{k vody x.kkd Kkr dhft, A

Short Answer type (3 marks)

i'u 1& ;fn f(x) = 11 - 7 sin x rk f(x) dh jt Kkr dhft, A (Function)

i'u 2& oxey Qyu dk xkQ cuk, A (Function)

i'u 3& ;fn $f(x) = e^{2x}$,o $g(x) = \log\sqrt{x}$ gk rk fl) dhft, fd $fog(x) = gof(x)$

(Function)

i'u 4& ;fn $\lim_{x \to 3} \left(\frac{x^n - 3^n}{x - 3}\right) = 108$ gk rk n dk eku Kkr dhft,] $n \in N$ A (Limit)

i'u 5& fn, x, Qyu dk mfPp"B eku Kkr dhft, ¼fn, x, vUrjky e½

$f(x) = x + \sin 2x$ $[2, \pi]$ (Increasing Function)

i'u 6& fuEu dk lekdyu xd lki{k Kkr dhft,

$f(x) = 1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + ...$ (Integration)

i'u 7& fuEu lehdj.k dk Øej fu;e l gy dhft,

$4x - 2y = 11$

$5x + 6y = 1$ (Determinants)

i'u 8& ;fn $2\begin{bmatrix} x & 5 \\ y & y-3 \end{bmatrix} + \begin{bmatrix} 3 & 4 \\ 1 & 2 \end{bmatrix} = \begin{bmatrix} 7 & 14 \\ 15 & 14 \end{bmatrix}$

gk rk x, y dk eku Kkr dhft, A (Matrix)

i'u 9& mi;Dr mnkgj.k l efVDl e lkgp; fu;e dk n'kk, A (Matrix)

i'u 10& $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$ dk e[; eku Kkr dhft, A (Inverse Trigonometry)

i'u 11& ;fn $\tan^{-1} a - \tan^{-1} b = \tan^{-1} x$ gk rk x dk eku Kkr dhft, A

i'u 12& $\tan\left(2\tan^{-1}\frac{1}{5} - \frac{\pi}{4}\right)$ dk eku Kkr dhft, A

i'u 13& fl) dhft, fd $\sin^{-1}\sqrt{x} + \sin^{-1}\sqrt{1-x} = \frac{\pi}{2}$

&&00&&

ifryke f=dk.kfefr

Very Short (2 marks)

i'u 1& $\tan^{-1}\dfrac{a-b}{1-ab}+\tan^{-1}\dfrac{b-c}{1+bc}+\tan^{-1}\dfrac{c-a}{Hac}=0$

i'u 2& $\cos^{-1}\dfrac{16}{65}=\sin^{-1}\dfrac{4}{5}+\sin^{-1}\dfrac{5}{13}$

i'u 3& $\cos^{-1}x$ dh e[; eku Kkr dhft, A

i'u 4& ;fn $\tan^{-1}\dfrac{3}{4}=A$ gk rk $\sin A$ dk eku Kkr dhft, A

i'u 5& $\sin\left(\cos^{-1}\dfrac{12}{13}\right)$ dk eku Kkr dhft, A

Long Answer type Quastion (6 marks)

i'u 1& fl) dhft, fd

$$\tan\left[\cos^{-1}\frac{a-b}{\sqrt{a^2+b^2}}-\sin^{-1}\sqrt{\frac{2ab}{a^2+b^2}}\right]=0$$

i'u 2& fuEu lehdj.k dk gy dhft, &

$$\sin\left[2\cos^{-1}\left\{\cot(2\tan^{-1}x)\right\}\right]=0$$

i'u 3& ;fn $a+b+c=2s$ rk n'kkb; fd $\tan^{-1}\sqrt{\dfrac{as}{bc}}+\tan^{-1}\sqrt{\dfrac{bs}{ac}}+\tan^{-1}\sqrt{\dfrac{cs}{ab}}=\pi$

i'u 4& fuEu dk ljyer :i e 0;Dr dhft,

$$\tan\left[\frac{1}{2}\sin^{-1}\left(\frac{2x}{1+x^2}\right)+\frac{1}{2}\cos^{-1}\left(\frac{1-y^2}{1+y^2}\right)\right]$$

i'u 5& $(1-\sqrt{-3})^{\frac{1}{4}}$ d lHkh lEHko ekuk dk ikIr dhft,

v/;k; lekdyu

Very Short Answer Type

i'u 1& $\int \frac{dx}{\frac{169}{81}+4x^2}$ dk eku Kkr dhft, A

i'u 2& $\int \frac{x^2}{1-x}dx$ dk eku Kkr dhft, A

i'u 3& $\int \sin\left(2x+\frac{\pi}{4}\right)dx$ dk eku Kkr dhft, A

i'u 4& $\int \sin 5x \cdot \sin x \; dx$ dk eku Kkr dhft, A

i'u 5& $\int e^{\frac{m}{3}x} dx$ dk eku Kkr dhft, A

Short Answer Type

i'u 1& $\int \frac{1+\tan x}{x+\log\sec x}dx$

i'u 2& $\int \frac{e^x}{1+ce^x}dx$

i'u 3& $\int \sec x \cdot \tan x\sqrt{\sec^2 + a} \;\; dx$

i'u 4& $\int \frac{\sin x}{\sqrt{9\cos^2 x - 1}} \; dx$

i'u 5&   fuEufyf[kr dk x d lki{k lekdyu Kkr dhft, A

$$1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \frac{x^4}{4!} + \ldots\ldots\ldots$$

Long Answer Type

i'u 1& $\int \sqrt{x}(\log x)^2 dx$ dk eku Kkr dhft, A

i'u 2& $\int x^3 \cdot \tan^{-1} x \cdot dx$ dk eku Kkr dhft, A

i'u 3& $\int \left(3x\sin^{-1} x + 3\sqrt{(1-x^2)}\right) dx$ dk eku Kkr dhft, A

i'u 4& $\int_1^4 \left(|x-1| + |x-2| + |x-3|\right) dx$ dk eku Kkr dhft, A

i'u 5& $\int_0^{\pi/2} \sin 2x \cdot \log \tan x \cdot dx$ dk eku Kkr dhft, A

&&00&&

v/;k; f}in ie;

Long Answer Type

i'u 1& fl) dhft,

$$(c_0 + c_1)(c_1 + c_3)........(c_{n-1} + c_n) = \frac{c_1 \cdot c_2 \cdot c_3....c_n}{n!}(n+1)^n$$

i'u 2& $\left(x^2 + 2 + \frac{1}{x^2}\right)^8$ d i lkj e vpj in Kkr dhft, A

i'u 3& $(1+3x)^{1/2} \cdot (1-2x)^{1/3}$ d i lkj e iFke rhu in fyf[k, A

i'u 4& $(1+x)^n$ d foLrkj e rhu Øekxr ink d x.kkd 120] 210 vkj 252 gk] rk n dk eku Kkr dhft, A

i'u 5& $\left(\frac{4x}{5} - \frac{5}{2x}\right)^9$ d i lkj e $\frac{1}{x^3}$ dk x.kkd Kkr dhft, A

&&00&&

Øep; ,o lp;

Short Answer Type

i’u 1& EQUATION 'kCn d v{kjk dk fdruk idkj l l tk;k tk ldrk ftlesa lkj Loj ,d lkFk gk A

i'u 2& ;fn ${}^{n+2}C_8 : {}^{n-2}P_4 = 57:16$ gk rk n dk eku Kkr dhft, A

i'u 3& 1]2]3]4 vkj 5 vdk l fdruh l[;k, cukb tk ldrh g tk 4 dh x.kt gkA

i'u 4& 'kCn BANANA d v{kjk dk idkj l l tk;k tk ldrk g ftlesa lkj A ,d lkFk gk A

i'u 5& ;fn $\frac{1}{5c_r} + \frac{1}{6c_r} = \frac{1}{4c_r}$ gk rk dk r eku Kkr dhft, A

&&00&&

XII Xkf.kr
bdkb 1
(a) vkf”kd fHkUUk (b) lkjf.kd ,o vkO;wg

vfr y?kmRrjh;

1- vkf”kd fHkUUk djuk fdl dgr gA

2- mfpr fHkUUk dh ifjHkk’kk ,o mnkgj.k fyf[k, A

3- fo’ke fHkUUk dh ifjHkk’kk ,o ,d mnkgj.k fyf[k, A

4- mfpr fHkUUk ,o fo’ke fHkUUk e mnkgj.k ndj vrj fyf[k, A

5- $\frac{ax^2+bx+c}{(a-x)^3}$ d vkf”kd fHkUUk e vf/kdre fdru in gkxA

6- $\begin{vmatrix} 1 & \log_b a \\ \log_a b & 1 \end{vmatrix}$ dk eku Kkr dhft, A

7- lR; vlR; fyf[k, A

(a) Lkkjf.kd dk fuf”pr l[;kRed eku Kkr dhft,A

(b) lkjf.kd ,d vk;rkdkj ljpuk gkrh gA

8- mi lkjf.kd dh ifjHkk’kk ,o ,d mnkgj.k fyf[k, A

9- fdlh lkjf.kd e $a\hat{i}\hat{j}$ rFkk $A\hat{i}\hat{j}$ D;k&D;k 0;Dr djr gA

10- lkjf.kd dk eku “kU; gku d nk ifekf.kd fLFkfr;k fyf[k, A

11- mi lkjf.kd ,o lg[kM e vrj fyf[k,A

12 ;fn $\frac{1}{(x+2)(x+1)}=\frac{1}{x+1}+\frac{A}{x+2}$ gk rk A dk eku Kkr dhft, A

13- le?kkfr; j[kh; lehdj.k d fy, fujFkd ,o lkFkd gyk dh fLFkfr;k fyf[k,A

14- vfn”k vkO;g fdl dgr g A

15- vkO;gk d ;kx ,o x.ku d fy, vko”;d fLFkfr;k fyf[k,A

16- ;fn $[1,2,3]$ rFkk $B=\begin{bmatrix}4\\5\\6\end{bmatrix}$ gk rk AB o BA dk eku Kkr dhft,A

17- lR; ,o vlR; fyf[k,A

(a) ;fn nk vkO;g A rFkk B Øe”k% $m\times n$ rFkk $n\times m$ Øe d gk rk $(AB)'=A'B'$

(b) ;fn nk vkO;gk A rFkk B leku Øe d vkO;g gk rk $(A+B)'=A'+B'$

18- **mfpr lc/k tkfM,&**

(a) ykfEcd vkO;g & $A'=-A$

(b) vfn"k vkO;g & $A'=A$

(c) lefer & $\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$

(d) fo'ke lefur & $A.A'=I$

19 $\begin{bmatrix} 2 & k \\ 1 & 4 \end{bmatrix}$,d vkO;g vO;RØe.kh; g rk k dk eku Kkr dhft, A

20 $A.(AdjA)$ dk eku Kkr fyf[k, A

y?kmRrjh; &

1- $\dfrac{1}{(x+2)(x-4)}$ dk vkf"kd fHkUUk e O;Dr dhft,A

2- $\dfrac{1}{x^2-5x+6}$ dk vkf"kd fHkUUk e O;Dr dhft, A

3- fuEu fHkUu dk mfpr fHkUu e ifjofrr dhft, &

$$\frac{2x^3-3x-8x-26}{2x^2+5x-12}$$

4- lkjf.kd $\begin{vmatrix} 2 & -1 & 3 \\ 1 & 1 & 1 \\ 1 & -1 & 1 \end{vmatrix}$ e vo;o 2 vkj 3 dk mi lkjf.kd Kkr dhft,A

5- $\begin{vmatrix} 1 & 1 & 1 \\ a & b & c \\ a+c & b+c & a+b \end{vmatrix}$ dk eku Kkr dhft,A

6- $\begin{vmatrix} \frac{1}{a} & a & bc \\ \frac{1}{b} & b & ca \\ \frac{1}{c} & c & ab \end{vmatrix}$ dk eku Kkr dhft, A

7- $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1+x & 1 \\ 1 & 1 & 1-y \end{vmatrix} = -xy$ dk eku Kkr dhft, A

8- $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 1-x & 1 \\ 1 & 1 & 1-y \end{vmatrix} = xy$ dk eku Kkr dhft, A

9- fn; g, rhu fcUn $(2,-3),(6,k),(-2,3)$ lej[k g rk k dk eku Kkr dhft,A

10- lehdj.k $2x-y+3z=9, x+y+z=6, x-y+z=2$ rk y dk eku Øej fu;e l Kkr dhft,A

11- ,d 3×2 vkO;g dh jpuk dhft, ftldk $i$oh ifDr vkj jLrEHk dk vo;o $aij = \dfrac{3l+j}{2}$ l fd;k tkrk g A

12- ;fn $A=\begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$ gk rk fl) dhft, fd

$A.A^2 - 4A = 0$

13- ;fn $A=\begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$,o $I=\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ rFkk $A^2 - 8A\text{-}KI=0$ gk rk K dk eku Kkr dhft,A

nh?kmRrjh; iz”u &

1- fl) dhft, fd $\dfrac{11}{6x^2+7x-3} = \dfrac{3}{3x-1} - \dfrac{2}{2x+3}$

2- $\begin{vmatrix} x+y & 2x+y & 3x+y \\ 2x+y & 3x+y & 4x+y \\ 5x+y & 6x+y & 7x+y \end{vmatrix}$ dk eku Kkr dhft,A

3- ;fn $\begin{vmatrix} x+1 & x+2 & x+3 \\ x+2 & x+3 & x+4 \\ x+a & x+b & x+c \end{vmatrix} = 0$ gk rk fl) dhft, fd a,b,c lekukrj J.kh e gA

4- ;fn $[1 \;\; k \;\; 1] \begin{bmatrix} 1 & 3 & 2 \\ 2 & 5 & 1 \\ 15 & 3 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix} = 0$ gk rk K dk eku Kkr dhft, A

5- ;fn $A=\begin{bmatrix}1 & 3\\ 2 & 4\end{bmatrix}$ gks rks $A(\text{Adj}A)=A(\text{Adj}A)A=|A|I$ dk eku Kkr dhft,A

6- fl) dhft, fd & $\begin{bmatrix}1 & 7 & 13\\ 3 & 9 & 15\\ 3 & 11 & 17\end{bmatrix}$,d v0;RØe.kh; vk0;g gSA

7- $A=\begin{bmatrix}5 & -1\\ 3 & -2\end{bmatrix}$ gks rks $A^2-3A-7I$ dk eku Kkr dhft,A

bdkbZ 2 izfrykse f=dks.kferh

vfry?kqRrjh; &

1- izfrykse f=dks.kferh; Qyu dk ifjHkkf"kr dhft,A

2- $\sin^{-1}x$ rFkk $(\sin x)^{-1}$ e vUrj fyf[k,A

3- $\sin^{-1}x$ dk Mkseu rFkk ifjlj fyf[k, A

4- fdlh f=dks.kferh; vuqikr dk e[; eku fdls dgrs gS A]

5- e[; "kk[kk eku fdls dgrs gSA

6- $\cos^{-1}x$ d xkQ e e[; eku "kk[kk fdl prqFkk'k e inf"kr gksrk gSA

7- fdlh izfrykse f=dks.kferh; Qyu d e[; eku ,o C;kid e D;k vUrj gSA

8- ;fn $sin\theta=\frac{1}{2}$ gks rks blds e[; ,o C;kid eku jsfM;u e fyf[k, A

9- lR;@vlR; fyf[k,&

$(a)\sin^{-1}(-x)=sin^{-1}x$

$(b)\ tan(-x)=-tan^{-1}x$

$(c)\cos^{-1}(-x)=\cos^{-1}x-\pi$

$(d)\cot^{-1}(-x)=\pi-\cot^{-1}x$

10- fl) dhft, %& $\frac{\sin(\cos^{-1}x)}{\cos(\sin^{-1}x)}=1$

11- fl) dhft, %& $\sin^{-1}1=\sec^{-1}x+\cos ec^{-1}x$

12- fl) dhft, %& $\sin^{-1}(\sin 120)=60$

13- [kkyh LFkku Hkfj, %& $(a)\quad \cos^{-1}x=\frac{1}{2}\cos^{-1}(.......)$

$(b)\quad \tan^{-1}x=\frac{1}{3}\tan^{-1}(.......)$

14- ;fn $\tan^{-1}5-\tan^{-1}3=\tan^{-1}x$ gk rk x dk eku Kkr dhft, A

15- [kkyh LFkku Hkfj, &

(a) $\frac{1}{2}\tan^{-1}x=\tan^{-1}[.......]$

(b) $\sin^{-1}x=\sin^{-1}[.......]$

y?kRrjh; %&

1- ;fn $\cos^{-1}\frac{12}{13}=\tan^{-1}x$ gk rk x dk eku Kkr dhft,A

2- fl) dhft, fd] $\cot^{-1}\frac{1}{2}=\sin^{-1}\frac{2}{\sqrt{5}}$

3- $\tan^{-1}\left[\tan\frac{2\pi}{2}\right]$ dk 'kf'Vd eku Kkr dhft,A

4- $\tan^{-1}\frac{1}{2}+\tan^{-1}\frac{1}{3}$ dk v"kk e Kkr dhft, A

5- ;fn $\cos^{-1}\frac{1}{8}=4\theta$ gk rk fl) dhft, $\sin^2\theta=\frac{1}{4}$

6- ;fn $\sin^{-1}x+\frac{1}{4}\cos^{-1}x=45$ gk rk x dk eku Kkr dhft, A

7- ;fn $\sin^{-1}x+\sin^{-1}y=\sin^{-1}1$ gk rk fl) dhft, &

$x\sqrt{1-y^2}+y\sqrt{1-x^2}=1$

8- lehdj.k $\frac{1}{2}\tan^{-1}x+\cot^{-1}x=\frac{\pi}{3}$ dk gy dhft, A

9- lehdj.k $\tan^{-1}(\cot x)+\cot^{-1}(\tan x)=\tan^{-1}(1)$ dk gy dhft, A

10- ;fn $\sin^{-1}\frac{2a}{1+a^2}-\sin^{-1}\frac{2b}{1+b^2}=2\tan^{-1}x$ gk rk fl) dhft, &

$$x=\frac{a-b}{1+ab}$$

nh?kZ mRrjh; &

1- fl) dhft, %& $\tan^{-1}3+\tan^{-1}4+\tan^{-1}5=\tan^{-1}\left(\frac{24}{23}\right)$

2- fl) dhft, %& $2\tan^{-1}\frac{1}{2}-\tan^{-1}\frac{4}{3}=\tan^{-1}(0)$

3- fl) dhft, %& $\tan\left[\frac{1}{2}\cos^{-1}\frac{\sqrt{5}}{3}\right]=\frac{3-\sqrt{5}}{2}$

4- $\tan^{-1}(2x)+\tan^{-1}(x)=\tan^{-1}(\infty)$ dk gy dhft,A

5- $\sin^{-1}\frac{5}{x}+\sin^{-1}\frac{12}{x}=\cos^{-1}(0)$ dk gy dhft, A

6- ;fn $\cos^{-1}\sqrt{p}+\cos^{-1}\sqrt{1-p}+\cos^{-1}\sqrt{1-q}=\tan^{-1}(-1)$ gk rk q dk eku Kkr dhft,A

7- fl) dhft, %& $\tan^{-1}\sqrt{\frac{1+\sin x}{1-\sin x}}=\frac{\pi}{4}+\frac{x}{2}$

8- fl) dhft, %& $\sin^{-1}\sqrt{\frac{\frac{x}{b}-1}{\frac{a}{b}-1}}=\cos^{-1}\sqrt{\frac{1-x/a}{1-b/a}}$

bdkb & 3

vfry?kRrjh;

1- lfn"k $\vec{a}$ dk lfn"k $\vec{b}$ dh fn"kk e i{ki fyf[k, A

2- lfn"k $3\hat{i}-2\hat{j}+\hat{k}$ vkj $2\hat{i}+\hat{j}+\lambda\hat{k}$ ijLij yEcor g rk λ dk eku Kkr dhft,A

3- lfn"k $3\hat{i}-\hat{j}+2\hat{k}$ rFkk $2\hat{i}-2\hat{j}+4\hat{k}$ d chp dkT;k $(\cos\theta)$ dk eku Kkr dhft,A

4- $\left[\bar{a}.\bar{b}.\bar{c}\right]$ dk ekku Kkr dhft, A

5- rhu lfn"k $\vec{a},\vec{b}$ vkj $\vec{c}$ d leryh; gku dk ifro/k fyf[k, A

6- ;fn $\bar{a},\bar{b}$ vkj $\bar{c}$ rhu lfnFk g rk $\bar{a}\times\left(\bar{b}\times\bar{c}\right)$ dk eku Kkr dhft, A

7- ;fn $\hat{i},\hat{j}$ rFkk $\hat{k}$ ek=d lfn"k g rk $\hat{i}\times\left(\hat{j}\times k\right)$ dk eku Kkr dhft, A

8- lfn"k $\bar{a}$ vkj $\bar{b}$ d chp d dk.k dh T;k $(\sin)$ crkb;A

9- $\hat{i}.\hat{i}+\hat{j}.\hat{j}+\hat{k}.\hat{k}$ dk eku fyf[k, A

10- $\hat{i}\times\hat{i}+\hat{j}\times\hat{j}+\hat{k}\times\hat{k}$ dk eku fyf[k, A

y?kRrjh;

1- ;fn $|\bar{a}+\bar{b}|=|\bar{a}-\bar{b}|$ gk rk fl) dhft, fd $\bar{a}$ vkj $\bar{b}$ ijLij yEcor g A

2- ;fn $|\bar{a}|=5|\bar{b}|=2$ rFkk $\bar{a}.\bar{b}=10$ gk rk $|\bar{a}\times\bar{b}|$ dk eku Kkr dhft, A

3- lfn"k ¼$3i+4j+5k$ $4i-3j-5k$ vkj $7i+j$ l cu f=Hkt dh ifjfer Kkr dhft,A

4- ml lekUrj prHkt dk {k=Qy ftld fod.k $\bar{a}=3i+j-2k$ vkj $\bar{b}=i-3j+4k$ g gkxk ¼&

$(a)10\sqrt{3}$ $(b)105\sqrt{3}$ $(c)8$ $(d)4$

5 $l\times\left(\bar{a}\times l^n\right)+j^n\times\left(\bar{a}\times j^n\right)+k^n\left(\bar{a}\times k^n\right)=^n$

nh?kmRrjh;

1 ;fn nk bdkb lfn'kk $\bar{a}$ rFkk $\bar{b}$ d chp dk dk.k θ rk fl) dhft, fd

$$\cos\frac{\theta}{2}=\frac{1}{2}\left|\bar{a}+\bar{b}\right|$$

2 ;fn $|\vec{a}|=3,|\vec{b}|=5,|\vec{c}|=7$ vkj $\vec{a}+\vec{b}+\vec{c}=0$ gk rk fl) dhft, fd $\vec{a}$ vkj $\vec{b}$ d chp dk dk.k $\frac{\pi}{3}$ gA

3 fdlh ΔABC d fy, fl) dhft, fd $a^2=b^2+c^2-2bc\cos A$

4 fl) dhft, fd ¼& $\left[\vec{a}+\vec{b}\ \ \vec{b}+\vec{c}\ \ \vec{c}+\vec{a}\right]=2\left[\vec{a}\vec{b}\vec{c}\right]$

5 lfn'k fof/k l fl) dhft, fd¼&

$$\frac{\sin A}{a}=\frac{\sin B}{b}=\frac{\sin C}{c}$$

6 lfn'k fof/k l ΔABC e fl) dhft, fd ¼&

$$\cos C=\frac{a^2+b^2-c^2}{2ab}$$

7 lfn"k fof/k l fl) dhft, fd ¼&

$(1)\sin(\alpha+\beta)=\sin\alpha\cos\beta+\cos\alpha\sin\beta$

$(2)\cos(\alpha-\beta)=\cos\alpha\cos\beta+\sin\alpha\sin\beta$

8 fl) dhft, fd ¼& $\left[\vec{a}\times\vec{b}\ \ \vec{b}\times\vec{c}\ \ \vec{c}\times\vec{a}\right]=\left[\vec{a}\vec{b}\vec{c}\right]^2$

9 fl) dhft, fd ¼& $\left[\bar{a}-\bar{b}\ \ \bar{b}-\bar{c}\ \ \bar{c}-\bar{a}\right]=0$

bdkb 4
funs”kkd T;kfefr

vfr y?kq mRRkjh;

1- lery $2x-y+z=6$ rFkk $x+y+2z=3$ d chp dk U;udk.k g&

$(a)\ 45^0$ $(b)\ 60^0$ $(c)\ 30^0$ $(d)\ 75^0$

2- lery $5x-3y+6z=60$ d fu;ked v{kk l vUr% [k.M g

$(a)\ 10,20,-10$ $(b)\ 10,-20,12$ $(c)\ 12,-20,10$ $(d)\ 12,20,-10$

3- fcUn $(2,3,-5)$ dh lery $x+xy-2z=9$ l njh g &

$(a)\ 4$ $(b)\ 3$ $(c)\ 2$ $(d)\ 1$

4- $x-$ v{k d lekUrj fdlh lery dk lehdj.k g&

$(a)\ ax+by+cz=0$ $(b)\ by+cz+d=0$ $(c)\ ax+by+d=0$

$(d)\ ax+cz+d=0$

5- j[kk $x=y=z$ dh fnd dkT;k, g&

$(a)\ \frac{1}{\sqrt{3}},\frac{1}{\sqrt{3}},\frac{1}{\sqrt{3}}$ $(b)\ \frac{1}{3},\frac{1}{3},\frac{1}{3}$ $(c)\ 1,1,1$ bue l dkb ugh

6- $x-$ v{k dk lehdj.k g

$(a)\ x=0,\ y=0$ $(b)\ y=0,\ z=0$ $(c)\ z=0,\ x=0$

$(d)\ x=0$

7- fcUnvk $(2,3,4)$ rFkk $(1,-2,3)$ l xtju okyh ljy j[kk dk fnd vuikr g&

$(a)\ 3,1,7$ $(b)\ 2,3,4$ $(c)\ -1,-2,3$ $(d)\ -1,-5,-1$

8- xkyk $2x^2+2y^2+2z^2-2x+4y+2z+3=0$ d dUn d fun”kkd g&

$(a)\ \left(\frac{1}{2},-1,\frac{-1}{2}\right)$ $(b)\ \left(\frac{1}{2},-1,\frac{-1}{2}\right)$ $(c)\ (-1,2,1)$ $(d)\ (1,-2,-1)$

9- xkyk $2x^2+2y^2+2z^2-2x+4y+2z+3=0$ dh f=T;k g &

$(a)\ \frac{\sqrt{3}}{2}$ $(b)\ \frac{3}{2}$ $(c)\ \frac{1}{2}$ $(d)\ 0$

10- xky $x^2+y^2+z^2=4x+6y-8z+4=0$ dk 0;kl g

$(a)\ 5$ $(b)\ 10$ $(c)\ \frac{5}{2}$ $(d)\ 25$

y?kmÙkjh;

1- xkyk $x^2+y^2+z^2=25$ dk lery $2x+3y-6z=28$ }kjk orh; ifjPNn dk 0;kl Kkr dhft,A

2- ,d lery v{kk dk fcUn A,B,C,D ij feyr gA f=Hkt ABC dk dUnd (a,b,c) g rk lery dk lehdj.k Kkr dhft,A

3- ifrc/k Kkr dhft; fd j[kk; $x=ay+b,\ z=cy+d,$ vkj $x=a^1y+b^1$]

$z = c^1 y + d^1$ ijLij yEc gA

4- k d fdl eku d fy, lery $3x-2y+2z+17=0$ vkj $4x+3y-kz=25$ ijLij yEcor gA

5- ml lery dk lehdj.k Kkr dhft, tk leryk $x+y+z=6$ vkj $2x+3y+4z+5=0$ d dVku l tkrk gA vkj fcUn ¼11]4]6½ l gkdj xtjrk gA

6- leryk $2x-y+3z=6$ vkj $x+y+2z=7$ d chp dk.k Kku dhft,A

7- fcUn ¼3]2]4½ l lery $2x+3y-6z+6=0$ ij Mky x; yEc dh yEckb Kkr dhft,A

8- nk lekUrj leryk $2x-2y+z+3=0$ vkj $4x-4y+2z+5=0$ d chp d njh Kkr dhft,A

9- j[kkvk $\frac{x+4}{5}=\frac{y+1}{5}=\frac{z+3}{5}$ vkj $\frac{x+1}{1}=\frac{y-4}{1}=\frac{z-5}{2}$ d chp dk dk.k Kkr dhft,A

10- k dk eku Kkr dhft, ;fn j[kk,

$\frac{x-1}{3}=\frac{y-2}{\frac{-20}{3}}=\frac{z-3}{2k}$ rFkk $\frac{x-1}{2k}=\frac{y-5}{3}=\frac{z-6}{-4}$ ijLij yEcor gA

11- j[kk $\frac{x-1}{1}=\frac{y-2}{-1}=\frac{z+1}{1}$ vkj lery $2x-y+z=4$ d chp dk dk.k Kkr dhft,A

12- ml xky dk lehdj.k Kkr dhft, ftl dh 0;kl d fljk d fun"kkd ¼2]&3]4½ vkj ¼&5] 6] &7½ gA

13- ,d xky dk lehdj.k $(x-1)(x+1)+(y-2)(y+2)+(z-3)(z+3)=0$ gA bl dh f=T;k ,o dUn Kkr dhft,A

14- ml xky dk lehdj.k Kkr dhft; tk $x^2+y^2+2^2-2x-4y-6z=0$ d ldUnh g vkj tk bll frxuh f=T;k dk gA

15- ,d xky dk lehdj.k $x^2+y^2+z^2+3x-2y+2z-15=0$ g A bld ,d 0;kl AB d flj A d fun"kkd ¼&1]4]&3½ gA B flj dk fun"kkd Kkr dhft,A

nh?kl mRrjh;

1- ml lery dk lehdj.k Kkr dhft, tk fcUnvk ¼1]0]0½]¼0]2]0½ rFkk ¼0]0]3½ l gkdj tkrk gA

2- fl) dhft, fd fcUn ¼1]2]3½]¼3]0]3½]¼&2]&3]&3½ rFkk ¼3]4]6½ leryh; gA

3- fcUn ¼3]&1]11½ dk j[kk $\frac{x}{2}=\frac{y-2}{3}=\frac{z-3}{4}$ ij ifrfcEc Kkr dhft,A

4- ml lery dk lehdj.k Kkr dhft, tk fcUnvk ¼1&2]4½ rFkk ¼3]&4]5½ l gkdj tkrk g rFkk lery $x+y-2z=6$ ij yEc gA

5- ml lery dk lehdj.k Kkr dhft, tk fcUnvk ¼&1]1]1½ l gkdj tkrk g rFkk lery $x+2y+2z=9$ ij yEc gA

6- fcUn ¼1]4]3½ l j[kk $\frac{x-6}{3}=\frac{y-7}{2}=\frac{z-7}{-2}$ dh yEcor njh Kkr dhft,A

7- fcUn ¼1]0]0½ l j[kk $\frac{x-1}{2}=\frac{y+1}{-3}=\frac{z+10}{8}$ ij Mky x; yEcor fcUn d fun"kkd Kkr dhft,A

8- fl) dhft, fd j[kk; $\frac{x-1}{2}=\frac{y-2}{3}=\frac{z-3}{4}$ vkj $\frac{x-2}{3}=\frac{y-3}{4}=\frac{z-4}{5}$ leryh; g rFkk j[kkvk d ifrPNn fcUn Kkr dhft,A

9- j[kkvk $\frac{x-3}{3}=\frac{y-8}{-1}=\frac{z-3}{1}$ vkj $\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-6}{4}$ d chp dh U;ure njh Kkr dhft,A

bdkb & 5
vodyu

vfr y?kRrjh; i'u

1- dkb Qyu vodyuh; dc dgykrk gA
2- vodyu x.kkd dh ifjHkk"kk nhft,A
3- fdlh Qyu *f(x)* d lkrR;rk vkj vodyuh;rk e D;k lEc/k gkrk gA
4- ;fn $x^2+xy+y^2=100$ rk $\frac{dy}{dx}$ dk eku Kkr dhft,A
5- ;fn $y=e^{log(\tan x)}$ gk rk $\frac{dy}{dx}$ Kkr dhft,A
6- ;fn $y=e^{log(\sin x)}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A
7- Qyu $\sqrt{\tan x}$ dk x d lkis{k vodyu dhft,A
8- Qyu $e^{\sqrt{\cot x}}$ dk x d lkis{k vodyu dhft,A
9- ;fn $y=\tan^2 x+\cot^2 x$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A
10- ;fn $y=\tan^{-1} x+\cot^{-1} x$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A
11- ;fn $y=\frac{\sin x}{1+\cos x}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A
12- ;fn $y=2\tan\frac{x}{2}$ gk rk fl) dhft, fd $\frac{dy}{dx}=\frac{2}{1+\cos x}$

13- x d lki{k vodyu dhft, ;fn $y=\log(\log x)$

14- ;fn $y=\cos^{-1}(\sin x)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

15- ;fn $y=x.\cot^{-1}x$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

16- $4^x+\log e^x$ dk x d lki{k vodyu dhft,A

17- ;fn $y=x^2\log x$ gk rk fl) dhft, fd $\frac{d^3y}{dx^2}=-\frac{2}{x^2}$

18- fl) dhft, fd $\sin^{-1}x+\cos^{-1}x=\frac{\pi}{2}$

19- vodyu lehdj.k $\frac{dy}{dx}=e^{x-y}+x.e^{-y}$ dk gy dhft,A

20- fl) dhft, fd $\sec^{-1}x+\operatorname{cosec}^{-1}x=\frac{\pi}{2}$

21- vodyu lehdj.k $\frac{dy}{dx}=e^{x-y}+x^3\left(e^{-y}\right)$ dk gy dhft,A

22- vodyu lehdj.k $\frac{dy}{dx}=e^{x-y}+x^2.e^{-y}$ dk gy dhft,A

23- fl) dhft, fd $\tan^{-1}\left(\frac{1}{2}\right)+\tan^{-1}\left(\frac{1}{3}\right)=\frac{1}{4}$

24- vodyu lehdj.k $\left[1+\left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}}=4x$ dh dkfV rFkk ?kkr Kkr dhft,A

25- vodyu lehdj.k $\frac{d^2y}{dx^2}=k\left[1+\left(\frac{dy}{dx}\right)^2\right]^{\frac{5}{2}}$ dh dkfV rFkk ?kkr Kkr dhft,A

26- ;fn $y=\sin^{-1}(\cos x)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

27- ;fn $y=\tan x^0$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

28- vodyu lehdj.k $\frac{dy}{dx}=1+y+x+xy$ dk gy dhft,A

29- $\sin\left(\cos x^2\right)$ dk x d lki{k vodyu dhft,A

30- x d lki{k vodyu Kkr dhft, ;fn $y=e^{x^2}$

31- x d lki{k vodyu Kkr dhft, ;fn $y=\frac{e^x}{\sin x}$

32- ;fn $y=\tan x$ gk rk fl) dhft, fd $\frac{d^2y}{dx^2}=2y.\frac{dy}{dx}$

33- ;fn $f(x)=\tan x,[0,\pi]$ rk jky ie; dh lR;rk dh tkp dhft,A

34- x d lki{k vodyu dhft, ;fn $y=e^{\sqrt{x+3}}$

35- ;fn $y=\sin(\log x)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

36- ;fn $x=\sin\theta, y=-\tan\theta$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

37- ;fn $y=\cos^{-1}\left(\sqrt{x}\right)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

38- ;fn $y=e^{m\tan^{-1}x}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

39- ;fn $y=\sin\left\{\log\left(x^3-1\right)\right\}$ gk rk $\frac{dy}{dx}$ eku Kkr dhft,A

40- ;fn $y_1=\cos x$ vkj $y_2=e^x$ rk y_1 dk y_2 d lki{k vodyu x.kkd Kkr dhft,A

41- ;fn $f(x)=\sqrt{x}$ gk rk $x=0$ ij vodyuh;rk dh tkp dhft,A

42- ;fn $y=\log(\sin x)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

43- ;fn $y=5^{\log(\sin x)}$ gk rk x d lki{k vodyu dhft,A

44- ;fn $y=e^x+e^{x^2}+e^{x^3}+e^{x^4}+e^{x^5}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

45- ;fn $y=\frac{\sin(ax+b)}{\cos(cx+d)}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,

46- ;fn $y=\log x$ gk rk $\frac{d^2y}{dx^2}$ dk eku Kkr dhft,A

47- fl) dhft, fd $f(x)=\log x$ u rk mfPp’B g u fufHk’B

48- $\sin x+\cos x$ dk egÙke eku Kkr dhft,A

49- ;fn $y=e^{ax}$ rk $\frac{d^2y}{dx^2}$ dk eku Kkr dhft,A

50- e^x d no vodyu dk eku Kkr dhft,A

bdkbl Ø- 5

y?kmRrjh; iz'u

1- ;fn $x+y=8$ gk rk xy dk egRre eku Kkr dhft,A

2- vodyu lehdj.k $x\sqrt{1+y^2}\;dx+y\sqrt{1+x^2}\;dy=0$ dk gy dhft,A

3- vodyu lehdj.k $\frac{dy}{dx}=y\sin 2x$ dk gy dhft,A

4- vodyu lehdj.k $\frac{dy}{dx}+\frac{y}{x}=x^2$ dk gy dhft,A

5- ;fn $y=\sin^{-1}\left(\frac{2x}{1+x^2}\right)$ rk y dk x d lkis{k vodyu dhft,A

6- ;fn $y=\cot^{-1}\sqrt{\frac{1+x}{1-x}}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

7 ;fn $y=tan^{-1}\sqrt{\frac{1+x}{1-x}}$ gk rk $\frac{\partial y}{\partial x}$ dk eku Kkr dhft,A

8 ;fn $y=\cot\left(\frac{\cos x+\sin x}{\cos x-\sin x}\right)$ gk rk $\frac{dy}{dx}$ Kkr dhft,A

9 ;fn $y=x^x$ gk rk fl) dhft, fd $\frac{dy}{dx}=x^x(1+\log x)$

10 ;fn $y=tan^{-1}\sqrt{\frac{1-\cos x}{1+\cos x}}$ gk rk $\frac{dy}{dx}$ Kkr dhft,A

11 ;fn $y=\frac{x}{x+5}$ gk rk fl) dhft, fd $x.\frac{dy}{dx}=y(1-y)$

12 ;fn $y=\log_a(\sec x)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

13 e^x dk $\sqrt{x}$ d lkis{k vodyu Kkr dhft,A

14 ;fn $y=(\cos x)^{\cos x^{\cos x^{\cdots\infty}}}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

15 y_1 dk y_2 d lkis{k vodyu x.kkd Kkr dhft,A

16 ;fn $x^y=e^{x-y}$ gk rk fl) dhft, fd $\frac{dy}{dx}=\frac{\log_e x}{(1+\log_e x)^2}$

17 ;fn $y\sqrt{1-x^2}+x\sqrt{1-y^2}=1$ gk rk fl) dhft, fd $\frac{dy}{dx}+\sqrt{\frac{1-y^2}{1-x^2}}=0$

18 ;fn $x=a(t+\sin t)$ vkj $y=a(1-\cos t)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

19 ,d vk;r dk {k=Qy 96ox l- eh- g bldh yEckb vkj pkMkb Kkr dhft, tcfd bldh ifjeki U;ure gkA

20 og vUrjky Kkr dhft, ftlesa Qyu $f(x)=2x^2+8x+12$ oreku ;k gkleku gA

21 ,d xCckjk tk xkykdkj jgrk g pj f=T;k jgrk g bld vk;ru d ifjoru Kkr dhft, tcfd f=T;k 4 l- eh- gkA

22 fl) dhft, fd Qyu x d lHkh okLrkfod ekuk d fy, $f(x)=x+\cos x$ o/keku Qyu gA

23 or d {k=Qy e ifjoru dh nj Kkr dhft, tcfd f=T;k 8l- eh- gkA

24 fl) dhft, fd Qyu $f(x)=6x^3-8x^2+4x+16$ R ij o/keku gA

25 ,d ?ku dh dkj 3 l- eh- ifr ldUM nj l c< jgh g rk ?ku dk vk;ru fdl nj l c< jgh gA tc mld dkj yEckb 6l-eh- gA

26 ;fn $y=\sqrt{\sin\sqrt{x}}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

27 ;fn $y=\log_e(tanx)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

28 ;fn $y=\frac{six}{\sin\sqrt{x}}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

29 ;fn $y=\left\{x+\sqrt{x^2+a^2}\right\}^n$ gk rk fl) dhft, fd $\frac{dy}{dx}=\frac{ny}{\sqrt{x^2+a^2}}$

30 ;fn $y=\sqrt{\frac{1-x}{1+x}}$ gk rk fl) dhft, fd $(1-x^2)\frac{dy}{dx}+y=0$

31 ;fn $y=\sin^{-1}\left(\frac{2x}{1+x^2}\right)+\sec^{-1}\left(\frac{1+x^2}{1-x^2}\right)$ gk rk fl) dhft, fd $\frac{dy}{dx}=\frac{4}{1+x^2}$

32 ;fn $y=\log\left[tan\left(\frac{\pi}{4}+\frac{x}{2}\right)\right]$ gk rk fl) dhft, fd $\frac{dy}{dx}=\sec x$

33 ;fn $x=a(1-\cos\theta), y=a(1+\sin\theta)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

34 ;fn $x^y=e^{x-y}$ rk fl) dhft, fd $\frac{dy}{dx}=\frac{\log x}{(1+\log x)^2}$

35 x d lki{k vody x.kkd Kkr dhft, ;fn $y=tan^{-1}\left(\frac{\sqrt{1+x^2}-1}{x}\right)$

36 ;fn $y=tan^{-1}\sqrt{\frac{1+\cos x}{1-cocx}}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

37 ;fn $y = x^x$ gk rk fl) dhft , fd $x.\frac{dy}{dx} = \frac{y^2}{1 - y\log x}$

38 ;fn $\cos\frac{x}{2}\ \cos\frac{x}{2^2}\ \cos\frac{x}{2^3}.........\infty = \frac{\sin x}{x}$ gk rk fl) dhft , fd

$$\frac{1}{2}tan\frac{x}{2} + \frac{1}{2^2}tan\frac{x}{2^2} + \frac{1}{2^3}.tan\frac{x}{2^3}........\infty = \frac{1}{x} - \cot x$$

39 ;fn $\frac{x}{x-y} = \log\frac{a}{x-y}$ gk rk fl) dhft , fd $\frac{dy}{dx} = 2 - \frac{x}{y}$

40 ;fn $\sin y = x\sin(a+y)$ gk rk fl) dhft , fd $\frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin a}$

bdkb & 5 ¼vodyu ½

nh?kl mRrjh; i'u

1 ;fn $y = tan^{-1}\left(\frac{x\sin\alpha}{1 - x\cos\alpha}\right)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft ,A

2 ;fn $y = e^{x\sin x^3} + (tanx)^x$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft ,A

3 ;fn $x = \sec\theta - \cos\theta$ and $y = \sec^n\theta - \cos^n\theta$ gk rk fl) dhft , fd

$$(x^2+4)\left(\frac{dy}{dx}\right)^2 = n^2(y^2+4)$$

4- ;fn $(a+bx)e^{\frac{y}{x}} = x$ gk rk fl) dhft ,

$$x^3.\frac{d^2y}{dx^2} = \left(x.\frac{dy}{dx} - y\right)^2$$

5 ;fn $y = \sqrt{x} + \frac{1}{\sqrt{x}}$ gk rk fl) dhft , fd $2x\frac{dy}{dx} + y = 2\sqrt{x}$

6- iFke fl)kr l $\cos x$ dk vodyu x.kkd Kkr dhft ,A

7- ;fn $y = \frac{x\tan x}{\sec x + \tan x}$ gk rk $\frac{dy}{dx}$ Kkr dhft ,A

8- ;fn $y = \frac{e^x + e^{-x}}{e^x - e^{-x}}$ gk rk y dk x d lki{k vodyu Kkr dhft ,A

9- ;fn $y = \log_e[\log_e(\sin x)]$ gk rk $\frac{dy}{dx}$ Kkr dhft ,A

10- ;fn $y=\log\{\log(\log x)\}$ gk rk $\frac{dy}{dx}$ Kkr dhft,A

11- ;fn $y=\log_e\sqrt{\frac{1-\cos x}{1+\cos x}}$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

12- iFke fl)kr l $\sin^{-1}x$ dk eku Kkr dhft,A

13- iFke fl)kr l $\sin\sqrt{x}$ dk voyu x.kkd Kkr dhft,A

14- ;fn $y=\cos(\log x)+b\sin(\log x)$ tgk a vkj b vpj gk rk fl) dhft, fd

$$x^2\frac{d^2y}{dx^2}+x.\frac{dy}{dx}+y=0$$

15- ;fn $y=x^{\sin^{-1}x}+x^x$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

16- ;fn $y=\tan^{-1}\left[\frac{\cos x-\sin x}{\cos x+\sin x}\right]$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

17- ;fn $y=\cot^{-1}\left(\frac{\sqrt{1+x^2}+1}{x}\right)$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

18- ;fn $y=\sin\left[2\tan^{-1}-b\pm\sqrt{\frac{1-x}{1+x}}\right]$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

19- ;fn $y=\cos^{-1}\left[\frac{1-6x^2}{1+6x^2}\right]$ gk rk $\frac{dy}{dx}$ dk eku Kkr dhft,A

20- ;fn $y=x^3+ax^2+bx+c$ gk rk fl) dhft, fd $\frac{d^3y}{dx^3}=6$

21- ;fn $y=a\sin(\log x)$ gk rk fl) dhft, fd $x^2y_2+xy_1+y=0$

22- ;fn $y=ae^{mx}+be^{-mx}$ gk rk fl) dhft, fd $\frac{d^2y}{dx^2}=m^2y$

23- ;fn $y=\sec x-\tan x$ gk rk fl) dhft, fd $\cos x.\frac{d^2y}{dx^2}=y^2$

24- $y=e^{ax}\sin(bx+c)$ dk n ok voydyu Kkr dhft,A

25- ;fn $\sqrt{\frac{y}{x}}+\sqrt{\frac{x}{y}}=6$ gk rk fl) dhft, fd $\frac{dy}{dx}=\frac{x-17y}{17x-y}$

26- $\frac{a^x}{x^{x}}$ dk x lki{k voydyu x.kkd Kkr dhft,A

27- $(\sin x)^{\cos x}+(\cos x)^{\sin x}$ dk x lki{k voydyu dhft,A

28- $\sqrt{(x-1)(x-2)(x-3)(x-4)}$ dk x lki{k voydyu dhft,A

29- ;fn $y=\left(\sqrt{x}\right)^{\sqrt{x}^{\sqrt{x}\ldots\ldots\infty}}$ gk rk fl) dhft, fd $x\frac{dy}{dx}=\frac{y^2}{(2-y\log x)}$

30- ;fn $x^m y^n=(x+y)^{m+n}$ gk rk fl) dhft, fd $\frac{dy}{dx}=\frac{y}{x}$

31- ;fn $\sqrt{1-x^2}+\sqrt{1-y^2}=a(x-y)$ gk rk fl) dhft, fd $\frac{dy}{dx}=\sqrt{\frac{1-y^2}{1-x^2}}$

32- ,d d.k lehdj.k $s=2t^3-9t^2+12t+1$ d vuqlkj xfr dj jgk gA tgk le; t ld.M e s leh- e foLFkkiu g fuEu dk Kkr dhft,A

(a) 1 ld.M ij ox ,o Roj.k

(b) og le; tc d.k {kf.kd :drk gA

(c) nk fojkek d chp dh njhA

33- ,d “kDokdkj dhi l ikuh 5 ?ku leh-@ld.M dh nj l fxj jgk gA lfn dhi d vk/kkj dh f=T;k 10 leh- vkj Åpkb 20 leh- gA rk og nj Kkr dhft, ftl l ikuh dh lrg fxj jgh gA tcfd ;g pkVh l 5 leh- gA

34- ;fn $t(x)=x^3+3x^2-105x+25$ rk o vUrjky Kkr dhft, ftle Qyu c/keku ;k gkleku gA

35- fl) dhft, fd x^x dk eku $x=\frac{1}{e}$ ij fufEk'B rFkk fufEk'B eku $\left(\frac{1}{e}\right)^{\frac{1}{e}}$ gA

&&&00&&&

bdkbZ 6-
lekdyu

vfr y?kqÙkjh; iz'u

1- eku Kkr dhft, $\int \frac{1-\sin x}{\cos^2 x} dx$

2- $\int \tan^{-1} x dx$ dk eku Kkr dhft,A

3- eku Kkr dhft, $\int \frac{2x+9}{x^2+9x+30} dx$

4- $\int \sin^2 x.dx$ dk eku Kkr dhft, A

5- $\int \sqrt{2-x^2} dx$ dk eku Kkr dhft,A

6- eku Kkr dhft, $\int x.\sec^2 dx$

7- $\int \frac{dx}{\sqrt{1+\cos x}}$ dk eku Kkr dhft,A

8- $\int e^{\log \cos x} dx$ dk eku Kkr dhft,A

9- $\int \log x dx$ dk eku Kkr dhft,A

10- eku Kkr dhft, $\int e^x \left[\tan^{-1} x + \frac{1}{1+x^2} \right] dx$

11- eku Kkr dhft, $\int_{-1}^{1} (x+1) dx$

12- eku Kkr dhft, $\int_{0}^{\pi} \cos x dx$

13- $\int \frac{e^x (1+x)}{\cos^2 (xe^x)} dx$ dk eku Kkr dhft,A

14- $\int \frac{x^2}{1+x} dx$ dk eku Kkr dhft,A

15- $\int \frac{dx}{\sin x - \cos x}$ dk eku Kkr dhft,A

16- $\int \sqrt{x}.(3x^2+2x+3) dx$ dk eku Kkr dhft,A

17- $\int (e^x + 3\cos x + 4x^3 + 2) dx$ dk eku Kkr dhft,A

18- eku Kkr dhft , $\int \frac{\log x}{x} dx$

19- $\int \frac{dx}{1-\cos x}$ dk eku Kkr dhft ,A

20- $\int \frac{dx}{\sqrt{9-25x^2}}$ dk eku Kkr dhft ,A

21- $\int e^x \left(\frac{1}{x} - \frac{1}{x^2} \right) dx$ dk eku Kkr dhft , A

22- $\int_2^3 \frac{1}{x} dx$

23- $\int \frac{dx}{1+\sin x}$ dk eku Kkr dhft ,A

24- $\int \frac{1-\cos 2x}{1+\cos 2x} dx$ dk eku Kkr dhft ,A

25- $\int \frac{x^2}{1+x^3} dx$ dk eku Kkr dhft ,A

26- $\int \frac{x^2+4x}{x^3+6x^2+5} dx$ dk eku Kkr dhft ,A

27- $\int \frac{x+\cos 6x}{3x^2+\sin 6x} dx$ dk eku Kkr dhft ,A

28- $\int_0^1 \frac{2x dx}{1+x^2}$ dk eku Kkr dhft ,A

29- $\int_{-1}^1 5x^4 \sqrt{x^5+1}\, dx$ dk eku Kkr dhft ,A

30 $\int_0^{\frac{1}{\sqrt{3}}} \frac{1}{1+x^2} dx$ dk eku Kkr dhft ,A

bdkbl 6-
lekdyu

nh?kl mRrjh; i'u

1- $\int \frac{x+\tan^{-1}x}{\left(1+x^2\right)^{\frac{3}{2}}}dx$ dk eku Kkr dhft,A

2 $\int \frac{\tan x.\sec x}{1-\tan^2 x}dx$ dk eku Kkr dhft,A

3- $\int \frac{1+\tan x}{x+\log(\sec x)}dx$ dk eku Kkr dhft,A

4- $\int \frac{e^{m\,tan^{-1}x}}{1+x^2}dx$ dk eku Kkr dhft,A

5- $\int \frac{\sin x\cos x}{a^2\sin^2 x+b^2\cos^2 x}dx$ dk eku Kkr dhft,A

6- $\int \frac{2x\tan^{-1}\left(x^2\right)}{1+x^4}dx$ dk eku Kkr dhft,A

7- $\int \frac{(3\sin\theta-2)\cos\theta}{5-\cos^2\theta-4\sin\theta}d\theta$ dk eku Kkr dhft,A

8- $\int \frac{e^{2x}-e^{-2x}}{e^{2x}+e^{-2x}}dx$ dk eku Kkr dhft,A

9- $\int e^x\left(\frac{1-\sin x}{1-\cos x}\right)dx$ dk eku Kkr dhft,A

10- $\int \frac{dx}{\sin(x-\alpha).\sin(x-\beta)}$ dk eku Kkr dhft,A

11- fl) dhft, fd $\int_0^{\frac{\pi}{2}}\log(\sin x).dx=-\frac{\pi}{2}\log 2$

12- $\int_0^{\pi}\frac{x\sin x}{1+\cos^2 x}dx$ dk eku Kkr dhft,A

13- $\int \frac{dx}{4+5.\cos x}$ dk eku Kkr dhft,A

14- $\int_0^{\frac{\pi}{2}}\sin 2x.\log\tan x\,dx$ dk eku Kkr dhft,A

15- fl) dhft, fd $\int_0^{\frac{\pi}{2}}\frac{x\sin x.\cos x}{\cos^4 x+\sin^4 x}dx=\frac{\pi^2}{16}$

16- fl) dhft, fd $\int_0^{\pi} \frac{x \tan x}{\sec x + \tan x} dx = \pi\left(\frac{\pi}{2} - 1\right)$

17- fl) dhft, fd $\int_0^{\frac{\pi}{2}} \frac{dx}{1+\sqrt{\tan x}} = \frac{\pi}{4}$

18- fl) dhft, fd $\int_{-a}^{a} \sqrt{\frac{a-x}{a+x}} dx = \alpha\pi$

19 fl) dhft, fd $\int_{\frac{\pi}{20}}^{a\frac{3\pi}{10}} \frac{\sin x}{\sin x + \cos x} dx = \frac{\pi}{20}$

20 $\sqrt{tan\theta}\, d\theta$ dk eku Kkr dhft, A

21 ijoy; $y^2 = 4ax$ rFkk $y = mx$ d e/; f?kj {k=Qy dk {k=Qy Kkr dhft,A

22 oØ $y^2 = 4ax$ rFkk $x^2 = 4ay$ l f?kj {k= dk {k=pQy Kkr dhft,A

23 ijoy; $y^2 = 4x$ vkj $x^2 = 4y$ l f?kj {k= dk {kp=Qy Kkr dhft,A

24 j[kk $y = x$,o oØ $y^2 = 16x$ l f?kj {k= dk {k=Qy Kkr dhft,A

25 nh?k or $\frac{x^2}{4} + \frac{y^2}{9} = 1$ l f?kj {k= dk {k=Qy Kkr dhft,A

bdkb & 7
vodyu lehdj.k

vfr y?kRrjh; i'u

1- vody lehdj.k fdl dgr g le>kb,A

2 fdlh vody lehdj.k dh dkfV rFkk ?kkr l D;k le>r g\

3 vody lehdj.k $\frac{\left[1+\left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}}}{\frac{d^2y}{dx^2}}$ dh dkfV rFkk ?kkr Kkr dhft,A

4 vody lehdj.k Kkr dju dh dk; fof/k le>kb,A

5 vody lehdj.k cukb, ;fn $y=a\cos(x+b)$ tgk a rFkk b LoPN vpj gA

6 ml ljy j[kk dk vody lehdj.k Kkr dhft, tk ey fcUn l xtjrh gA

7 fdlh vody lehdj.k d gy l D;k rkRi; g\ le>kb,A

8 fl) dhft, fd $y = a\cos nx + b\sin nx$ vodyu lehdju $\frac{d^2y}{dx^2}+n^2y=0$ dk,d gy gA

9 vody lehdj.k $\frac{dy}{dx}+2x=e^{3x}$ dk gy Kkr dhft,A

10 vody lehdj.k $\frac{dy}{dx}=4y$ dk gy dhft,A

11 le?kkr vody lehdj.k fdl dgr g\ le>kb,A

12 le?kkr vody lehdj.k dk gy dju dh pj.k'kh ifØ;k fyf[k,A

13 vody lehdj.k $\frac{dy}{dx}=\frac{x+2y+3}{2x+3y+4}$ dk le?kkr lehdj.k d :i e cnfy,A

14 j[kh; vody lehdj.k dk ekud :i D;k g lekdyu x.kkd l D;k le>r gA

bdkbZ &7
¼vodyu lehdj.k½

y?kqRrjh; iz'u &

1 lehdj.k gy dhft,A

$$\frac{dy}{dx}=1+x+y+xy$$

2 vodyu lehdj.k $\frac{dy}{dx}=e^{x-y}+x^2e^{-y}$ dk gy dhft,A

3 vodyu lehdj.k dk gy Kkr dhft,A

$$(1+x)\left(1+y^2\right)dx+(1+y)\left(1+x^2\right)dy=0$$

4 vodyu lehdj.k $\frac{dy}{dx}+\frac{1-\cos 2y}{1-\cos 2x}=0$ dk gy dhft,A

5 vodyu lehdj.k $\frac{d^2y}{dx^2}=6x-2$ dk gy dhft,A

6 vodyu lehdj.k $\frac{dy}{dx}+y=e^x$ dk gy dhft,A

7 fuEu vodyu lehdj.k dk gy dhft, $\frac{dy}{dx}-y=xe^x$

8 gy dhft, $x.\frac{dy}{dx}+y=x^3$ tcfd $y=1$;fn $x=2$

9 cjukSyh d lehdj.k dk ekud :i D;k g bl gy dju dh dk;Z fof/k fyf[k,A

10 lehdj.k $x.\frac{dy}{dx}+y=xy^3$ dk gy dhft, A

11 lehdj.k $x.\frac{dy}{dx}+y=x^3y^6$ dk gy dhft,A

12 fn; x; vodyu lehdj.k dk gy dhft,A

$$\sqrt{1+x^2+y^2+x^2y^2}+xy.\frac{dy}{dx}=0$$

13 vodyu lehdj.k $(x-1)\frac{dy}{dx}=2x^3y$ dk gy dhft,&

14 vodyu lehdj.k $\frac{dy}{dx}=\frac{x-y+3}{2x-2y+5}$ dk gy dhft,A

bldkbl &7
¼vodyu lehdj.k½

nh?kl mRrjh; i!'u &

1 vodyu lehdj.k $\left(1+x^2\right)\sec^2 y\, dy+2x\tan y dx=0$ dk gy dhft, tc $x=1$ rc $y=\frac{\pi}{4}$-

2 fuEu vodyu lehdj.kk dk gy dhft, &

$(i)\ \frac{dy}{dx}=\tan^2(x+y)$ $\qquad (ii)\ \frac{dy}{dx}=(3x+y-1)^2$]

3- vodyu lehdj.k $x.\frac{d^2y}{dx^2}=1$ dk gy dhft, ;fn $y=1,\ \frac{dy}{dx}=0$ tc $x=1$-

4 vodyu lehdj.k $(x+y)dx+xdy=0$ dk gy dhft,A

5 vodyu lehdj.k $(2x+y-3)dy=(x+2y-3)dx$ dk gy dhft,A

6- vodyu lehdj.k $x\left(1-x^2\right)dy+\left(2x^2y-y-ax^3\right)dx=0$ dk gy dhft,A

7- $x.\log_e x\frac{dy}{dx}+y=2\log_e x$ dk gy dhft,A

8- vodyu lehdj.k $\sec^2 y\frac{dy}{dx}+2x\tan y=x^3$ dk gy dhft,A

9- vodyu lehdj.k gy dhft, $\cos x(1+\cos y)dx-\sin y(1+\sin x)dy=0$

10- vodyu lehdj.k gy dhft, $\frac{dy}{dx}+x.\sin 2y=x^3.\cos^2 y$

bdkbl &07
vodyu lehdj.k

vfr y?kqRrjh;¼&

¼1½ vodyu lehdj.k $\frac{d^2y}{dx^2}+\left(\frac{dy}{dx}\right)^2+y^2=0$ dh dksfV rFkk ?kkr fyf[k,A

¼2½ vodyu lehdj.k $\sqrt{\frac{dy}{dx}}-4\frac{dy}{dx}-7x=0$ dh dksfV rFkk ?kkr fyf[k,A

¼3½ vodyu lehdj.k $p=\frac{\left[1+\left(\frac{dy}{dx}\right)^2\right]^{\frac{3}{2}}}{\frac{d^2y}{dx^2}}$ dh dksfV rFkk ?kkr fyf[k,A

¼4½ vodyu lehdj.k $\frac{d^2y}{dx^2}=\left[y+\left(\frac{dy}{dx}\right)^2\right]^{\frac{1}{4}}$ dh dksfV rFkk ?kkr fyf[k,A

¼5½ vodyu lehdj.k $x\frac{dy}{dx}+2y=x\cos x$ dk lekdyu x.kkd (I.F) Kkr dhft,A

¼6½ vodyu lehdj.k $\cos^2 x\frac{dy}{dx}+y=\tan x$ dk I.F Kkr dhft,A

¼7½ vodyu lehdj.k $\left(1+x^2\right)\frac{dy}{dx}+y=e^{\tan^{-1}x}$ dk I.F Kkr dhft,A

y?kq mRrjh; iz”u

¼1½ vodyu lehdj.k $(1+\cos x)dy=(1-\cos x)dx$ dk gy dhft,A

¼2½ vodyu lehdj.k $\frac{dy}{dx}=\sec x(\sec x+\tan x)$ dk gy dhft,A

¼3½ vodyu lehdj.k $\frac{dy}{dx}+2x=e^{3x}$

¼4½ vodyu lehdj.k $\left(e^x+e^{-x}\right)\frac{dy}{dx}=\left(e^x-e^{-x}\right)$

¼5½ vodyu lehdj.k $\frac{dy}{dx}=\frac{1-\cos 2y}{1+\cos 2y}$

¼6½ vodyu lehdj.k $\cos x.\cos y\frac{dy}{dx}=-\sin x.\sin y$

¼7½ vodyu lehdj.k $\frac{dy}{dx}=e^{x-y}+x^2e^{-y}$

¼8½ vodyu lehdj.k $\frac{dy}{dx}=1+x+y+xy$

¼9½ vodyu lehdj.k $\frac{dy}{dx}=1-x+y-xy$

¼10½ vodyu lehdj.k $\sec^2 x.\tan y dx+\sec^2 y.\tan x dy=0$

¼11½ vodyu lehdj.k $\frac{dy}{dx}=2^{y-x}$

¼12½ vodyu lehdj.k $\frac{dy}{dx}=\frac{1+y^2}{1+x^2}$

¼13½ vodyu lehdj.k $\frac{dy}{dx}=(4x+y+1)^2$

¼14½ vodyu lehdj.k $3e^x.\tan y dx+(1+e^x)\sec^2 y dy=0$

¼15½ vodyu lehdj.k $\frac{dy}{dx}=e^{x+y}+x^3e^y$

¼16½ vodyu lehdj.k $\frac{d^2y}{dx^2}=x$ dk gy dhft,A

¼17½ vodyu lehdj.k $\cos^2 x.\frac{d^2y}{dx^2}=1$

¼18½ vodyu lehdj.k $\frac{d^2y}{dx^2}=x+e^x$ dk gy dhft,A

¼19½ vodyu lehdj.k $x\frac{dy}{dx}-y=x^2$ dk gy dhft,A

¼20½ vodyu lehdj.k $\frac{dy}{dx}-\frac{y}{x}=2x^2$ dk gy dhft,A

nh?kZmRrjh; iz”u

¼1½ vodyu lehdj.k $(1+x^2)\frac{dy}{dx}+2xy=4x^2$ dk gy dhft,A

¼2½ vodyu lehdj.k $(1+y^2)dx=(\tan^{-1}y-x)dy$

¼3½ vodyu lehdj.k $(x+y+1)\frac{dy}{dx}=1$

¼4½ vodyu lehdj.k $(x+2y^3)\frac{dy}{dx}=y$

¼5½ vodyu lehdj.k $\frac{dy}{dx}+\frac{3x^2}{1+x^2}y=\frac{\sin^2 x}{1+x^3}$

¼6½ vodyu lehdj.k $x\frac{dy}{dx}+y=xy^3$

¼7½ vodyu lehdj.k $\sec^2 y \frac{dy}{dx} + 2x \tan y = x^3$

¼8½ vodyu lehdj.k $\sqrt{1 + x^2 + y^2 + x^2 y^2} + xy \frac{dy}{dx} = 0$

¼9½ vodyu lehdj.k $\left(x^2 - xy\right) dy + y^2 dx = 0$

¼10½ vodyu lehdj.k $\frac{dy}{dx} = \frac{3xy + y^2}{3x^2}$

bdkbZ 8-
lkaf[;dh

y?kqRrjh; iz'u %&

¼1½ f}pj vkdM fdUg dgr g \
¼2½ lglEc/k ,o lekJ;.k e dkb nk vrj fyf[k,A
¼3½ **[kkyh LFkku Hkfj;&**
¼a½ oRr dk {k=Qy $a=\pi r^2$,d --------------- gA
¼b½ yEc 0;fDr dk Hkkj Hkh vf/kd gkuk --gA
¼4½ i.k lglc/k fdl dgr g \
¼5½ lg fopj.k Kkr dhft, tcfd $\sum x=60, \sum y=90, \sum xy=550, n=15$ gA
¼6½ **lR; vlR; fyf[k,&**
¼a½ ;fn x rFkk y d e/; lglc/k r gk rk y rFkk x d chp lglc/k $\frac{1}{r}$ gkxkA
¼b½ dkyih;j&lu dk lglc/k ey fcUn rFkk iekus nkuk ij fuHkj djrk gA
¼c½ lglc/k x.kkd lekJ;.k x.kkdk dk x- ek- gkrk gA
¼d½ ;fn ,d lekJ;.k x.kkd 1 l cMk gk rk nljk 1 l NkVk gkxkA
¼7½ ;fn $b_{xy}=b_{yx}=-\frac{1}{4}$ gk rk r dk lgh eku fdruk gkxk rFkk D;k \
¼8½ **[kkyh LFkku Hkfj;&**
¼a½ i.k lglc/k gku ij lekJ;.k j[kk, -------------------gkrh gA
¼b½ lekJ;.k x.kkdk dk lekrj ek/; lglc/k x.kkd l -------------------gkrk gA
¼c½ $r.\frac{\sigma_x}{\sigma_y}$ dk -----------------------dk lekJ;.k x.kkd dgr gA
¼d½ ;fn nk lekJ;.k j[kkvk d vhp dk dk.k θ gk rk $\tan\theta$ dk eku ------------------ gkrk gA
¼9½ ijLij vioth ?kVuk dh ifjHkk'kk ,o ,d mnkgj.k fyf[k,A
¼10-½ fdlh ?kVuk d ?kVu dh ikf;drk $\frac{3}{7}$ g rk u ?kVu dh ikf;drk Kkr dhft,A
¼11-½ feJ ikf;drk ie; fyf[k,A
¼12-½ rhu ikl ,d lkFk Qd tkr g ;kxQy 9 vku dh ikf;drk Kkr dhft,A

y?kqmRrjh; iz'u %&

¼1½ fuEu vkdMk d vk/kkj ij $Cov(x,y)$ dh x.kuk dhft,&
¼1]12½]¼3]7½] ¼2]9½] ¼5]6½] ¼6]6½ ¼7]16½] ¼8]3½] ¼9]20½]¼10]4½

¼2½ fuEu vkdMk l y dh x ij lekJ;.k j[kk dk lehdj.k ikIr dhft,A
¼0]6½ ¼1]5½] ¼2]4½ ¼3]3½] ¼4]2½

¼3½ ;fn $ax+by+c=0$ rFkk $a,x+b_1y+c_1=0$ Øe”k% y rFkk x dh ,d nlj ij lekJ;.k j[kk, rk fl) dhft, $\frac{a}{a_1} \leq \frac{b}{b_1}$

¼4½ ,d lkFk nk ikIk dk Qdu ij vdk dk ;kx del de 6 vku d vudy l;kxkuikr Kkr dhft,A

¼5½ lekU; rk”k dh xMMh dk vPNh rjg QVdj ,d rk”k [khpu ij bld lRrk ;k bDdk u gku dh ikf;drk Kkr dhft,A

¼6½ x rFkk y d ekuk ¼2]16½] ¼4]14½]¼6]12½]¼8]10½] ¼10] 8½ ¼11]6½] ¼14]4½] ¼16]2½ dk idh.ku vkj[k cukdj lglc/k Kkr dhft,A

nh?kmRrjh; i'u %&

¼1½ fl) dhft, fuEu vkdM i.k /kukRed lglc/k dk inf”kr djrk g%&

x	3	4	6	8	9
y	90	100	130	160	170

¼2½ fl) dhft, fd vkdM ¼&3]9½] ¼&2]4½] ¼&1]1½] ¼0]0½] ¼1]1½ ¼2]4½ rFkk ¼3]9½ lglc/k vHkko dk inf”kr djr gA

¼3½ fuEu lkj.kh l b_{xy} rFkk b_{xy} rFkk r Kkr dhft,A

x	17	18	19	19	20	20	21	22	21	23
y	12	16	14	11	15	19	16	15	22	20

¼4½ nk ?kukdkj ikl ,d lkFk mNky tkr g igy ikl ij fo’ke vFkok ;kx 8 vku dh ikf;drk Kkr dhft,A

¼5½ ?kVuk A d vudy l;kxkuikr $\frac{3}{4}$ rFkk B d vudy l;kxkrikr $\frac{5}{7}$ g rk ?kVuk u ?kVu dh ikf;drk Kkr dhft,A

vfr y?kRrjh; i'u &

1 lg lEc/k x.kkd (r) dk eku fdld e/; gkrk g fyf[k, A

2 ;fn i.k _.kkRed lg lEc/k g rk r dk eku D;k gkxk fyf[k,A

3 ;fn i.k /kukRed lg lEc/k g rk r dk eku D;k gkxk fyf[k,A

4 ;fn x rFkk y d e/; lg lEc/k x.kkd r g rk y rFkk x d e/; lg lEc/k x.kkd D;k gkxk fyf[k,A

5 ;fn x vkj y Lor= pj gk rk lg lEc/k x.kkd (r) dk eku fyf[k,A

6 *regression line of y on x* dk lehdj.k fyf[k,A

7 *regression line of x on y* dk lehdj.k fyf[k,A
8 *regression coels* ¼lekJ;.k x.kkd½ *of y on x* dk eku fyf[k,A
9 lekJ;.k x.kkdk dk x.kkRrj ek/; fdld cjkcj gkrk g fyf[k,A
10 ;fn lekJ;.k j[kk, ijLij yEcor g rk r dk eku D;k gkxk fyf[k,A
11 ;fn lekJ;.k j[kk, likrh g rk r dk eku D;k gkxk fyf[k,A
12 ;fn ,d lekJ;.k x.kkd dk eku ,d l cMk g rk nljk lekJ;.k x.kkd dk eku ,d l D;k gkxk fyf[k,A
13 lekJ;.k x.kkdk rFkk lg lEc/k x.kkd d fpUg D;k gkr g fyf[k,A
14 ;fn nk lekJ;.k j[kkvk d chp dk dk.k θ gk rk $tan\theta$ dk eku fyf[k,A
15 lekJ;.k x.kkdk dk lekukrj e/; lglEc/k x.kkd (r) l D;k gkrk g fyf[k,A
16 ekud =fV $y \text{ on } x\ S_{yx}$ dk eku fyf[k,A
17 ekud =fV $x \text{ on } y\ S_{xy}$ dk eku fyf[k,A

y?kRrjh; i'u&

1 ;fn $\sum x=15, \quad \sum y=36, \sum xy=110, \; n=5$ gk rk lgilj.k $(\text{cov}\,ariance)$ Kkr dhft,A

2 fuEu vkdMk $(1,10)(2,9)(3,8)(4,7)(5,6)(6,5)(7,4)(8,3)(9,2)(10,1)$ l $\text{cov}\,ariance$ dh x.kuk dhft,A

3 fuEu lkj.kh dk lgilj.k Kkr dhft,A

x	3	4	5	6	7
y	8	7	6	5	4

4 ;fn $\text{cov}(x,y)=-2.25, \text{var}(x)=6.25, \text{var}(y)=20.25$ g rk lg lEc/k x.kkd (r) Kkr dhft,A

5 ;fn $\sum x=50, \sum y=-30, \sum x^{2,}=290, \sum y^2=300, \sum xy=-115, n=10$ g rk lg lEc/k x.kkd Kkr dhft,A

6 ;fn $\text{var}(x)=9, \text{var}(y)=16, \text{cov}(x,y)=8$ g rk r dk eku Kkr dhft,A

7 ;fn nk lekJ;.k x.kkd $-a$ rFkk $\frac{-1}{a}$ g rk lg lEc/k x.kkd (r) Kkr dhft,A

8 ;fn nk lekJ;.k j[kk, d lekJ;.k x.kkd $by\ x=1.6$ rFkk $bxy=0.4$ g rk $tan\theta$ dk eku Kkr dhft,A

9 ;fn nk lekJ;.k j[kk, x v{k dh fn"kk d lkFk 30° rFkk 60° dk dk.k cukrh g rk lg lEc/k x.kkd Kkr dhft,A

10 nk lekJ;.k j[kkvk dh lehdj.k $4x+3y+7=0$ rFkk $3x+4y+8=0$ g rk x rFkk y dk ek/; Kkr dhft,A

11 ;fn $\sum x=15, \sum y=15, \sum x^2=55, \sum y^2=33$ vkj $\sum xy=53$ gk rk lekJ;.k x.kkd bxy Kkr dhft,A

12 ;fn $\sum x=24, \sum y=44, \sum xy=306, \sum x^2=164, \sum y^2=574, n=4$ lekJ;.k x.kkd byx Kkr dhft,A

nh?k mRrjh; i'u&

1 fuEu vkdMk l lg lEc/k x.kkd Kkr dhft,A

x	-4	-3	-2	-1	0	1	2	3	4
y	7	5	3	1	0	1	3	5	7

2 fuEu vkdMk l lg lEc/k x.kkd Kkr dhft,A

x	65	66	67	67	68	69	70	72
y	67	68	65	68	72	72	69	71

3 fuEu vkdMk l lg lEc/k x.kkd Kkr dhft,A

x	23	27	28	28	29	30	31	33	35	36
y	18	20	22	27	21	29	27	29	28	29

4 nk lekJ;.k j[kk, $x+2y=5$ rFkk $2x+3y-8=0$ g rk Kkr dhft,A

(1) x RkFkk y (2) lekJ;.k x.kkd byx rFkk bxy

(3) lg lEc/k x.kkd (4) ;fn $\sigma_x{}^2=12$ gk rk y dk i lj.k

5 nk lekJ;.k j[kk, $8x-10y+66=0$ rFkk $40x-18y=214$ g rk Kkr dhft,A

(1) x vkj y d ek/; (2) lekJ;.k x.kkd byx rFkk bxy

(3) lg lEc/k x.kkd (r)

6 fuEu vkdMk l lekJ;.k j[kkvk dh lehdj.k Kkr dhft,A

x	1	2	3	4	5
y	2	5	3	8	7

7 fuEufyf[kr vkdMk l y dk eku Kkr dhft, (tcfd $x=70$ gA

J.kh	x	y
ek/;	18	100
ekud fopyu	14	20
vkj lg lEc/k x.kkd		$=.8$

ikf;drk
(Probability)

1 ,d flDdk dk mNkyu ij *head* vku dh ikf;drk D;k gkxh A

2 nk flDdk dk ,d lkFk Qdk tkrk g Ankuk d *head* vku dh ikf;drk D;k gkxhA

3 nk flDdk dk ,d lkFk Qdk tkrk g rk de l de ,d *head* vku dh ikf;drk Kkr dhft,A

4 nk flDdk dk ,d lkFk Qdk tkrk g nkuk ij *head* ;k nkuk ij *tail* vku dh ikf;drk Kkr dhft,A

5 rhu flDdk dk ,d lkFk Qdk tkrk g nk *head* vku dh ikf;drk Kkr dhft,A

6 rhu flDdk dk ,d lkFk Qdk tkrk g rk de l de ,d *head* vku dh ikf;drk Kkr dhft,A

bdkbZ 9-
;kaf=d foKku

vfr y?kqmRrjh; %&

¼1½ ;kaf=d foKku fdls dgrs gS\

¼2½ ;kaf=d foKku ds nks 'kk[kkvks ds uke fyf[k,A

¼3½ fLFkfr foKku esa D;k v/;;u djrs gS\

¼4½ xfr foKku esa D;k v/;;u djrs gS\

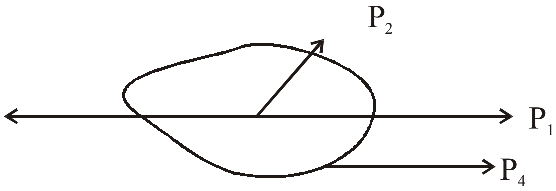
¼5½ ;kaf=d foKku dk C;ogkfjd thou esa nks mi;ksx fyf[k,A

¼6½ cy dh ifjHkk"kk fyf[k,A

¼7½ cy ds fujis{k bdkb;ks ds uke fyf[k,A

¼8½ ,d fi.M ij 5N cy yxk gS bl dFku ds nksuks vFkZ dk cy ds ek=d N ds vk/kkj ij fyf[k,A

¼9½



mijksDr fp= esa lej[kh;] lxkeh ,oa lekarj cy NkaV dj fyf[k,A

¼10½ **mfpr lEcU/k tksfM+;s %&**

	A		B
(i)	{ks=Qy	&	ehVj ifr ls-
(ii)	Roj.k	_	fdyks xke eh-
(iv)	cy	&	ls- eh- ifr ls-
(v)	cy vk?k.k	&	oxZ QV

¼11½ cyks ds l;ktu ,oa fo;kstu dh ifjHkk"kk fyf[k;sA

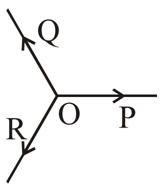
¼12½ fdlh cy F ds fØ;k js[kk ls θ dk.k ij ledkf.kd ?kVdk dk fyf[k,A

¼13½ cy p rFkk $15N$ dk ifje.k p ds lkFk $\tan^{-1}\frac{\sqrt[3]{3}}{7}$ dk.k cukrk gS rks p dk eku Kkr dhft,A

¼14½ 10N cy dk ,d ?kVd dk ifj.kke $\frac{10\sqrt{3}}{2}N$ gS mlds nljs /kkjd Kkr dhft,A

¼15½ fuEu fp=kuqlkj p,Q rFkk R ds iHkko esa 0 lryu esa gS rks lcf/kr ie; dk uke rFkk dFku fyf[k,A

¼16½ $12N, 5N$ rFkk $13N$ ds rhu cy lryu esa gS rks $12N$ rFkk $5N$ ds chp dk.k Kkr dhft,A



¼17½ cyk d cgHkt dk fu;e fyf[k,A

¼18½ ;fn ox u rFkk v d chp dk dk.k α gk rFkk mudk ifj.kke ox v] u dh fn"kk d lkFk θ dk.k cukrk gk rk $\sin\theta$ rFkk $\cos\theta$ dk eku fyf[k,A

¼19½ ,d d.k }kjk t l- e pyh xbZ njh x dk leh-] $x = 20t^2 + 50t + 9$ l fn;k tkrk g 2 ld.M ckn mldk ox Kkr dhft,A

¼20½ i{kl; xfr e ukfHkyc dh eki -----------------------gkrk gA

¼21½ i{kl; iFk dh fu;rk dh Åpkb ---------------------gkrk gA

¼22½ **mfpr lcU/k tkfM;%&**

	A		B
¼i½	egRre Åpkb	&	$\frac{u^2 \sin 2\alpha}{g}$
¼ii½	mM;u dky	&	$\frac{u^2}{g}$
¼iii½	{kfrt ijkl	&	$\frac{u^2 \sin^2 \alpha}{2g}$
¼iv½	egRre {kfrt ijkl	&	$\frac{2u \sin\alpha}{g}$

y?kqRrjh; iz'u %&

¼1½ 30N rFkk 10N ifjek.k d nk cyk dk ifj.kkeh $10\sqrt{7}N$ g rk cyk d chp dk dk.k Kkr dhft,A

¼2½ ;fn 120^0 d dk.k ij fØ;k"khy nk cyk e l ,d cy 80 fd- xk- Hkkj g ;fn ifj.kkeh NkV cy d lkFk ledk.k cukrk g rk NkVk cy dk ifjek.k Kkr dhft,A

¼3½ $\frac{3\pi}{4}$d dk.k ij cy p rFkk $\sqrt{2}\,p$ fØ;k"khy g ifj.kkeh NkV cy d lkFk ledk.k cuk,xk fl) dhft,A

¼4½ 10N d $\frac{\pi}{6}$ rFkk $\frac{\pi}{3}$ dk.k ij cy d foifjr fn"kkvk e ?kVdk dk vuikr Kkr dhft,A

¼5½ fcn o ij fØ;k"khy cy p rFkk Q dk feyku okyh j[kk dk ifj.kkeh dh f=T;k j[kk N ij dkV rk fl) dhft, $\frac{p}{OL} + \frac{Q}{OM} - \frac{R}{ON} = 0$

¼6½ fdlh f=Hkt d x- d dk f=Hkt d "kh'kk dk feyku oky j[kkvk d vufn"k fØ;k dju oky cy lryu e gkx fl) dhft,A

¼7½ $x = 63t - 6t^2 - t^3$ l inf”kr fLFkfr leh- d vulkj xfr”khy d.k fojkekoLFkk e vku d io fdruh njh r; dhft,xkA

¼8½ ;fn ,d d.k 3 eh@l-] 5eh-@l rFkk 7eh-@l d iHkko e fojke e g fl) dhft, iFke nk d chp dk dk.k $\frac{\pi}{3}$ gkxkA

¼9½ m?okZ/kjr% Åij dh vkj Qdk x;k fi.M 10eh- mpkbZ rd tkrk g fi.M dk i{ki.k ox rFkk okil iFoh ij vku e yxk le; Kkr dhft,A

nh?kZmRrjh; %&

¼1½ cy P rFkk Q fdlh d.k ij fØ;k”khy g rFkk $2P$ Hkh mlh d.k ij fØ;k”khy g ;fn nkuk fLFkfr;k e mudk ifj.kke P gk rk fl) dhft, mud chp dk dk.k $\frac{5\pi}{6}$ gkxkA

¼2½ $\frac{2\pi}{3}$ dk.k ij fØ;k”khy nk cyk dk ifj.kkeh $\sqrt{19}N$ gA tc ogh cy $\frac{\pi}{3}$ dk.k ij fØ;k djrk g rk ifj.kkeh $7N$ gk tkrk gA cyk d ifj.kke Kkr dhft,A

¼3½ $50N$ Hkkj dk ,d fi.M 3eh- vkj 4eh- yEch nk Mkfj;k l ,d {kfrt j[kk e 5eh- njh ij nk fcUnvk e yVdk gvk gA Mkfj;k e ruko Kkr dhft,A

¼4½ cy $P+Q, P\sqrt{3}$ rFkk $P-Q$ fdlh d.k ij fØ;k”khy g iFke ,o f}rh; d chp 120^0]f}rh; ,o rrh; d chp 90^0 rFkk rrh; ,o prFk d chp 150^0 dk dk.k g mudk ifj.kkeh Kkr dhft,A

¼5½ ,d Vu 20 fd-eh-@?kVk l xfr dj jgk g] $\frac{1}{8}$ fd-eh- njh r; dju d ckn mldk ox 60fd-eh- gk tkrk g ;fn Roj.k leku gk rk bldk eku Kkr dhft,A

¼6½ ,d cl l 40 eh- njh ij 9eh-@l-dh nj l nkMrk gvk 0;fDr ml cl dk dc vkj fdruh njh ij idMxk ;fn cl 1eh-@ld.M^2 dh Roj.k l c< jgh gA

¼7½ fdlh Vkoj d Nr l fxjrk gvk fi.M vfre ld.M e dy Åpkb dk $\frac{9}{25}$ ok Hkkx r; djrk gA Vkoj dh Åpkb Kkr dhft,A

¼8½ ,d i{kl; dk ijkl R rFkk iklr egRre Åpkb H gA rk fl) dhft, fd i{kl; ox $\sqrt{\frac{2(R^2+16H^2)}{8H}}$ gkxkA

¼9½ dk.k θ ij fØ;k dj jg nk cy P rFkk Q dk ifj.kkeh $(2m+1)\sqrt{P^2+Q^2}$ d cjkcj g tcfd mud chp dk dk.k $\left(\frac{\pi}{2}-\theta\right)$ g rk ifj.kkeh $(2m-1)\sqrt{P^2+Q^2}$ gk tkrk g rk fl) dhft, fd $\tan\theta = \frac{m-1}{m+1}$-

¼10½ nk cyk P vkj Q dk ifj.kkeh R gA ;fn mud chp dk dk.k α gA ;fn P dk nkxuk dj fn;k tk; rk ifj.kkeh nxuk gk tkrk gA fl) dhft,&

$$\sin\alpha = \left[\frac{16P - 9Q^2}{16P^2}\right]^{\frac{1}{2}}$$

¼11½ nk cyk P vkj Q dk ifj.kkeh R gA ;fn Q dk nxuk dj fn;k tk; rk Hkh R nxuk gk tkrk g fl) dhft, fd $P^2 : Q^2 : R^2 = 2 : 3 : 2.$

¼12½ $\lambda - \mu$ ie; dk dFku fy[kdj fl) dhft;A

¼13½ ykeh ie; dk dFku fy[kdj fl) dhft;A

¼14½ ,d d.k ij $1,2,3\sqrt{3}$ vkj 4 fd-xk- Hkkj d ,d leryh; cy yx gA igy vkj nl j] vkj rhl j vkj pkFk cyk d chp d chp d dk.k Øe"k% $60^0, 90^0$ vkj 150^0 gA bu cyk dk ifj.kkeh cy dk ifjek.k rFkk fn"kk Kkr dhft,A

¼15½ ,d d.k ,d lkFk nk ox 10eh-@l rFkk 15eh-@l-l j[krk g ftud chp dk dk.k 60^0 gA ifj.kkeh ox dk ifjek.k ,o fn"kk Kkr dhft,A

¼16½ ;fn ,d d.k 3eh-@l-]5eh-@l- rFkk 7eh-@l- d ox j[kr g, fojkekoLFkk e gA rk iFke nk oxk d chp dk dk.k Kkr dhft;A

¼17½ ;fn ,d fcUn dk nk fn"kkvk e ox ifjek.k e u d cjkcj g rFkk mudk ifj.kkeh ox Hkh u gA nkuk oxk d e/; dk.k Kkr dhft,A

¼18½ fdlh {k.k fi.M dk ox 15eh-@l g] 10ld.M i"pkr bldk ox 45eh-@l- gA ;fn ox e ifjoru ,d leku g] rk fi.M }kjk r; dh xbi njh Kkr dhft,A

¼19½ nk fi.M m/ok/kjr% mij dh vkj Qd tkr g] mud oxk dk vuikr 2%5g] rk mudh vf/kdre Åpkb dk vuikr Kkr dhft,A

¼20½ ,d fi.M dk Åph ehukj l iFoh rd fxju e 30 ld.M dk le; yxrk g ehukj dh Åpkb Kkr dhft,A ¼fn;k g $g = 10\ m/s^2$½

¼21½ ;fn d.k dk mMM;u dky T]{kfrt ijkl R rFkk i{ki.k dk.k α g rk] fl) dhft, fd $\tan\alpha = \dfrac{gT^2}{2R}$-

¼22½ ;fn d.k dh egRre Åpkb] {kfrt ijkl d cjkcj g rk i{ki.k dk.k Kkr dhft,

¼23½ ,d i{ki.k dk {kfrt ry ij ijkl] iklr dh xb egRre Åpkb dk frxuk g] fl) dhft, fd] mMM;u dky $\dfrac{8u}{5g}$ g tcfd u i{ki ox gA

¼24½ ;fn fi.M ckjh&ckjh l ,d gh ox l nk fHkUu& fHkUu dk.kk ij Qdk tkrk gA ;fn nkuk ckj ,d gh ijkl R gk rFkk mMM;u dky Øe"k% t rFkk t' g] rk fl) dhft, fd $R = \dfrac{1}{2}gtt'$

¼25½ ,d d.k α i{ki dk.k ij Qdk tkrk g vkj t le; i"pkr i{ki fcUn l n[ku ij ;g β mUuk"k ij pyrk fn[kkb nrk g fl) dhft, fd mldk i{ki ox $\frac{gt\cos\beta}{2\sin(\alpha-\beta)}$ gkxkA

(26) dkb i{kl; ,l y{; ij Qdk tkrk g] tk i{ki fCkn l tku okyh {kfrt lery e gA tCk mUurk"k α g rCk ;g y{; l a njh igy tCk mUUkk"k β g rCk b njh vkx tkdj fxjrk gA fl) dfft; fd ;fn i{ki dk lCk fn"kkvk e leku gk rk mi;Dr i{ki dk.k $\frac{1}{2}\sin-1\left[\frac{a\sin 2\beta+b\sin 2\alpha}{a+b}\right]$ gkxkA

bdkb 10 vkfdd fof/k;k

y?k mRrjh; i'u

¼1½ vkfdd fo"y'k.k fdl dgr g\

¼2½ lfUudV ekUkk dk Kkr dju dh fof/k;k d uke fyf[k;A

¼3½ l= $x_{n+1}=\frac{1}{3}\left[2x_n+\frac{N}{x_n^{\ 2}}\right]$ l D;k Kkr djr g

¼4½ vkfdd lekdyu fdl dgr g?

¼5½ vkfdd lekdyu Kkr dju dh fof/k;k d uke fyf[k; A

¼6½ **lR; vlR; fyf[k;&**

(a) flEilu d ,d frgkb fu;e d oØ $y=f(x)$, oRrkdkj ekuk x;k g A

(b) U;Vu jQlu fof/k fdlh lehdj.k d okLrfod ey Kkr dju d fy; mi;kxh gkrk g A

(c) xf.kr dh og "kk[kk ftle vkfdd fof/k;k dk v/;;u fd;k tkrk g vkfdd lekdyu dgykrk g A

(d) flEilu fu;e e mi vrjkyk dh l[;k lno le gkrh g A

y?k mRrjh; :–

(1) $n=4$ ydj $\int_0^4 e^x dx$ dk eku Kkr dhft; tCkfd

$e^0=1, e^1=2.72, e^2=7.39, e^3=20.09, e^4=54.60$

(2) ,d unh 80 ehVj PkkMh g fdukj l x njh ij unh dh xgjkb d dk fuEukuqlkj inf"kr fd;k x;k g $(0,0)(10,4)(20,7)(30,9)(40,12)(50,15)(60,13)(70,10)(80,3)$ unh d vuiLFk dkV dk {k=Qy Kkr dhft;A

nh?kZ mRrjh; :–

(1) ,d oØ fuEu fCknvk l xtjrk g ftud fUkn"kkd

$(1,2)(1.5,2.4)(2,27)(2.5,2.8)(3,3)(3.5,2.8)$ rFkk $(4,2.1)$ gA

leyCk PkrHkth; fu;e l x v{k rFkk dkfV;k $x=1,\chi=4$ l f?kj {k= dk {k=Qy Kkr dhft; A

(2) fuEu lkj.kh l flEilu fu;e l $\int_0^4 y\,dx$ dk eku Kkr dhft;A

x	1	1.5	2	2.5	3	3.5	4
y	2.5	2.5	2.4	2.8	3.2	3.4	3.8

bdkb 11 Ckfy;u Ckht xf.kr

vfr y?kq mRrjh; :–

(1) Ckfy; Ckhtxf.kr dh rhu lfØ;kvk d uke ,o ldr fyf[k; A

(2) }rrk dk fl)kr fyf[k; A

(3) oxle fu;e fyf[k; A

(4) Ckfy; Ckhtxf.kr B d lHkh vo;o a rFkk b d fy; $(a+b)'=a'.b'$ rFkk $(a.b)'=a'b'$ gk rk ;g dFku fdl fu;e l lCkf/kr gA

(5) Ckfy; Ckhtxf.kr d vroyu fu;e fyf[k; A

(6) Ckfy; Ckhtxf.kr e fl) dhft; $a+b=b \Rightarrow a.b=a$

(7) Ckyh; Qyu fdl dgr gA

(8) i?kku l;ktd dh ifjHkk'kk fyf[k; A

(9) ;fn $p\equiv$ xf.kr dfBu g,$q\equiv 4$ lel[;k g rk fuEu l=k dk rd okD;k e fyf[k;A

$(i)\, p\vee q \quad (ii)\, \square(p\vee q)$

(10) rd okD; $(p\vee q)\Rightarrow(p\wedge q)$ dh lR;rk lkj.kh Ckukb;

y?kq mRrjh; :–

(1) Ckfy;u Ckhtxf.kr B e $a,b\in b$ d fy; fl) dhft;

$(i)\ a+b=b\Rightarrow a.b=a \quad (ii)\ a+a'.b=a+b \quad (iii)\ (a+a'.b).(a'+a.b)=b$

¼2½ fuEufyf[kr Ckyh; Ckginnk d fy; Lohpu ifjiFk dk fuek.k dhft;

$(i)\ (x'+y).\left[x'+(z'.y)\right] \ (ii)\ (a+b).\left[a'+(c.b)\right] \ (iii)\ x.\left[y.(z+w)+z.(u+v)\right]$

¼3½ fl) dhft; fd fn;k x;k dFku $(p\wedge q\Rightarrow q)\Rightarrow(q\wedge zq)$,d 0;k?kkr gA

nh?k mRrjh; :–

(1) Ckfy; Ckh txf.kr dh lgk;rk l fl) dhft; fd

$$(a+b).(a'+c)=a.c+a'.b$$

(2) fl) dhft; fd fn;k x;k dFku $(p\Leftarrow q)\vee(r\Rightarrow p)$,d iu:fDr;k gA

bdkbZ 10
vkafdd fof/k;k¡
(Numerical Methods)

(1) ;fn $f(0)=1,\ f(1)=2.72$ rks leyEckh fu;e }kjk $\int_0^1 f(x)dx$ dk eku Kkr dhft;A

(2) ;fn $e^0=1, e^1=2.72, e^2=7.39, e^3=20.09$ rFkk $e^4=54.60$ gks rks leyEc prqHkZth; fu;e ls $\int_0^4 e^x dx$ dk eku Kkr dhft;A

(3) flEilu fu;e d s i;ksx ls fuEu vkadM+ksa d s fy;s $\int_1^3 f(x)d\chi$ dk eku Kkr dhft;A

x	1	1.5	2	2.5	3
f(x)	2.1	2.4	2.2	2.8	3

(4) ,d unh dh pkSM+kbZ 70 ehVj gSA ,d fdukjs ls x ehVj dh njh ij budh xgjkbZ y g s tks fuEufyf[kr lkj.kh esa nh xbZ g S rks leyEc prqHkZth; fu;e ls vuqiLFk dkV dk {ks=Qy Kkr dhft;A

x	0	10	20	30	40	50	60	70
y	0	4	7	9	12	15	14	8

bdkbZ 12
lapkj i)kfrxdh

vfr y?kq mRrjh; :–

(1) dEI;Vj dh nfu;k e bfrgkl e iFke uke iku dk J; fdl midj.k dk tkrk gSA

(2) dEI;Vj dh nfu;k e iFke ukxfjd dh rjg fdldk uke tMk g?

(3) fo"o d iFke ikxkej dk uke fyf[k;A

(4) fMftVy dEI;Vj d pkj Hkkxk d uke fyf[k;A

(5) je rFkk jke D;k g \

y?kq mRrjh; :–

(1) gkMo;j ,o lk¶Vo;j e rhu vrj fyf[k;A

(2) gkMo;j ,o lk¶Vo;j dk le>kb;A

(3) MkVk cl euteV flLVe dk le>kb;A.

nh?kZ mRrjh; :–

(1) vkijfVx flLVe d ie[k dk;Z fyf[k;A

(2) ,ukykx ,o fMftVy dEI;Vj dk le>kb;A

d{kk *XII*

xf.kr

oLrqfu'B iz'u lxzg

bdkbZ (1) (a) vkf'kd fHkUu

(2) lgh fodYi pqfu;s :–

¼1½ $\dfrac{3x}{(x-a)(x+3)}=\dfrac{2}{x-a}+\dfrac{1}{x+3}$ rks a dk eku gksxk

$(a)-1$ $(b)2$ $(c)4$ $(d)6$

¼2½ $\dfrac{3x+k}{(x^2-x+1)(x+2)}=\dfrac{x}{x^2-x+1}-\dfrac{1}{x-2}$ rks K dk eku gksxk

$(a)1$ $(b)-1$ $(c)2$ $(d)-2$

,d "kCn esa mRrj fyf[k,%&

¼3½ ;fn l;Dr fHkUu dk ljy fHkUu esa foHkDr dj fn;k gS rks bls D;k dgrs gS\

¼4½ ftl fHkUu esa va"k dk ?kkr gj d ?kkr ls cM+k gks rks mls dku lh fHkUu dgrs gS\

¼5½ ftl fHkUu esa gj dk ?kkr va"k d ?kkr ls cM+k gks rks mls dku lh fHkUu dgrs gS\

fjDr LFkku dh iwfrZ dhft,%&

¼6½ $\dfrac{...+1}{(3x+4)^2}=\dfrac{1}{(3x+4)}-\dfrac{3}{(3x+4)^2}$

¼7½ $\dfrac{x^2+1}{x(x^2-1)}=-\dfrac{1}{x}+\dfrac{1}{x-1}+\dfrac{1}{....}$

lR; vlR; fyf[k, %&

¼8½ $\dfrac{6x^3-5x^2+4}{(3x+1)(x-1)}$ fo'ke fHkUu gS

¼9½ $\dfrac{x+5}{x^2-6x+5}$ fo'ke fHkUu gS

¼10½ $\dfrac{1}{x(x+1)}=\dfrac{1}{x}+\dfrac{2}{x+1}$ gksxk

mRrj %& ¼1½ d ¼2½ b ¼3½ vkf"kd fHkUu ¼4½ fo'ke fHkUu
¼5½ mfpr fHkUu ¼6½ $3x$ ¼7½ $x+1$ ¼8½ lR; ¼9½ vlR; ¼10½ vlR;

(b) **Ikjf.kd**

Igh fodYi pqfu;s

(11) $\begin{vmatrix} -1 & 2 \\ 5 & -3 \end{vmatrix}$ dk eku gksxk

$(a)7$ $(b)-7$ $(c)4$ $(d)0$

(12) $\begin{vmatrix} 1 & \log_b a \\ \log_a b & 1 \end{vmatrix}$ dk eku gksxk

$(a)1$ $(b)\log_a b$ $(c)\log_a b$ $(d)0$

(13) $\begin{vmatrix} 1 & \omega \\ \omega & -1 \end{vmatrix}$ e $-w$ dk lg[kaM gksxk

$(a)w^2-1$ $(b)-(w^2-1)$ $(c)1$ (d) bue ls dksbZ ugha

,d "kCn esa mRrj fyf[k;s%&

(14) $\begin{vmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 9 & 8 & 7 \end{vmatrix}$ e $1,5,7$ fdl dk vo;o gS?

(15) $\begin{vmatrix} 5 & -1 \\ 3 & 4 \end{vmatrix}$ e Ikjf.kd dh dksfV D;k gksxh ?

(16) fdlh vo;o okyh ifDr ,o LrHk dk NksMu ij ikIr Ikjf.kd dk D;k dgr gS?

fjDr LFkku dh iwfrZ dhft;s

(17) $\begin{vmatrix} x & 2 \\ 2x & -3 \end{vmatrix} = \begin{vmatrix} 3 & -4 \\ 5 & -5 \end{vmatrix}$ gk rk x dk eku ....gksxk

(18) fdlh Ikjf.kd d fdlh LrHk d lHkh vo;o 'kU; gk rk mldk eku....... gksxk

(19) ;fn Ikjf.kd d nk LrHkk d vo;o lOkle gk rk mldk eku....... gksxk

IR; vIR; fyf[k;s

(20) $\begin{vmatrix} -\omega & \omega \\ \omega & 1 \end{vmatrix}$ dk eku -1 gksxk

(21) Rkrh; dksfV d Ikjf.kd d lHkh vo;ok e 2 dk x.kk djus ij Ikjf.kd dk eku 8 x.kk gk tk;xkA

(22) lkjf.kd d ifDr;k ,o LrHkk dk vkil e cnyu ij fpUg cny tkrk g

mRrj (11)b(12)d(13)c(14) e[; d.k(15) f}rh; (16) mi lkj.kh (17) $\frac{25}{7}$ (18)'kU;

(19) "kU; (20) v lR; (21) lR; (22)

(c) **vk0;g**

lgh fodYi pfu;s:–

(23) 3×4 vk0;g e vo;ok dh l[;k gkxh&

(a)3 (b)4 (c)1.2 (d) bue l dkb ugh

(24) $m\times n$,d LrHk vk0;g g rk b l e gkxk&

$(a)m=1(b)\ n=1(c)m=n(d)m\succ n$

(25) ;fn vk0;g A d fy; $A^2=A$ rk m l dgr g&

(a) lefer (b) fo'ke lefer (c) le"ke (d)bue l dkb ugh

,d "kCn e mRrj fyf[k;s:–

(26) ,d ox vk0;g A d fy; $A^1=-A$ rk m l dgx&

(27) fdlh vk0;g dk Øe $m\times n$ gk rFkk $m>n$ rk og gkxk

(28) $\begin{bmatrix} a & 0 \\ 0 & a \end{bmatrix}$, 2×2 Øe dk dku lk vk0;g g?

lR; vlR; fyf[k;s&

(29) ;fn x.ku vk0;g ;kx ij forj.k fu;e dk ikyu ugh djrkA

(30) $[aij]$e $i=j=1$ rk og ,dy vk0;g gkxkA

(31) $m\times n$,o $n\times p$ d Øe d vk0;gk dk x.ku lHko ugh gA

(32) vk0;g A rFkk B d fy; $(A+B)^1\neq A^1+B^1$

mRrj---

(23)c(24)b(25)c(26) fo'ke lefer (27)m/ok/kj vk0;g (28)vfn"k vk0;g

(29) vlR; (30) lR; (31)vlR; (32) vlR;

bdkbZ 2
i`frykse f=dks.kferh;

lgh fodYi pqfu;s&

(33) $\cos^{-1}\left(\cos\frac{\pi}{2}\right)$ dk eku gksxk&

$(a)\frac{\pi}{2}$ $(b)-\frac{\pi}{2}$ $(c)\,0$ (d) buesa ls dksbZ ugha

(34) $\tan^{-1}\frac{1}{2}+\tan^{-1}\frac{1}{3}$ dk eku gksxk&

$(a)\tan^{-1}\frac{5}{6}$ $(b)\,\frac{\pi}{5}$ $(c)\,\frac{\pi}{4}$ $(d)\,\frac{\pi}{6}$

(35) $\sin\left[\frac{\pi}{3}-\sin^{-1}\left(-\frac{1}{2}\right)\right]$ dk eku gksxk&

$(a)-\frac{1}{2}$ $(b)\,\frac{1}{2}$ $(c)\,-1$ $(d)\,1$

(36) x^4+1 dk gy gS&

$(a)\ \cos\frac{\pi}{4}+i\sin\frac{\pi}{4}$ $(b)\ \cos\frac{3\pi}{4}+i\sin\frac{3\pi}{4}$ $(c)\ \cos\frac{5\pi}{4}+i\sin\frac{5\pi}{4}$ (d) mijksDr lHkh

,d "kCn esa mRrj fyf[k;s&

(37) fdlh f=dks.kferh; Qyu ds lq[;kRed eku esa lcls NksVs eku dks D;k dgrs gSA

lR; vlR; fyf[k;s&

(38) $\operatorname{cosec}^{-1}\sqrt{\frac{1+x^2}{x}}=\sec^{-1}\sqrt{1+x^2}$ gksrk gSA

(39) $\sin^{-1}x+\sin^{-1}y=x+\sin^{-1}\left[x\sqrt{1+x^2}+y\sqrt{1-x^2}\right]$

(40) $2\sin^{-1}x=\cos^{-1}2x\sqrt{1-x^2}$

lgh tkfM;k cukb;s

(41) (A) (B)

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

$(2)\ \sin^{-1}2x$ $(b)\ 2\cos^{-1}x$

$(3)\ \tan^{-1}\frac{3x-x^3}{1-3x^2}$ $(c)\frac{1}{2}\cos^{-1}x$

$(4)\ \cos^{-1}\left(2x^2-1\right)$ $(d)\ 2\tan^{-1}x$

$(5)\ \tan^{-1}\frac{1}{\sqrt{x^2-1}}$ $(e)3\tan^{-1}x$

mRrj-----

(33) $a(34)$ $c(35)$ $d(36)$ $d(37)$ e[;eku (38) lR; (39) vlR; (40) vlR;

(41) $(1)c$ $(2)d$ $(3)e$ $(4)b$ $(5)a$

bdkbZ 3
lfn'kksa dk xq.kuQy

lgh fodYi pqfu;s :–

(42) lfn'kk $3\hat{i}+3\hat{j}+2\hat{k}$ rFkk $2\hat{i}-2\hat{j}+4\hat{k}$ d chp dk dks.k gksxk

$(a)\cos^{-1}\frac{2}{\sqrt{7}}$ $(b)\sin^{-1}\frac{2}{\sqrt{7}}$ $(c)\cos^{-1}\frac{2}{\sqrt{5}}$ $(d)\sin^{-1}\frac{2}{\sqrt{5}}$

(43) ;fn $\left|\vec{a}\right| = 3$ $\left|\vec{b}\right| = 4$ rFkk $\vec{a}$ rFkk $\vec{b}$ d chp dk dks.k $\frac{2\pi}{3}$ g rk $\left|4\vec{a}+3\vec{b}\right|$ dk eku gksxk

$(a)\ 25\ (b)\ 12\ (c)\ 13\ (d)\ 7$

(44) $2\hat{i}+3\hat{j}-\hat{k}$ rFkk $\hat{i}-4\hat{j}+m\hat{k}$ ycor gkx ;fn $m=$

$(a)\ 0\ (b)\ -1\ (c)\ -2\ (d)\ -3$

(45) $(\vec{a}-\vec{b}).(\overline{a.b})$ dk eku gksxk

$(a)\ 2\vec{a}.\vec{b}$ $(b)\ \vec{a}.\vec{b}$ $(c)\ \vec{a}^2-\vec{b}^2$ $(d)\ \vec{a}^2+\vec{b}^2$

fjDr LFkku dh iwfrZ dhft;s

(46) ;fn $c=\vec{a}+\vec{b}$ rFkk $c^2=a^2+b^2$ g rk $\vec{a}$ rFkk $\vec{b}$ d chp dk dks.k ------gksxk

(47) $10\hat{i}+3\hat{j},\ 12\hat{i}-5\hat{j}$ rFkk $m\hat{i}+11\hat{j}$ lejs[kh; g rk a dk eku -----gksxk

(48) 0 ey fcUn d lkis{k A rFkk B d fLFkfr lfn"k Øe"k% $3\hat{i}+3\hat{j}-\hat{k}$ rFkk $\hat{i}+3\hat{j}-\hat{k}$ g rk ΔOAB dk {ks=Qy --------gksxk

(49) ;fn $\bar{r}=x\hat{i}+y\hat{j}+z\hat{k}$ rk $\bar{r}$ dk (x,y,z) dk ---------dgr gA

(50) ;fn $\bar{r}=x\hat{i}+y\hat{j}+z\hat{k}$ rk $\left|\bar{r}\right|=---$gkrk gA

lR; vlR; crkb;s%

(51) $\bar{r}=2\hat{i}+3\hat{j}-4\hat{k}$ dk ekikd $\sqrt{29}$ gksxkA

(52) lfn"k dk f=d x.ku Qy Øe fofue; gkrk gA

(53) lfn"kk dk ;kx Øe fofue; gkrk g ij lkgp; ugha

(54) $\vec{a}\times(\overline{\vec{b}\times\vec{c}})\neq(\vec{a}\times\vec{b})\times\vec{c}$

(55) $(\vec{a}\times\vec{b}).\vec{c}$,d lfn"k jkf"k gA

mRrj%

$(42)\ a (43) b (44) c (45) c (46) \frac{\pi}{2}\ (47) 8 (48)\ \frac{3\sqrt{10}}{2}$ (49) fLFkfr lfn"k

$(50)\ \sqrt{x^2+y^2+z^2}$ (51) lR; (52)vlR; (53) vlR; (54) lR; (55)lR;

bdkbl 4
funl'kkd T;kfefr

lgh fodYi pfu;s:–

(56) lery $2x-y+z==6$ rFkk $x+y+2z=7$ d chp dk dk.k gkxk&

$(a)\ 30^0\ (b) 60^0\ (c)\ 45^0\ (d)\ 0^0$

(57) $x+2y-3z+4=0$ d vfHkyc d fnd dkT;k, g&

$(a)\ \frac{-1}{\sqrt{14}}, \frac{-2}{\sqrt{14}}, \frac{3}{\sqrt{14}}\ (b)\ \frac{1}{\sqrt{14}}\ \frac{2}{\sqrt{14}}\ \frac{3}{\sqrt{14}}\ (c)\ \frac{-1}{\sqrt{14}}, \frac{2}{\sqrt{14}}, \frac{3}{\sqrt{14}}\ (d) \frac{1}{\sqrt{14}}\ \frac{2}{\sqrt{14}}\ \frac{-3}{\sqrt{14}}$

(58) $\frac{x-1}{2}=\frac{y-2}{1}=\frac{z+3}{2}$ rFkk lery $x+y+z=0$ d chp dk dk.k gA

$(a)\ 0^0\ (b)\ 30^0\ (c)\ 45^0\ (d)\ 90^0$

(59) $x^2+y^2+z^2-4x+6y-8z+4=0$ dk 0;kl gkxk&

$(a)\ 5\quad (b)\ 10\quad (c)\ 5/2\quad (d)\ 25/2$

(60) $\left|\bar{r}\right|^2-2\bar{r}.\bar{a}-\lambda=0$ tgk $\lambda>0$ inf"kr djrk g

(a) ,d oRr (b) ,d j[kk (c) ,d xkyk (d) ,d lery

fjDr LFkkuk dh ifrl dhft;s:–

(61) fcUn $(2,3-5)$ dh lery $x+2y-2z-9=0$ l njh -----------gA

(62) y v{k d lekrj lery dk lehdj.k --------------------gA

(63) ,d xky d dUn dk fUkn"kkd --------gkxk ftld ,d 0;kl d fljk d fun"kkd $(2,3,5)$ rFkk $(4,9,-3)$gA

(64) $x=y=z$ dh fnd dk T;k;--------------gA

(65) ;fn ,d j[kk v{kk d lkFk α,β,γ dk.k cuk; rk $\cos 2\alpha+\cos 2\beta+\cos 2\gamma=.....$gkxkA

lR; vlR; fyf[k;s

(66) j[kk $\bar{r} = \left(i - j + j\hat{k}\right) + \mu\left(\hat{i} + 2\hat{j} + 3\hat{k}\right)$ fcUn $(1,2,3)$ l tkrh gA

(67) y v{k dh fnd dkT;k, $0,1,0$ gkrh gA

(68) ljy j[kk $\frac{x+1}{2} = \frac{y-2}{3} = \frac{z+3}{4}$, fcUn $(-1,-2-3)$ l tkrh gA

(69) ey fcUn l $3x + 4y + 12z - 52 = 0$ ij yc dh yckb 5 bdkb gkxkA

(70) $3x - 6y - 2z - 7 = 0$ rFkk $2x + y - 5 = 0$,d nlj ij ycor gkr gA

mRrj %&

$(56)b(57)c(58)c(59)b(60)c(61)1(62)ax + cz + d = 0(63)(3,6,1)\ (64)\frac{1}{\sqrt{3}},\frac{1}{\sqrt{3}},\frac{1}{\sqrt{3}}(65)-1$

(66) vlR; (67) lR; (68) vlR; (69) vlR; (70) lR;

bdkbZ 5
cgqfodYih; iz'u
vodyu

lgh fodYi pqudj fyf[k;s%&

¼71½ $\sec\left(\tan^{-1}x\right)$ dk vody x.kkad gksxk

$(a)\ \dfrac{x}{1+x^2}$ $(b)\ x\sqrt{1+x^2}$ $(c)\ \dfrac{1}{\sqrt{1+x^2}}$ $(d)\ \dfrac{x}{\sqrt{1+x^2}}$

¼72½ ;fn $y=\tan^{-1}\left(\dfrac{\sin x}{1+\cos x}\right)$ gks rks $\dfrac{dy}{dx}$ dk eku gksxk

$(a)\,1$ $(b)\,0$ $(c)\,\dfrac{1}{4}$ $(d)\,\dfrac{1}{2}$

¼73½ ;fn $y=\log(\sin x)$ gks rks $\dfrac{dy}{dx}$ dk eku gksxk –

$(a)\cos ec\,x$ $(b)\cot x$ $(c)-\cot x$ $(d)-\cos ec\,x$

¼74½ ;fn $x=\sin t, y=\cos t$ gks rks $\dfrac{dy}{dx}$ dk eku gksxk&

$(a)\cos t$ $(b)\tan t$ $(c)-\tan t$ $(d)-\cot t$

¼75½ $\cos^{-1}\sqrt{x}$ dk $\sqrt{1-x}$ d lkis{k vody x.kkd gS –

$(a)\sqrt{x}$ $(b)-\sqrt{x}$ $(c)\,\dfrac{1}{\sqrt{x}}$ $(d)-\dfrac{1}{\sqrt{x}}$

¼76½ fjDr LFkkuksa dh iwfrZ dhft;s –

$(a)\ x^n$ dk $n$ok vodyu --------------gksxkA

$(b)\ e^x$ dk $n$ok vodyu --------------gksxkA

$(c)\ \cot x$ dk vody x.kkd ---------gksxkA

$(d)\ x^n$ dk vody x.kkd ---------gksxkA

$(e)\ y=e^x\cos x$ gks rks $\dfrac{dy}{dx}$ dk eku----------- gksxk A

bdkb 6
cgfodYih; i'u
lekdyu

lgh fodYi pqudj fyf[k;s&

¼77½ $\int \frac{dx}{1+3\sin^2 x}$ dk eku gkxk&

$(a)\ \tan^{-1}(2\tan x)\ \ (b)\ \frac{1}{2}\tan^{-1}(2\tan x)\ \ (c)\frac{1}{3}\tan^{-1}(3\tan x)\ \ (d)\frac{1}{2}\tan^{-1}\left(3\tan\frac{2x}{3}\right)$

¼78½ $\int \frac{dx}{x-x^3}$ dk eku gkxk&

$(a)\frac{1}{2}\log\frac{1-x^2}{x}\ \ (b)\ \log\frac{1-x}{x(1+x)}\ \ (c)\ \log x\left(x-x^2\right)\ \ (d)\ \frac{1}{2}\log\frac{x^2}{1-x^2}$

¼79½ $\int \frac{x^2+1}{x\left(x^2-1\right)}dx$ dk eku g&

$(a)\log\frac{x^2-1}{x}+c\ \ (b)-\log\frac{x^2-1}{x}+c\ \ (c)\ \log\frac{x}{x^2+1}+c\ \ (d)\ -\log\frac{x}{x^2+1}+c$

¼80½ $\int tan^{-1}x\ dx$ dk eku gkxk&

$(a)\frac{\pi}{4}-\frac{1}{2}\log 2\ (b)\ \frac{\pi}{4}+\log 2\ \ (c)\ \pi-\frac{1}{2}\log 2\ \ (d)\ \pi+\frac{1}{2}\log 2$

¼81½ ijoy; $y^2=4x$ rFkk js[kk $y=x$ d }kjk f?kj {ks= dk {ks=Qy

$(a)\ \frac{1}{2}\ \ (b)\ \frac{2}{3}\ \ (c)\ \frac{4}{3}\ \ (d)\ \frac{8}{3}$

¼82½ **fjDr LFkkuk dh ifr dhft,&**

$(a)\int \frac{dx}{x^2-a^2}=$......................

$(b)\int\frac{dx}{1+3\cos^2 x}=$.....................

$(c)\int \sec x.tanx\ dx=$................

$(d)\int^2 \log x dx$ dk eku --------------------------g A

(e) nh?kor $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$ dk {ks=Qy ---------------------- ox bdkb g

bdkb &7 ¼cgfodYih; i'u ½
vodyu lehdj.k

lgh fodYi pudj fyf[k,&

¼83½ fuEu lehdj.kk e l dku lh jf[kd ugh g&

$(a)\ \frac{dy}{dx}+\frac{y}{x}=\log x \quad (b)\ y\frac{dy}{dx}+4=0$

$(c)\ dx+dy=0 \quad (d)\ \frac{dy}{dx}=\cos x$

¼84½ $y=\frac{x}{x+1}$ fdl vodyu lehdj.k dk gy g&

$(a)\ y^2\frac{dy}{dx}=x^2 \quad (b)\ x^2\frac{dy}{dx}=y^2$

$(c)\ y\frac{dy}{dx}=x \quad (d)\ x\frac{dy}{dx}=y$

¼85½ ;fn $y=x\ e^{\sin x^{-1}}$ gk rk bldk vodyu lehdj.k g&

$(a)\ \frac{dy}{dx}=\frac{y}{\sqrt{1-x^2}} \quad (b)\ \frac{dy}{dx}=\frac{1}{\sqrt{1-x^2}}$

$(c)\ \frac{dy}{dx}=\frac{x}{\sqrt{1-x^2}}$ (d) bue l dkb ugh A

¼86½ vodyu lehdj.k $\left(\frac{d^2y}{dx^2}\right)^2+3\left(\frac{dy}{dx}\right)^3+4=0$ dh dkVh rFkk ?kkr g&

(a) 2, 2 (b) 2, 3 (c) 3, 2 (d) mi;Dr e l dkb ugh

¼87½ vodyu lehdj.k $\frac{dy}{dx}=\frac{x-y}{x+y}$ dk gy g&

$(a)\ y^2+2xy-x^2=c \quad (b)\ y^2+2xy+x^2=c$

$(c)\ y^2-2xy-x^2=c \quad (d)\ y^2-2xy+x^2=c$

¼88½ **fjDr LFkkuk dh ifr dhft,&**

1- vodj.k lehdj.k $\frac{dy}{dx}=4$e dkfV ------------rFkk ?kkr -----------g A

2- vodyu lehdj.k $(2x+2y+5)dy=(x+y+3)dx$ dk gy dju d fy, mfpr ifrLFkkiu ------------gkxkA

3- vodyu lehdj.k $dy-\sin x\ \sin y\ dx=0$ dk gy------------------ gkxk A vodyu lehdj.k $\frac{dy}{dx}=2xy$ dk gy ----------gkxk A

vodj.k lehdj.k $\frac{d^2y}{dx^2}-2\frac{dy}{dx}+1=0$ dh ?kkr ------------------g A

bdkb &7

vfr y?kmRrjh; i'u &

1 dEI;Vj dk 'kkfCnd vFk D;k g A

2 IBM dk ijk uke fyf[k, A

3 MS-word dk mi;kx crkb,A

4 bUVjiVj ij fVIIk.kh fyf[k,A

5 rhu Software d uke fyf[k,A

6 rhu computer language d uke fyf[k,A

7- dEi;Vj dh gkM fMLd dh {kerk dk ukiu dh bdkb crkb;A

8- Light fan d mi;kx crkb;A

9- ckj dkM jhMj D;k gkrk g bl dk mi;kx vkt dgk*–dgk fd;k tkrk gA

10- dej e fy[kk 2 Mega pixal, 3 Mega pixal l vki D;k le>r gA

Short type y?kmRrjh; i"u

11- dEi;Vj d bfrgkl dk fyf[k; ("kCn lhek 100)

12- dEi;Vj d fofHkUu egRoi.k Hkkxk dk crkb; o mud ckj crkb;A

13- gkMo;j l vki D;k le>r g nfud thou d mnkgj.k ydj le>kb;A

14- *RAM* vkj *ROM* e dkb rhu vrj crkb;A

15- *Input devices* d ckj e crkb;A dkb 8 *Input devices* crkb;A

16- fuEu Lrjh; Hkk'kk o mPp Lrjh; Hkk'kk e vrj Li'V dhft;A

y?kmRrjh; i'u –

17- *Super Computer* d ckj e crkb; ("kCn lhek 50)

18- *Software* d ckj e lf{kIr e fVIi.kh fyf[k;A

19- *M.S.Word* dh fo"k'krk, crkb;A

20- dEi;Vj gekj }kjk fy[k "kCnk (*Introductions*) dk fdl Hkk'kk e cnyrk gA ckbujh d ckj e crkb;A

nh?k mRrjh; i'u

21- ih<hokj dEi;Vj dk bfrgkl fyf[k;A

22- dEi;Vj d vkxeu l gb lfo/kk, vkj udlku dk viu “kCnk e fyf[k;A

23- dEi;Vj d ey i;kx ,o Cykd vFkok lefVd *(Schematic)* vkj[k fp= dk cukb; o ml foLrkj l le>kb;A

24- dEi;Vj eekjh d fy; vkj[k fp= cukb; o ml le>kb;A

25- *CPU* d fofHkUu Hkkxk o mud dke dk crkb;A

26- fiVj d idkj crkb; o mud ckj e lf{klr e fyf[k;A

oLrfu’B i'u %&

¼1½ *Word – CD* dk *full form* crkb;A

- *–Word Once Read many –Compact Disk*
- *–Write Once Read many –Compact Disk*
- *–Write Read Once many –Compact Disk*
- *–None of the above*

¼1½ Full form fyf[k,&

DVD –
LCD –
RAM –
ALU –
IC –
IBM –
M.S.WORD –
DTP –
PDF –

¼3½ *DVD* Ek *Store* dh tk ldu okyh *Memory* dk crkb;A

¼4½ vckdl dk vfo’dkj ddl n”k e fd;k x;kA

¼5½ dEl;Vj dk vfo’dkj fdlu fd;kA

¼6½ *Desktop* vkj *Laptop* e vrj crkb;A

bdkbZ 8

(a) lglEca/k

lgh fodYi pqfu;s%&

102- ;fn x rFkk y Lor= pj gks rks mudk e/; lglEca/k x.kkad gksxk

$(a)\ 1 (b)\ -1\ (c)\ 0\ (d)$ bueas ls dksbZ ugh

103- ;fn x rFkk y d lglEca/kk dk x.kuQy gksrk gS

(a) ,d (b) ,d ls de (c) ,d ls cMk (d) fuf"pr ugh

104- x dk ek=d ls-eh- rFkk y dk ek=d fd-xk- gks rks budk lglEca/k dk ek=d gksxk

(a) ls-eh- (b) fd-xk- ls-eh- (c) ls-eh- fd-xk- (d) bueas ls dksbZ ugh

fjDr LFkku dh iwfrZ dhft;s%&

105- ;fn $r = 0.15$ gks rks jf[kd lglEca/k vfuok;Z :i ls --------------gksrk gA

106- $\bar{x} = \bar{y} = 0$ rFkk $\sum xy = 12,\ \sigma x = 2,\ \sigma y = 3$ rFkk $n = 10$ rks x dk eku -----------gksxkA

107- ;fn $-0.5 < r < 0$ gks rks pjks d e/; ---------lglEca/k gksrk gA

lR; vlR; fyf[k;s%&

108- $r = 0$ rks pjks d e/; jf[kd lglEca/k ugh gksrk A

109- ljy lglEca/k d vrxr ge doy ,d pj dk v/;;u djr gA

110- lglEca/k x.kkad ,d fuji{k jkf"k gA

mRrj%&

(102) c (103) a (104) d (105) cgr de (106) 0.2 (107) fuEu Lrjh; _.kkRed (108) lR;
(109) vlR; (110) lR;

(b) **lekJ;.k**

fjDr LFkkuksa dh iwfrZ dhft;s%&

111- ;fn $byx = -\frac{1}{5} = bxy$ gks rks r dk eku ---------gksxkA

112- $\pi \frac{\sigma x}{\sigma y}$ dk --------------dk lekJ;.k x.kkad dgrs gSA

113- ;fn lekJ;.k j[kk,a ijLij ledks.k ij dkVs rks $r =$..............gksxkA

114- ;fn lekJ;.k x.kkad 0-8 rFkk 0-2 gks rks r dk eku ----------gksxkA

115- lglEca/k x.kkad nks lekJ;.k x.kkdks dk ---------------gksrk gSA

lR; vlR; fyf[k;s%&

116- ;fn nks lekJ;.k j[kkvksa ds chp dk dks.k θ gks rks $\tan\theta$ dk eku $\frac{\sigma x \sigma y}{\sigma x^2 \sigma y^2}\left|\frac{r^2-1}{r}\right|$ gksrk gSA

117- lekJ;.k x.kkdks rFkk lglEca/k x.kkad ds fpUg leku gksrs gSA

118- ;fn $r = 0$ gks rks jsf[kd lglEca/k gksxkA

119- lekJ;.k x.kkdks dk lekUrj ek/; lglEca/k x.kkad ls cMk gksrk gSA

120- ;fn ,d lekJ;.k x.kkad 1 ls cMk gS rks nwljk Hkh 1 ls cMk gksrk gSA

mRrj%&

(111) $-\frac{1}{5}$ (112) x dk y ij (113) 0 (114) 6.4 (115) x.kkRrj ek/; (116) lR; (117) vlR;
(118) lR; (119) lR; (120) vlR;

bdkbZ 9
fLFkfr foKku ,oa xfr foKku

fjDr LFkkuksa dh iwfrZ dhft;s%&

133- xkeh Hkkj cy cy dh -----------------bdkbZ gSA

134 ,d gh fcUnq ij fØ;k”khy cy -------------------cy dgykrs gSA

135- nks cy P rFkk Q ledks.kd gks rks ifj.kkeh ,o P d chp dk dks.k -----------gksxkA

136- nks cyks dk ;ksx vf/kdre gksu d fy; mud chp dk dks.k -----------gksxkA

137- ykeh ize; d vuqlkj -----------------gksrk gSA

138- U rFkk V nks cjkcj ox α dks.k ij fØ;k dj jg g rks mudk ifj.kkeh $W =$................gksxkA

139- m/okZ/kj Lor= xfr e mPpre mpkbZ ij igpu e yxk le; $T =$....................gksrk gSA

140- nks fiM m/okZ/kjr% mij dh vksj Qd x; g mud oxks dk vuqikr 2%5 gS mud }kjk ikIr vf/kdre mpkbZ;k dk vuqikr -------------gksxkA

lR; vlR; fyf[k;s%&

141- ik.My cy dh fujis{k bdkbZ gSA

142- fdlh f=Hkqt d rhuks Hkqtkvks l Øe”k% inf”kr cy fi.M dks lrqyu e ugh j[krs gSA

143- ,d nlj d foifjr fØ;k”khy cyks dk ifj.kkeh U;ure gksrk gSA

144- i{kh; xfr e i{kh; iFk vfr ijoy;k dkj gksrk gSA

145- ;fn dksbZ fi.M i{kh; xfr e egRre mpkbZ ikIr djus e 10 l- dk le; yrk g rks mldk mMM;u dky 20 l- gksxkA

mRrj%&

(133) xq :Roh; bdkbZ (134) lxkeh (135) $\tan^{-1}\frac{Q}{P}$ (136) 0^0 (137) $\frac{P}{\sin\alpha}=\frac{Q}{\sin\beta}=\frac{R}{\sin\gamma}$

(138) $2U\cos\frac{\alpha}{2}$ (139) $\frac{U}{g}$ (140) $\frac{4}{25}$ ¼141½ lR; (142) vlR; (143) lR; (144) vlR;

(145) lR;

(c) ikf;drk

lgh fodYi pqfu;s%&

121- nks iklk lkFk&lkFk Qsdus ij mues vadks dk ;ksx 7 ls vf/kd vkus dh ikFkfedrk gksxhA

$(a)\ \frac{7}{36}$ $(b)\ \frac{7}{12}$ $(c)\ \frac{5}{12}$ $(d)\ \frac{5}{36}$

122- ,d ifjokj esa nks cPps gSa nksuksa ds HkkbZ gksus dh izkf;drk gksxh

$(a)\ \frac{1}{4}$ $(b)\ \frac{1}{2}$ $(c)\ \frac{1}{3}$ (d) buesa ls dksbZ ugha

123- ;fn $P(A)=0.4,\ P(B)=x,\ P(A\cap B)=0.7$ rFkk A rFkk B ijLij viothZ gks rks x dk eku gksxk

$(a)\ \frac{1}{5}$ $(b)\ \frac{1}{2}$ $(c)\ \frac{2}{5}$ $(d)\ \frac{3}{10}$

124- ?kVuk A ds vudqy la;ksxkuqikr 3%7 gS rks A ds ?kfVr gksus dh ikf;drk gksxh

$(a)\ 0.4$ $(b)\ 0.3$ $(c)\ 0.7$ $(d)\ 0.2$

fjDr LFkkuksa dh iwfrZ dhft;s%&

125- ,d flDdk ds pkj mNky esa de ls de ,d gsM vkus dh ikf;drk -----------gksxh

126- $p(A)+p(\overline{A})=$ ....

127- ?kVuk B ds ?kV pqdus ds ckn ?kVuk A ds ?kVus dh ikf;drk -----------gksxhA

128- nks ikls ,d lkFk Qsdus ij ;ksx $2, 8$;k 12 vkus dh ikf;drk -----------gksxhA

lR; vlR; fyf[k;s

129- rhu ijLij vioth ?kVukvksa dh ikFkfedrk,a $\frac{2}{3},\frac{1}{4}$ rFkk $\frac{1}{6}$ gks ldrh gSA

130- rk"k ds 52 iRrksa ls 1 iRrk [khpus ij mlds iku dk iRrk gksus dh ikf;drk $\frac{4}{52}$ gksxhA

131- y?kq x.kd lkj.kh esa ,d vad pquus ij mlds le vad gksus dh ikf;drk 0-3 gksxhA

132- nks Lora= ?kVuk A rFkk B ds fy;s $P\left(\frac{A}{B}\right)$ dk eku $P(A)$ gksxkA

mRrj%&

(121) d (122) a (123) d (124) b (125) $\frac{15}{16}$ (126) 1 (127) $P\left(\frac{A}{B}\right)$ (128) $\frac{7}{36}$ (129) lR; (130) vlR; (131) vlR; (132) lR;

&&00&&

bdkb & 10

oLrfu"V i'u **vkfdd fof/k;k**

¼1½ flEiru $\frac{1}{3}$ fu;e d mi;kx l fuEu vkdMk d fy, $\int_0^1$ $\int (n)dx$ dk eku g&

$x : 0$ 0.25 0.5 0.75 1

$f(x) : 1$ 0.8 0.67 0.571 0.5

(i) 0.5945 (ii) 0.6145 (iii) 0.6945 (iv) 0.6035

(2) ikp mi &vrjky yu ij gki tk,My fu;e l $\int_0^1 x^3\, dn$ dk eku gkxk&

(i) 0.21 (ii) 0.23 (iii) 0.24 (iv) 0.26

(3) ,d od fuEu rkfydk }kjk nRr fcUnvk l xtjrk g&

x	½ 1	2	3	4	5
y ½	10	50	70	80	100

Vki tk,My fu ;e l od x&v{k rFkk j[kkvk $x=1$ $x=5$ l ifjc) {k=Qy g&

¼1½ 310 ¼2½ 255 ¼3½ 305 ¼4½ 275

¼4½ ;fn $n=1$ rk flEilu d fu;e l $\int_1^5 \frac{dx}{x}$ dk eku g&

¼1½ 1-62 ¼2½ 1-43 ¼3½ 1-48 ¼4½ 1-56

¼5½ $\int_a^b f(x)dx$ dk flEilu d fy, ,d frgkb fu;e l eY;kdu d fy; vrjky $[a,b]$ dk &

¼1½ cjkcj& cjkcj mi &vrjkyk e le l[;k e ckVk tkrk g

¼2½ cjkcj &cjkcj mi &vrjkyk e fo"ke l[;k e ckVk tkrk g

¼3½ fdru Hkh cjkcj &cjkcj mi &vrjkyk e ckVk tkrk g

¼4½ fdru Hkh mi &vrjkyk e ckVk tkrk g

¼6½ flEilu d ,d frgkb fu;e e] od $y=f(x)$ tkrk g&

¼1½ or ¼2½ ijoy; ¼3½ vfrijoy; ¼4½ bue l dkb ugh

¼7½ leyEch fu;e }kjk $\int_{X_0 y}^{X_0+nh} ydx$ dk yxHkx eku g&

¼1½ $\frac{h}{2}\left[y_0 + y_n + 2\left(y_1 + y_2 + y_3 + - - - - - + y_{n-1}\right)\right]$

¼2½ $\frac{h}{3}$ Bodean Algebra $\int_a^b f(x)dx\,(a,b)^{2n} = 9\int_0^1 \frac{dn}{1+x} dx = \frac{1}{12}[3.1+4(a+b)][0,1]$ $a = \frac{1}{1.5625}$, $f(0)=1$, $f(1) = .\int_1^{10} x^3 dx = 3\left[\frac{1+10^3}{2} + \alpha + 7^3\right]$

¼3½ $\frac{h}{4}\left[y_0 + y_n + 2\left(y_1 + y_3 + y_5 + - - + y_{n-1}\right) + 4(y_2 + y_4 + - - + y_{n-2}\right]$

¼4½ $\left[(y_0 + y_2 + y_4 + - - + y_n) + 2\left(y_1 + y_3 + y_5 + - - + y_{n-1}\right)\right]$

¼8½ flEilu d fu;e l $\int_a^b f(x)dx$ dk ifjdyu dju d fy, vrjky (a,b) dk ckVk tkrk g&

¼1½ $3n$ vrjkyk e ¼2½ $2n+1$ vrjkyk e
¼3½ $2n$ vrjkyk e ¼4½ fdru Hkh vrjkyk e

¼9½ flEilu d ,d frgkbZ fu;e l $\int_{X_0}^{X_0+nh} ydx.n$ le l[;k g] dk eku Kkr g&

¼1½ $\frac{h}{3}\left[(y_0 + y_n) + 2(y_1 + y_3 + - - + y_{n-1}) + 4\left(y_2 + y_4 + - - + y_{n-2}\right)\right]$

¼2½ $\frac{h}{3}\left[(y_0 + y_n) + 4(y_1 + y_3 + - - + y_{n-1}) + 4\left(y_2 + y_4 + - - + y_{n-2}\right)\right]$

¼3½ $\frac{h}{3}\left[(y_0 + y_n) + 2(y_1 + y_3 + - - + y_{n-1}) + 4\left(y_2 + y_4 + - - + y_{n-2}\right)\right]$

¼4½ bue l dkbZ ugh

¼10½ ;fn flEilu fu;e l $\int_0^1 \frac{1}{1+x^2}dx = \frac{1}{12}[3.1 + 4(a+b)]$ tcfd vrjky $[0,1]$ pkj mi &vrjkyk e foHkDr fd;k x;k g rFkk a rFkk b nk foHkDr fcUnvk ij $\frac{1}{1+x^2}$ d eku g rc a o b d eku fuEukfyf[kr g&

¼1½ $a = \frac{1}{1.0625}$]$b = \frac{1}{1.25}$ ¼2½ $a = \frac{1}{1.0625}$]$b = \frac{1}{1.5625}$

¼3½ $a = \frac{1}{1.25}$]$b = 1$ ¼4½ $a = \frac{1}{1.5625}$]$b = \frac{1}{1.25}$

¼11½ ;fn $f(0)=1, f(1)=2.72$ rk leyEch fu;e }kjk $\int_0^1 f(x)dx$ dk lfudV eku g&

¼1½ 3-72 ¼2½ 1-86 ¼3½ 1-72 ¼4½ 0-86

¼12½ ;fn $f(x)$ doy $x=0,\frac{1}{3},\frac{2}{3},1$ ij Kkr gk] $\int_0^1 f(x)dx$ dk lfudV eku fudkyu d fy, fuEu e fdldk i;kx fd;k tk ldrk g&

¼1½ leyEch fu;e ¼2½ flEilu fu;e

¼3½ leyEch rFkk flEilu nkuk fu;e ¼4½ bue l dkb ugh

¼13½ ;fn $n=3$ ekudj] lekdyu $\int_1^{10} x^3 dx$ dk lfUUkdV eku Vikt k,My fof/k

& $\int_1^{10} x^3 dx = 3\left[\frac{1+10^3}{2}+\alpha+7^3\right]$ l fudky rk α =

¼1½ 3^3 ¼2½ 4^3 ¼3½ 5^3 ¼4½ 6^3

¼14½ ;fn $e^0=1]e^1=2.72\ ]e^2=7.39]$ $e^3=20.09$ rFkk

$e^4=54.60$ d flEilu d $\frac{1}{3}$ fu;e l $\int_0^4 e^n dn$ dk eku g&

¼1½ 53-60 ¼2½ 54-60 ¼3½ 53-87 ¼4½ 54-87

¼15½ flEilu d fu;e l π dk lfUUkdV eku Kkr dju d fy, mfpr l= g&

¼1½ $\int_0^1 \frac{dx}{1+x^2}]\ n=16$ ¼2½ $\int_0^1 \frac{dx}{1+x^2}]n=9$

¼3½ $\int_0^1 \frac{dn}{1+x}]n=11$ ¼4½ $\int_0^1 \frac{dn}{1+x}]n=9$

¼16½ ,d unh 60 eh- pkMh gA unh d ,d fdukj l x eh- dh njh ij xgjkb y eh- e fuEu lkj.kh e nh xb g&

x ¾	0	10	20	30	40	50	60
y ¾	0	3	7	11	8	6	4

leyEc prHkk th; fu;e l unh d vuiLFk dkV dk {k=Qy dk eku g&

¼1½ 370 ox eh- ¼2½ 375 ox eh- ¼3½ 380 ox eh- ¼4½ 390 ox eh]

bdkbZ & 11

cwyh;u chtxf.kr

Bodean Algebra

oLrqfu"B iz'u

¼1½ cwyh; Qyu $ny^1 + x^1y$ dk iwjd g&

¼1½ xy]¼2½ $x+y$] ¼3½ $xy + x^1y^1$] ¼4½ buesa ls dksbZ ugha

¼2½ cwyh; chtxf.kr esa forj.k fu;e g&

¼1½ $a+b=b+a$ ¼2½ $a+(b+c)=(a+b)+c$

¼3½ $(a+b)^1 = a^1b^1$ ¼4½ $a.(b+c)=ab+ac$

¼3½ cwyh; chrxf.kr B esa $a \in B$ ds fy, &

¼1½ $(a^1)^1 = a^1$ ¼2½ $(a^1)^1 = a$ ¼3½ $(a^1)^1 = a^{11}$ ¼4½ $(a^1)^1 = a^1.a^1$

¼4½ cwyh; chtxf.kr esa $a+1=1$ dk }Sr g&

¼1½ $a.0=0$] ¼2½ $a.0=1$] ¼3½ $a.a^1=0$] ¼4½ $a.a^1=a$

¼5½ cwyh; cht xf.kr esa fuEu esa ls dkSu lk lR; g&

¼1½ $a+a=a$] ¼2½ $a.0=1$] ¼3½ $a.a^1=0$] ¼4½ $a.a^1=a$

¼6½ fuEufyf[kr esa ls dkSu lk fM&ekxZu fu;e g&

¼1½ □ $(p \wedge q) \Leftrightarrow (\vee p) \vee (\vee q)$

¼2½ $p \wedge q \Leftrightarrow \vee q \vee p$

¼3½ $p \vee q \Leftrightarrow$ □ $p \vee q$

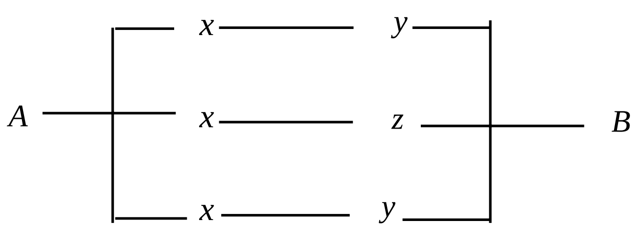
¼4½ $p \wedge q \Leftrightarrow$ □ $p \vee$ □ q

¼7½ $p \wedge (q \wedge r) = (p \wedge q) \wedge r$ g&

¼1½ de fofue; fu;e] ¼2½ forj.k fu;e

¼3½ lkgp; fu;e] ¼4½ buesa ls dksbZ ugha

¼8½ fuEu ifjiFk dk fLopu Qyu g&



¼1½ $(x+y)(x+z)(x+y^1)$] ¼2½ $x.y+n.z+x.y^1$]

¼3½ $x.y.n+yzy^1$] ¼4½ $x.(y+z+y^1)$

¼9½ ;fn p vkj q nk dFku g] rk $(p \wedge q \Rightarrow q) \Rightarrow (q \wedge \vee q)$

¼1½ iu:fDr] ¼2½ 0;k?kkr] ¼3½ mijkDr nkuk ¼4½ bue l dkb ugh

¼10½ ;fn p vkj q nk dFku g rk $(p \Rightarrow q) \Leftrightarrow (\wedge q \Rightarrow \vee p)$ gkxk&

¼1½ iu:fDr] ¼2½ 0;k?kkr] ¼3½ rkfdd rY;rk] ¼4½ bue l dkb ugh

¼11½ fuEu ifjiFk dk fLopyu Qyu g&

¼1½ $x.y^1 + (x^1 + z)y$] ¼2½ $xy^1 + (x.z)y$]

¼3½ $(x + y^1) + (x^1.z)y$] ¼4½ bue l dkb ugh

bdkb &12

lpuk ik|kfxdh

(*Information Techno* log *y*)

oLrfu"B i'u &

1- dEI;Vj foKku dh fdruh 'kk[kk; gkrh g&

¼1½ ,d] ¼2½ nk] ¼3½ rhu] ¼4½ pkj

2- dEI;Vj d idkj ¼oxhdj.k ½ fdru gkr g&

¼1½ nk] ¼2½ rhu] ¼3½ pkj] ¼4½ vkB

3- iluy dEI;Vj dk vfo"dkj dc gvk Fkk&

¼1½ 1981] ¼2½ 1991] ¼3½ 1971] ¼4½ 1961

4- lpuk, loiFke dEI;Vj d eekjh e lxfgr gkrh g&

¼1½ je] ¼2½ jke] ¼3½ f}rh;d eekjh] ¼4½ bue l dkb ugh