SY-27

ANSWER KEY

SECOND YEAR HIGHER SECONDARY EXAMINATION MARCH 2020

1/12

PART-I/II/III

SUBJECT: MATHEMATICS (SCIENCE)

CODE NO: ....

VERSION:

80 SCORES

$2\frac{1}{2}$ HOURS

Qn No	Sub Qns	Answer key/ value Points	Score	Total Score
1	(i)	(C) or (6,8) ∈ R	1	3
	(ii)	a * e = a a + e + 1 = a e + 1 = 0 e = -1	1 ½ ½	
2	(i)	$A = \begin{bmatrix} 4 & 0 \\ 8 & 0 \end{bmatrix}$ $B = \begin{bmatrix} 0 & 0 \\ 4 & 0 \end{bmatrix}$ Remark: For any two non-zero matrix give mark	½ ½	
	(ii)	$A' = \begin{bmatrix} 1 & 2 \\ -1 & 3 \end{bmatrix}$ $A + A' = \begin{bmatrix} 1 & -1 \\ 2 & 3 \end{bmatrix} + \begin{bmatrix} 1 & 2 \\ -1 & 3 \end{bmatrix}$ $= \begin{bmatrix} 2 & 1 \\ 1 & 6 \end{bmatrix}$ $\frac{A + A'}{2} = \begin{bmatrix} 1 & 1/2 \\ 1/2 & 3 \end{bmatrix}$ $A - A' = \begin{bmatrix} 1 & -1 \\ 2 & 3 \end{bmatrix} - \begin{bmatrix} 1 & 2 \\ -1 & 3 \end{bmatrix}$ $= \begin{bmatrix} 0 & -3 \\ 3 & 0 \end{bmatrix}$ $\frac{A - A'}{2} = \begin{bmatrix} 0 & -3/2 \\ 3/2 & 0 \end{bmatrix}$ $\therefore A = \begin{bmatrix} 1 & 1/2 \\ 1/2 & 3 \end{bmatrix} + \begin{bmatrix} 0 & -3/2 \\ 3/2 & 0 \end{bmatrix}$ Remark: $A = \frac{1}{2}(A + A') + \frac{1}{2}(A - A')$ give ½ mark Or A = P + Q form give ½ mark	½ ½ ½ ½	3

3		$\begin{vmatrix} 1 & a & a^2 \\ 1 & b & b^2 \\ 1 & c & c^2 \end{vmatrix}$ $R_2 \rightarrow R_2 - R_1$ $R_3 \rightarrow R_3 - R_1$ = $\begin{vmatrix} 1 & a & a^2 \\ 0 & b-a & b^2 - a^2 \\ 0 & c-a & c^2 - a^2 \end{vmatrix}$ = (b-a) (c – a) $\begin{vmatrix} 1 & a & a^2 \\ 0 & 1 & b+a \\ 0 & 1 & c+a \end{vmatrix}$ =(b-a) (c-a) [c+a – (b+a)] =(b-a) (c-a) (c-b) =(a-b) (b-c) (c-a) Remark: For direct method give 1 mark	½ ½ ½ 1 ½	3
4	(i) (ii)	(b) or A continuous function is always differentiable $x^2 + y^2 + xy = 100$ $2x + 2y\frac{dy}{dx} + x\frac{dy}{dx} + y = 0$ $(2y + x)\frac{dy}{dx} = -(2x + y)$ $\frac{dy}{dx} = \frac{-2(2x+y)}{2y + x}$	1 1½ ½	3
5	(i) (ii) (iii)	(b) or |sinx| Not differentiable. Because of not a smooth curve (or curve have sharp edges) Remark: (ii) For no also give mark. $Y = \sqrt{\tan x}$ $\frac{dy}{dx} = \frac{1}{2.\sqrt{\tan x}}.\sec^2 x$ Remark: $\frac{dy}{dx} = \frac{1}{2.\sqrt{\tan x}}$ give ½, $\frac{d\tan x}{dx} = \sec^2 x$ give ½	1 1 1	3
6	(i) (ii)	(B) or 2 $y = e^{2x}$ $\frac{dy}{dx} = 2e^{2x}$ ∴ Slope of the tangent at $(0, 1)$ is $= 2e^0 = 2$ Equation of line in normal for is $y - y_1 = \frac{-1}{m}.(x - x_1)$	1 ½	3

		For $y-3=\frac{-1}{2}(x-2)$ $\Rightarrow 2y-6 = -x + 2$ $X - 2y - 8 = 0$ Alternative Method: Equation of tangent **$y - 1 = 2(x - 0)$** **$y - 1 = 2x$** **$y - 2x - 1 = 0$** Equation of line $\perp^r$ to this line is **$x + 2y + k = 0.$** This passes through **(2, 3)** **$2 + 2*3 + k = 0$** **$8 + k = 0$** **$k = -8$** $\therefore$ Equation is $\mathbf{x + 2y - 8 = 0}$ Remark: Equation of the tangent -> ½ Equation of the line $\perp^r$ to this line -> 1/2	½ 1	
7	(1) (ii)	**(b) or 3** $\mathbf{y = e^{-3x}}$ $\mathbf{\frac{dy}{dx} = -3e^{-3x}}$ $\mathbf{\frac{d^2y}{dx^2} = 9e^{-3x}}$ $\mathbf{\frac{d^2y}{dx^2}} + \frac{dy}{dx} - 6y = \mathbf{9e^{-3x} + -3e^{-3x} - 6e^{-3x} = 0}$ $\therefore \mathbf{e^{-3x}}$ is a solution Remark: $\mathbf{\frac{dy}{dx} = e^{-3x}}$ -> ½	1 1 ½ ½	3
8	(i) (ii)	**(b)** or **y=2** **$z-4 = 0$** **$y - 2 + k(z - 4) = 0$** This passes through **(2, 1, 2)** **$1 \quad - 2 + k(2 - 4) = 0$** **$-1 - 2k = 0$** **$2k = -1$** **$K = ½$** $\therefore$ **Equation is** $\mathbf{y - 2 - ½(2 - 4) = 0}$ **$2y - 4 - z + 4 = 0$** **$2y - z = 0$** Remark: Analyzing the problem give 1 mark	1 ½ ½ ½ ½	3

9	(i)	$f(x_1) = f(x_2) \Rightarrow \frac{x_1-2}{x_1-3} = \frac{x_2-2}{x_2-3}$ $(x_1 - 2)(x_2 - 3) = (x_2 - 2)(x_1 - 3)$ $x_1 x_2 - 3x_1 - 2x_2 + 6 = x_1 x_2 - 2x_1 - 3x_2 + 6$ $-3x_1 + 2x_2 = -2x_1 - 3x_2$ $-3x_1 + 2x_1 = -2x_2 - 3x_2$ $-x_1 = -x_2$ $x_1 = x_2$ $\therefore$ f is one to one Now $y = \frac{x_1-2}{x_1-3}$ $yx - 3y = x-2$ $(y-1)x = 3y - 2$ $x = \frac{3y-2}{y-1} \in A$ $\therefore$ f is onto Remark: $f(x_1) = f(x_2)$ give ½ mark	½ ½ ½ ½	4
	(ii)	Yes. Because it is a bijection Remark: For yes also give 1 mark	1	
	(iii)	$f^{-1}(x) = \frac{3x-2}{x-1}$ Remark: $\frac{3y-2}{y-1}$ give ½ mark	1	
10	(i)	$\tan^{-1}\left(\frac{x+y}{1-xy}\right)$ or (b)	1	
	(ii)	$\tan^{-1}\left(\frac{2x+3x}{1-2x.3x}\right) = \frac{\pi}{4}$ $\frac{5x}{1-6x^2} = \tan\frac{\pi}{4} = 1$ $5x = 1 - 6x^2$ $6x^2 + 5x - 1 = 0$ $x = \frac{1}{6}$ or $x = -1$	1 1 ½	

		X = -1 does not satisfy the equation as LHS of the equation becomes negative. So **x** = $\frac{1}{6}$ Remark: **tan** $\frac{\pi}{4} = 1$ **give ½ mark**	½	
11	**(i)**	$\mathbf{u = x^x}$ **and** $\mathbf{v = x^{sinx}}$	½	4
		$\frac{dy}{dx} = \frac{du}{dx} + \frac{dv}{dx}$	½	
		Now, $\mathbf{u = x^x}$		
		log u = x log x	½	
		$\mathbf{\frac{1}{u}\frac{du}{dx} = 1 + \log x}$		
		$\mathbf{\frac{du}{dx} = u(1 + \log x) = x^x}(1 + \log x)$	½	
		$\mathbf{v = x^{sinx}}$		
		log v = sinx log x	½	
		$\frac{1}{v}\mathbf{\frac{dv}{dx} = \frac{sinx}{x} + \log x. cosx}$		
		$\mathbf{\frac{dv}{dx} = v}\left(\frac{\text{sinx}}{x} + \log x\,.\,\text{cosx}\right)$	½	
		$= \mathbf{x^{sinx}}\left(\frac{\text{sinx}}{x} + \log x\,.\,\text{cosx}\right)$		
		$\therefore \mathbf{\frac{dy}{dx} = x^x}(1 + \log x) + \mathbf{x^{sinx}}\left(\frac{\text{sinx}}{x} + \log x\,.\,\text{cosx}\right)$		
	(ii)	y= xcosx. $\mathbf{\frac{dy}{dx}} = -xsinx + cosx$ Remark: For product rule give ½ mark	1	
12	**(i)**	**(b)** or $\sec^2 x$	1	4
	(ii)	**f(x)=** $\int (4x^3 - \frac{3}{x^4})\ \mathbf{dx}$	1	
		$\mathbf{= 4\frac{x^4}{4} - 3 \cdot \frac{x^{-3}}{-3} + C}$		
		$\mathbf{= x^4 + \frac{1}{x^3} + C}$	1	

		f(2) = 0 $0 = 2^4 + \frac{1}{2^3} + C$ $C = -\frac{129}{8}$ $\therefore f(x) = x^4 + \frac{1}{x^3} - \frac{129}{8}$ Remark: Integrating both the sides give ½ mark f(x) with or without C with correct integration give 2 marks	 ½ ½	
13	(i)	$\int_a^b \quad y dx$ or (b)	1	4
	(ii)	Area = $\int_0^{\frac{\pi}{4}} \quad \sin x dx + \int_{\frac{\pi}{4}}^{\frac{\pi}{2}} \quad \cos x dx$ $= [-\cos x]_0^{\frac{\pi}{4}} + [\sin x]_{\frac{\pi}{4}}^{\frac{\pi}{2}}$ $= -\left[\cos \quad \frac{\pi}{4} - \cos 0\right] + \left[\sin \quad \frac{\pi}{4} - \sin \frac{\pi}{4}\right]$ $= -\left[\frac{1}{\sqrt{2}} - 1\right] + 1 - \frac{1}{\sqrt{2}}$ $= \frac{-1}{\sqrt{2}} + 1 + 1 \frac{-1}{\sqrt{2}} = 2 - \sqrt{2}$ Remark: Alternative methods: Area = 2. $\int_0^{\frac{\pi}{4}} \quad \sin x dx$ $= 2 - \sqrt{2}$	1 1 ½ ½	
14	(i)	y = mx $\frac{dy}{dx} = m$ $\therefore y = x \frac{dy}{dx}$	½ 1 ½	4
	(ii)	$P = \frac{1}{x} \quad Q = x^2$ $IF = e^{\int pdx} = e^{\int \frac{1}{x}dx} = x$ Solution is $y.IF = \int Q.IF\, dx + c$ $y.x = \int x^2 - xdx + c$ $= \frac{x^4}{4} + c$ Remark: Identifying linear equn give ½ mark. IF = $e^{\int pdx}$ give ½ mark	1 ½ ½	

15		$\vec{AB} = i + 2j + 3k$ $\vec{AC} = 0i + 4j + 3k$ $\vec{AB}\ x\ \vec{AC} = \begin{vmatrix} i & j & k \\ 1 & 2 & 3 \\ 0 & 4 & 3 \end{vmatrix} = -6i - 3j + 4k$ $\lvert \vec{AB}\ x\ \vec{AC} \rvert = \sqrt{61}$ $\therefore\ \boldsymbol{c} = \frac{\boldsymbol{-6i - 3j + 4k}}{\boldsymbol{\sqrt{61}}}$ Remark: $\hat{n} = \frac{\vec{a}\ x\ \vec{b}}{\lvert \vec{a}\ x\ \vec{b} \rvert}$ give ½ mark Alternative method: Equn of the plane in 3 point form give 3 marks $\begin{vmatrix} x - x_1 & y - y_1 & z - z_1 \\ x_2 - x_1 & y_2 - y_1 & z_2 - z_1 \\ x_3 - x_1 & y_3 - y_1 & z_3 - z_1 \end{vmatrix}$ =0 => $\begin{vmatrix} x-1 & y-1 & z-2 \\ 1 & 2 & 3 \\ 0 & 4 & 3 \end{vmatrix}$ **=0** => (x-1) (6-12) –(y-1) (3 -0) + (z-2) (4 - 0) =0 => 6x + 6 -3y +3 + 4z -8 = 0 => 6x + 3y -4z + 1 = 0 $\hat{n} = \frac{6i+3j-4k}{\sqrt{61}}$ give full mark	1 1 1 1	4
16	(i) (ii)	$\bar{r} = (-i - j - k) + \lambda(7i - 6j + k)$ $\bar{r} = (3i + 5j + 7k) + \mu(i - 2j + k)$ Remark: $\bar{r} = \bar{a} + \lambda \bar{b}$ give ½ mark $\bar{c} - \bar{a} = 3i + 5j + 7k + i + j + k$ **= 4i + 6j + 8k** $\bar{b}\ x\ \bar{d} = \begin{vmatrix} i & j & k \\ 7 & -6 & 1 \\ 1 & -2 & 1 \end{vmatrix}$ **= -4i -6j -8k** $\lvert \boldsymbol{\bar{b}\ x\ \bar{d}} \rvert = \boldsymbol{\sqrt{116}}$ **S.D =** $\left\lvert \frac{(4i + 6j + 8k).(-4i - 6j - 8k)}{\sqrt{116}} \right\rvert$ $= \boldsymbol{\sqrt{116}}$ Remark: Identifying $\bar{a}, \bar{b}, \bar{c}, \bar{d}$ give 1 mark Alternative method: Cartesian method, correct answer give full mark Formula give ½ mark	1 ½ ½ ½ 1 ½	4
17	(i) (ii)	$\mathbf{\frac{x}{a} + \frac{y}{b} + \frac{z}{c} = 1}$ $\boldsymbol{d} = \left\lvert \frac{\frac{x_1}{a} + \frac{y_1}{b} + \frac{z_1}{c} - 1}{\sqrt{\left(\frac{1}{a}\right)^2 + \left(\frac{1}{b}\right)^2 + \left(\frac{1}{c}\right)^2}} \right\rvert$	1 1	4

		$= \dfrac{1}{\sqrt{\dfrac{1}{a^2}+\dfrac{1}{b^2}+\dfrac{1}{c^2}}}$ Remark: Distance formula give ½ mark		
	(iii)	$(\bar{r} - \bar{a}).\bar{\mathbf{N}} = \mathbf{0}$ **[$\bar{r}$ – (i+0j-2k)].[i+j-k]=0** **[$(\mathrm{xi}+\mathrm{yj}+\mathrm{zk}) - (i+0j2k)$].[i+j-k]=0** **x+y-z-3=0** **Remark: Alternative method: formula $A(x-x_1)+B(y-y_1)+C(z-z_1)$ = 0 give ½ mark** **1(x-1) + 1(y-0) - 1(z+2) = 0 give ½ mark** x+y -z -3 =0 give ½ mark vector form give ½ mark	 1 1	
18	 (i) (ii) (iii) (iv)	**$P(A^1) = 0.7$ $P(B^1) = 0.4$ P(A) = 0.3 P(B) =0.6** **P(A ∩B) = P(A).P(B) = 0.3 x 0.6 = 0.18** **$P(A\cap B^1) = P(A).P(B^1)$ = 0.3 x 0.4 = 0.12** **P(AUB) = P(A)+P(B)-P(A).P(B) = 0.72** **$P(A^1\cap B^1) = P(A^1).P(B^1)$ = 0.28** Remark: For formula give ½ mark P(A'), P(B') give ½ mark For Alternative method and correct answer give full mark	 1 1 1 1	4
19	(i)	**A =** $\begin{bmatrix} 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix}$ **Remark: 2X3 general matrix give ½ mark.** **If one element is not correct give full mark**	2	
	(ii)	**A' =** $\begin{vmatrix} 2 & 3 \\ 3 & 4 \\ 4 & 5 \end{vmatrix}$ **AA' =** $\begin{bmatrix} 2 & 3 & 4 \\ 3 & 4 & 5 \end{bmatrix} \begin{vmatrix} 2 & 3 \\ 3 & 4 \\ 4 & 5 \end{vmatrix} = \begin{bmatrix} 29 & 38 \\ 38 & 50 \end{bmatrix}$ **(AA')' =** $\begin{bmatrix} 29 & 38 \\ 38 & 50 \end{bmatrix}$ **= AA'** **∴ AA' is symmetric.** Remark: A = A' give ½ mark For any matrix prove AA' = (AA')' give 2 mark	½ 1 ½	6
	(iii)	**(A+A')' = A' + (A')'** **= A' + A** **= A + A'** **∴ A+A' is symmetric.** Remark: Using any example give full mark	1 1	

20	(i)	A' = - A	1	
		$\lvert A'\rvert = \lvert -A\rvert = (-1)^3 \lvert A\rvert$	½	
		$\lvert A'\rvert = - \lvert A\rvert$		
		$\lvert A\rvert = -\lvert A\rvert$	½	
		$\Rightarrow 2\lvert A\rvert=0$		
		$\lvert A\rvert=0$		
		Remark: For any skew symmetric and proving $\lvert A\rvert=0$ give 1 mark		
	(ii)	$\begin{vmatrix} 2+x & 3 & 4 \\ 1 & -1 & 2 \\ x & 1 & 5 \end{vmatrix} = 0$	½	
		$(2+x)(-5-2) -3(5-2x)+4(1+x) =0$		
		$(2+x)x -7 -3(5-2x)+ 4(1+x)=0$	½	6
		$-14-7x -15+6x +4+4x = 0$	½	
		$3x - 25 =0$	½	
		$x = \frac{25}{3}$		
		Remark: If $\lvert A\rvert=0$ is considered, then give ½ mark		
	(iii)	$\lvert 3AB\rvert = 3^2\lvert AB\rvert$	½	
		$= 9 \lvert A\rvert.\lvert B\rvert$	½	
		$= 9\text{x}-1\text{x}3$	½	
		$=-27$	½	
		Remark: If $\lvert AB\rvert=\lvert A\rvert\lvert B\rvert$ then give ½ mark		
21	(i)	$f(x) = x^2 +2x -5$		
		$f'(x) = 2x + 2$	1	
		$2x + 2 = 0$		
		$x = -1$		
		Interval is $(-\infty, -1)$, $(-1, \infty)$	½	
		in $(-1, \infty)$, $f'(x)<0$		
		∴ Strictly decreasing		
		in $(-\infty, -1)$ $f'(x)>0$	½	
		∴ Strictly increasing		
	(ii)	$y = x^3$ $\frac{dy}{dx}= 3x^2$	½	6
		$(\frac{dy}{dx})(1,1) = 3$	½	
		Equation of tangent		
		$y-1 = 3 (x -1)$		
		$y -3x + 2 = 0$	½	
		Equation of normal		
		$y-1 = \frac{-1}{3}(x -1)$	½	
		$3y + x - 2 = 0$		

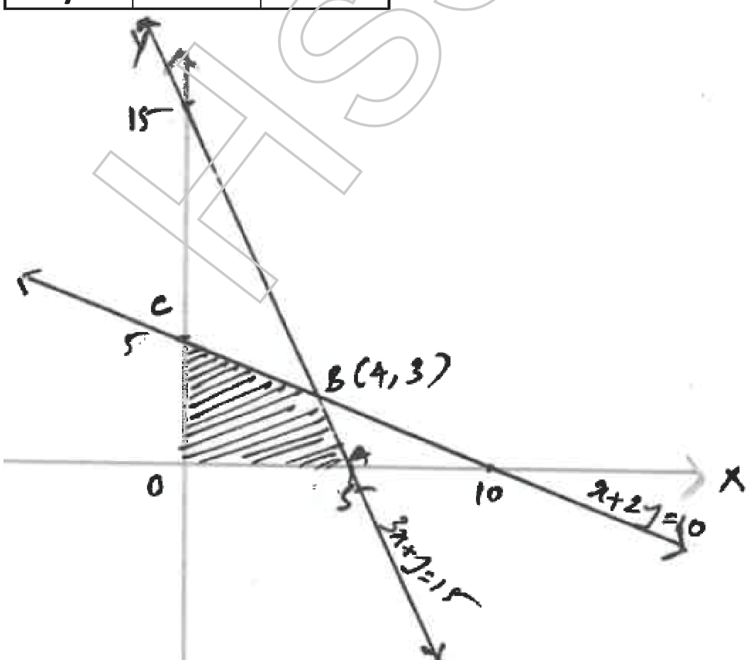
	(iii)	Remark: If m=$\frac{dy}{dx}$ then give ½ mark For formula give ½ mark **h’(x)= cosx – sinx** **h’(x) = 0 ⇒ sinx = cosx ⇒ x=$\frac{\pi}{4}$** **h’($\frac{\pi}{6}$) =** $\frac{\sqrt{3}-1}{2}$ >0 **h’($\frac{\pi}{3}$) =** $\frac{1-\sqrt{3}}{2}$ <0 Max: value = $\sin\frac{\pi}{4} + \cos\frac{\pi}{4} = \sqrt{2}$ ∴ **h(x) has local max at x=$\frac{\pi}{4}$** Remark: For writing conditions of max: min: give 1 mark	½ ½ ½ ½	
22	(i)	$\int \frac{dx}{1+\frac{x^2}{4}}$ = $\int \frac{dx}{\frac{1}{4}(4+x^2)}$ =4$\int \frac{dx}{x^2+4}$ =4. $\frac{1}{2}\tan^{-1}\left(\frac{x}{2}\right) + c$ =2$\tan^{-1}\frac{x}{2} + c$ Remark: Alternative method: $\int \frac{1}{1+\left(\frac{x}{2}\right)^2} dx = \frac{\tan^{-1}\left(\frac{x}{2}\right)}{\frac{1}{2}}$ For formula give ½ mark	½ ½ ½ ½	6
	(ii)	$\frac{x}{(x-1)(x-2)} = \frac{A}{x-1} + \frac{B}{x-2}$ ***x* = A(x-2) + B(x-1)** ***x* =2 ⇒ 2=B** ***x* =1 ⇒ 1= -A ⇒ A = -1** $\int \frac{x}{(x-1)(x-2)} dx = \int \left(\frac{-1}{x-1} + \frac{2}{x-2}\right) dx$ =-log|x-1| + 2 log|x-2| + c Remark: For any correct method and correct answer give full mark For formula give ½ mark	½ ½ ½ ½	
	(iii)	$\int_0^{\frac{\pi}{2}}$ x cosx dx = $[x.\sin x]_0^{\frac{\pi}{2}} - [-\cos x]_0^{\frac{\pi}{2}}$ = ($\frac{\pi}{2}\sin\frac{\pi}{2}$ - 0) + ($\cos\frac{\pi}{2} - \cos 0$) = $\frac{\pi}{2}$ **– 1** For formula give ½ mark	1 1	

<table>
<tr>
<td>23</td>
<td>(i)
(ii)

(iii)</td>
<td>(b) or 0
$\bar{a}.\bar{b} = |\bar{a}|.|\bar{b}| \cos\theta$
$= 2.3.\cos\theta$
When $\theta = 0$, $\bar{a}.\bar{b} = 6$
Or (c)
$\bar{b} \times \bar{c} = \begin{vmatrix} i & j & k \\ 2 & 1 & -1 \\ 1 & 0 & 3 \end{vmatrix} = 3i + 7j - k$
$[\bar{a} \quad \bar{b} \quad \bar{c}] = \bar{a}.(\bar{b} \times \bar{c})$
$= \bar{a}.(3i + 7j - k)$
$= 1.\sqrt{59}\cos\theta$
When $\theta = 0$, $[\bar{a} \quad \bar{b} \quad \bar{c}] = \sqrt{59}$
Remark: For any unit vector a and finding [a b c] give 3, and for correct answer full mark.
$[a\ b\ c] = \begin{vmatrix} a_1 & a_2 & a_3 \\ b_1 & b_2 & b_3 \\ c_1 & c_2 & c_3 \end{vmatrix}$ give 1 mark</td>
<td>1

1

1

1
1
1</td>
<td>6</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>x + 2y = 10
<table>
<tr><td>x</td><td>0</td><td>10</td></tr>
<tr><td>y</td><td>5</td><td>0</td></tr>
</table>
3x + y = 15
<table>
<tr><td>x</td><td>0</td><td>5</td></tr>
<tr><td>y</td><td>15</td><td>0</td></tr>
</table>

</td>
<td>1

3</td>
<td>6</td>
</tr>
</table>

B is (4, 3)

Vertices Z= 3x+2y

Vertices	Z= 3x+2y
O(0,0)	0
A(5,0)	15
B(4,3)	18
C(0,5)	10

1

Max: Z=18 at (4,3) X=4 y=3 1

Remark: For tabular column 1 mark, Figure, for each correct line 1 mark each, correct shading 1 mark.

For any 3 correct corner points give 1 mark.

25 (i) $6k + 0.1 = 1$ ½

$6k = 0.9$

$K = \frac{0.9}{6} = 0.15$ ½

Remark: $\Sigma pi=1$, give ½ mark.

(ii) $P(1<x<4) = P(2) + P(3)$ ½

$= 2k + 2k$

$= 4k$

$= 4 \times 0.15 = 0.6$ ½

(iii)

x	P(x)	xP(x)	$x^2P(x)$
0	0.10	0.00	0.00
1	0.15	0.15	0.15
2	0.30	0.60	1.20
3	0.30	0.90	2.70
4	0.15	0.60	2.40
		2.25	6.45

2

Mean $= \Sigma xP(x)$

$= 2.25$ ½

$V(x) = \Sigma x^2P(x) - (\Sigma xP(x))^2$ ½

$= 6.45 - (2.25)^2$ ½

$= 6.45 - 5.0625 = 1.3875$ ½

6

Summarized by: Sreemary K, (9446512086)