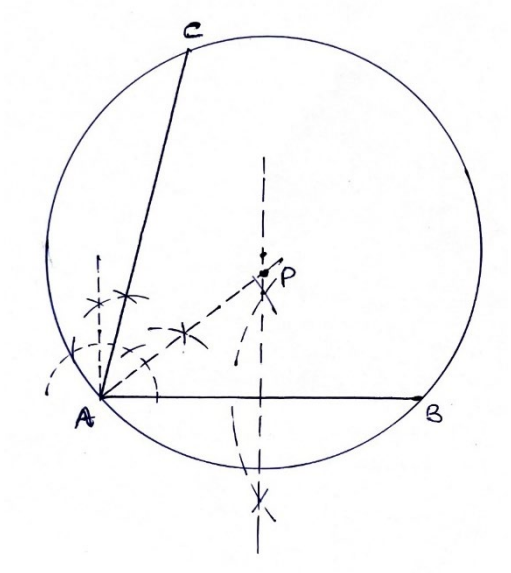
ICSE 2026 SPECIMEN

DRAFT MARKING SCHEME – MATHEMATICS

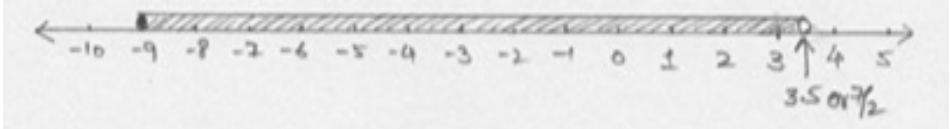
Question 1		
(i)	(c) (x+1)	.[15]
(ii)	(c) ₹ 68,400	
(iii)	(c) 80 cm^2	
(iv)	(c) $3\sqrt{2}$	
(v)	(c) Both (A) and (R) is true and (R) is the correct reason for (A).	
(vi)	(a) (A) is true, (R) is false.	
(vii)	(a) 20	
(viii)	(a) 0	
(ix)	(c) [5]	
(x)	(d) a = 10, b = 5, c = 15	
(xi)	(d) ₹ 86.40	
(xii)	(c) ₹1925	
(xiii)	(d) +1, -1	
(xiv)	(b) $x - y = 7$	
(xv)	(a) Ø	
Question 2		
(i)	$f(x) = \mathbf{2x^3 + 7x^2 + 2x - 3}$ $f\left(-\frac{1}{2}\right) = 2\left(-\frac{1}{2}\right)^3 + 7\left(-\frac{1}{2}\right)^2 + 2\left(-\frac{1}{2}\right) - 3 \neq 0$ $\therefore (2x+1)\ is\ not\ a\ factor\ of\ f(x).$ $f\left(\frac{1}{2}\right) = 2\left(\frac{1}{2}\right)^3 + 7\left(\frac{1}{2}\right)^2 + 2\left(\frac{1}{2}\right) - 3 = 0$ $\therefore (2x-1)\ is\ a\ factor\ of\ f(x)$	[4]

	$$\begin{array}{r} x^2+4x+3 \\ 2x-1\overline{)\,2x^3+7x^2+2x-3} \\ \underline{2x^3-x^2} \\ 8x^2+2x \\ \underline{8x^2-4x} \\ 6x-3 \\ \underline{6x-3} \\ \times\times \end{array}$$ $$f(x)=(2x-1)(x^2+4x+3)$$ $$f(x)=(2x-1)(x+3)(x+1)$$	
(ii)	(a) $y=0$ $\frac{-4m+2n}{m+n}=0,\ 4m=2n\rightarrow m:n=1:2$ *(b)* $x=\frac{9\times1+2\times(-6)}{3}=-1$ $P(-1,0)$ (c) $m_{AB}=\frac{-4-2}{9+6}=\frac{-6}{15}=-\frac{2}{5}$ $y+2=-\frac{2}{5}(x+3)\rightarrow 2x+5y=-16$	[4]
(iii)	(a) $\angle BOC=180°-80°=100°\rightarrow\angle BEC=\frac{1}{2}\times100°=50°$ $(\angle\ at\ centre\ is\ twice\ the\ \angle\ in\ remaining\ segment)$ (b) $\angle BCD=\angle BCA+\angle ACE+\angle ECD=40°+20°+50°=110°$ (c) $\angle CED=180°-110°-50°=20°$	[4]
Question 3		
(i)	(a) $A.P.$ (b) $l=53, a+(n-1)d=53$ $-11+(n-1)4=53\rightarrow n=17$ (c) Middle term = $\left(\frac{17+1}{2}\right)^{th}\ term=9^{th}term$ $T_9=a+8d=-11+8\times4=21$	[4]
(ii)	$h=\frac{1}{2}(1+6), given\ \rightarrow h=\frac{7}{2}$ $Area\ of\ wet\ surface=\ \pi r^2+2\pi rh\ \rightarrow\pi r(r+2h)$ $=\frac{22}{7}\times\frac{7}{2}\left(\frac{7}{2}+2\times\frac{7}{2}\right)=115.5\ cm^2$	[4]

(iii)	 (a) $Length\ of\ CP = 4.9\ cm.$	[5]

SECTION – B

Question 4

(i)	(a) $No.of\ shares = \frac{8000}{80} = 100$ $Annual\ Dividend = \frac{6 \times 100 \times 100}{100} = ₹600$ (b) $Sale\ proceeds = ₹75 \times 100 = ₹7500$ $and\ Total\ proceeds = ₹8100$ $No.of\ shares = \frac{8100}{27} = 300$	[3]
(ii)	$5x - 21 < \frac{5x}{7} - 6 \leq -3\frac{3}{7} + x, x \in R$ $5x - 21 < \frac{5x}{7} - 6$ $5x - \frac{5x}{7} < -6 + 21$ $\frac{35x - 5x}{7} < 15$ $30x < 105$ $x < 3.5$ $\frac{5x}{7} - 6 \leq -3\frac{3}{7} + x$ $\frac{5x}{7} - x \leq -\frac{24}{7} + 6$ $\frac{5x - 7x}{7} \leq \frac{-24 + 42}{7}$ $-2x \leq 18$ $x \geq -9$ $\left\{x: -9 \leq x < \frac{7}{2}, x \in R\right\}$ 	[3]

(iii) [4]

$$LHS = (sin\theta + cos\theta)(cosec\theta - sec\theta)$$

$$= (sin\theta + cos\theta)\left(\frac{1}{sin\theta} - \frac{1}{cos\theta}\right) = (sin\theta + cos\theta)\left(\frac{cos\theta - sin\theta}{sin\theta.cos\theta}\right)$$

$$= \frac{cos^2\theta - sin^2\theta}{sin\theta.cos\theta} = \frac{1 - 2\,sin^2\theta}{sin\theta.cos\theta} = \frac{1}{sin\theta.cos\theta} - \frac{2\,sin^2\theta}{sin\theta.cos\theta}$$

$$= cosec\theta.sec\theta - 2tan\theta = RHS$$

Question 5

(i) [3]

(a) $In\ \Delta APB\ and\ \Delta CPD, \angle BAP = \angle DCP\ \ (\angle s\ on\ same\ segment)$

$\angle ABP = \angle CDP\ \ (\angle s\ on\ same\ segment)$

$\therefore \Delta APB \sim \Delta CPD\ \ (AA\ axiom)$

(b) $\frac{AB}{CD} = \frac{3}{2}\ \therefore CD = 6cm$

(c) $\frac{area\ (\Delta APB)}{area\ \Delta CPD} = \frac{BP^2}{DP^2} = \frac{9}{4} \rightarrow 9:4$

(ii) [3]

$$Interest = \frac{600 \times 24 \times 25}{2} \times \frac{r}{100} \times \frac{1}{12} = 150\,r$$

$$Maturity\ Value = ₹15600$$

$$600 \times 24 + 150r = ₹15600$$

$$150r = ₹15600 - ₹14400 \rightarrow r = \frac{1200}{150} = 8\%$$

(iii) [4]

Class	x	$u = d/i$	f	fu
0 – 15	7.5	-3	3	-9
15 – 30	22.5	-2	4	- 8
30 – 45	37.5	-1	7	-7
45 – 60	52.5	0	6	0
60 – 75	67.5	1	8	8
75 – 90	82.5	2	2	4
			30	-12

$$Mean = A + \frac{\sum fu}{\sum f} \times i = 52.5 + \frac{-12}{30} \times 15 = 52.5 - 6 = 46.50$$

Question 6

(i) [3]

(a) $P\left(\frac{-1+3+0}{3}, \frac{3+(-1)+0}{3}\right) = P\left(\frac{2}{3}, \frac{2}{3}\right)$

(b) $m_{AB} = \frac{-1-(3)}{3-(-1)} = \frac{-4}{4} = -1 \qquad m_{CD} = -1$

$$Required\ equation, y - \frac{2}{3} = -1\left(x - \frac{2}{3}\right) \rightarrow 3x + 3y = 4$$

(ii) [3]

(a) $AP = AS, BP = BQ, DR = DS \text{ and } CR = CQ$

$(tangents\ drawn\ to\ a\ circle\ from\ an\ external\ pt.\ equal)$

$Adding, (AP + BP) + (DR + CR) = (AS + DS) + (BQ + CQ)$

$AB + DC = AD + BC \rightarrow 2\,AB = 2\,BC \therefore AB = BC$

(b) Rhombus

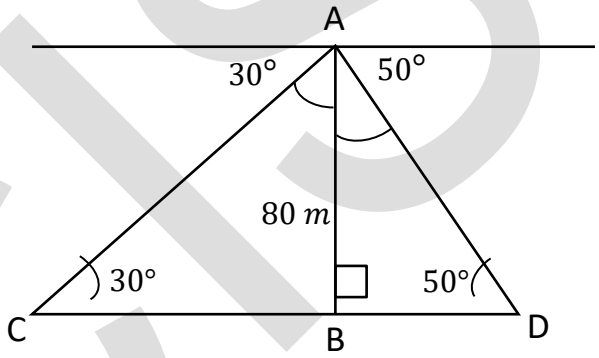
(iii) [4]

Rajdhani Departmental Store

S. No.	*Item*	*Marked Price*	*Discounte Price*	*GST*	*Tax*
1.	*Dry Fruits* $(1kg)$	₹ 1200	₹ 1100	12%	$\frac{12 \times 1100}{100} = 132$
2.	*Wheat Flour*	₹ 286	₹ 286	5%	$\frac{5 \times 286}{100} = 14.30$
3.	*Bakery Products*	₹ 500	₹ 450	12%	$\frac{12 \times 450}{100} = 54$
Total			₹1836		₹ 200.30
Grand total		₹ 2036.30			

Question 7

(i) [5]



$In\ \Delta ABC, \quad \frac{AB}{BC} = \tan 30°$

$\frac{80}{BC} = \frac{1}{\sqrt{3}} \rightarrow BC = 80\sqrt{3} = 80 \times 1.7321\ m$

$In\ \Delta ABD, \quad \frac{AB}{BD} = \tan 50° \ or\ \frac{BD}{AB} = tan40°$

$\frac{BD}{80} = 0.8391 \rightarrow BD = 80 \times 0.8391\ m$

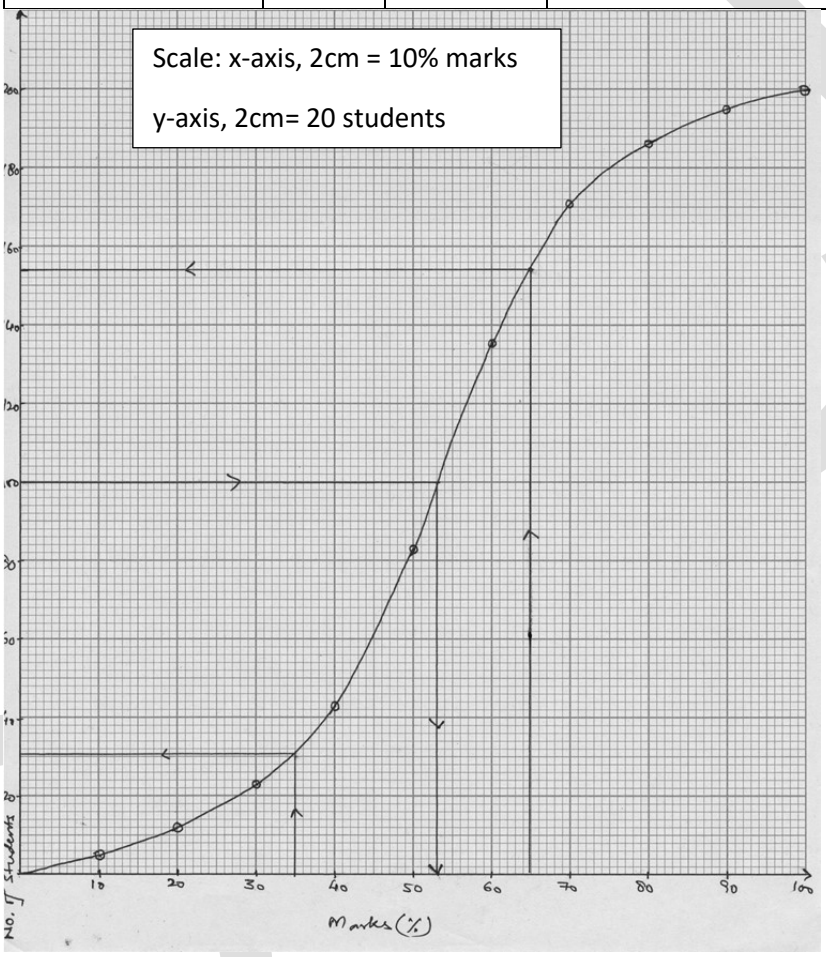
$CD = 80 \times 1.732\ m + 80 \times 0.839\ m = 80(1.7321 + 0.8391)\ m$

$80(2.5712) = 205.696\ m = 206\ m$

(ii)

Marks (%)	f	cf
0 – 10	5	5
10 – 20	7	12
20 – 30	11	23
30 – 40	20	43
40 – 50	40	83
50 – 60	52	135
60 – 70	36	171
70 – 80	15	186
80 – 90	09	195
90 – 100	05	200

(a) $Median = 53 \pm 1$
(b) $More\ than\ 65\% = 46 \pm 2$
(c) $Didn't\ pass = 31 \pm 2$



[5]

Question 8

(i)

(a) {6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90, 96}

$$P(divisible\ by\ 6) = \frac{16}{99}$$

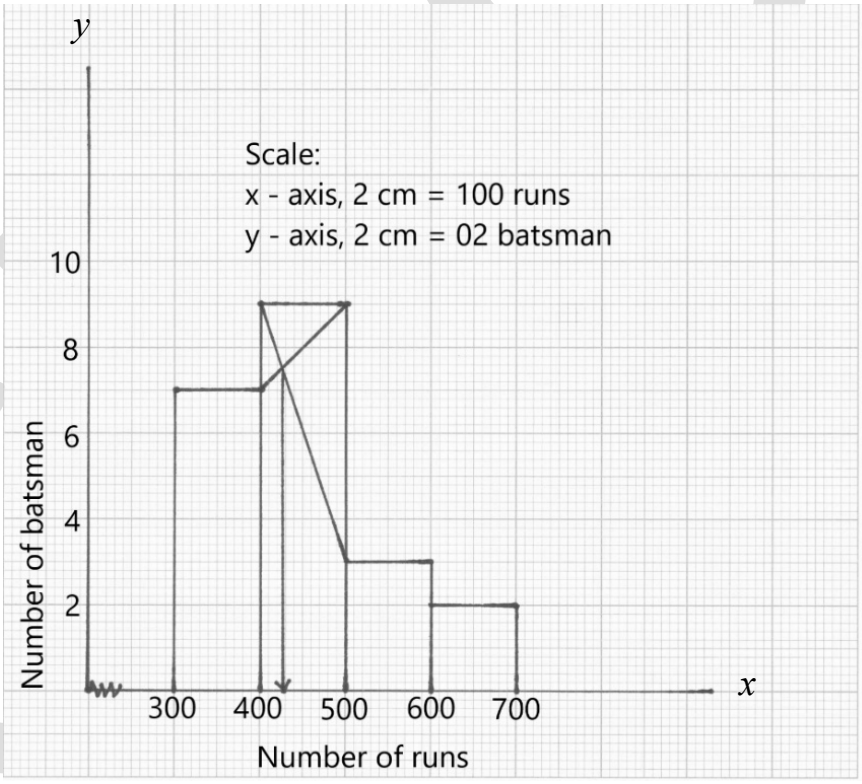
(b) $P(not\ divisible\ by\ 6) = 1 - \frac{16}{99} = \frac{83}{99}$

[3]

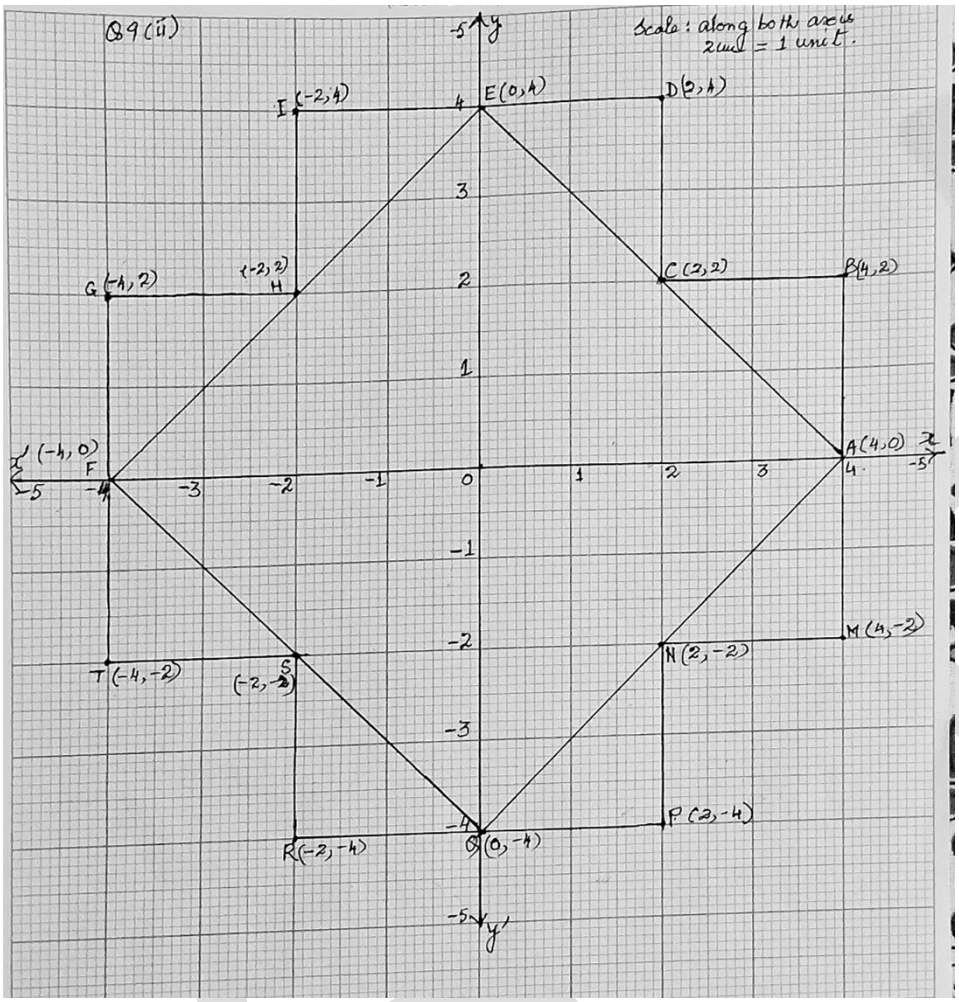
(ii)

$$\frac{x}{y} = \frac{y}{z} \rightarrow y^2 = xz$$

[3]

	$$LHS = \frac{x}{y^2.z^2} + \frac{y}{z^2.x^2} + \frac{z}{x^2.y^2} = \frac{x^3+y^3+z^3}{x^2.y^2z^2}$$ $$\frac{x^3+y^3+z^3}{x^3z^3} = \frac{x^3}{x^3z^3} + \frac{y^3}{x^3z^3} + \frac{z^3}{x^3z^3}$$ $$= \frac{1}{z^3} + \frac{y^3}{y^6} + \frac{1}{x^3} = \frac{1}{z^3} + \frac{1}{y^3} + \frac{1}{x^3} = RHS$$	
(iii)	(a) $No.of\ ball\ bearings = \frac{2156}{\frac{4}{3}\times\pi\times r^3} = \frac{2156}{\frac{4}{3}\times\frac{22}{7}\times\left(\frac{7}{10}\right)^3}$ $= \frac{2156\times3\times7\times10\times10\times10}{4\times22\times7\times7\times7} = 1500$ (b) $Mass\ of\ each\ box = 4\ gm \times 1500 = 6\ kg$	[4]
Question 9		
(i)	(a) 5 (b) 400 – 500 (c) Mode = 430 runs 	[3]
(ii)	$a = 3, \quad S_8 = 2\,S_5 \rightarrow \frac{8}{2}[2\times3+(8-1)d] = 2\left\{\frac{5}{2}[2\times3+(5-1)d]\right\}$ $4[6+7d] = 5[6+4d] \rightarrow 24+28d = 30+20d \rightarrow d = \frac{3}{4}$	[3]

(iii)	$a = q - r, b = r - p \text{ and } c = p - q$ $for\ equal\ roots, b^2 = 4ac \rightarrow (r-p)^2 = 4\,(q-r)(p-q)$ $r^2 + p^2 - 2pr = 4[pq - q^2 - pr + qr)$ $r^2 + p^2 - 2pr + 4pr = 4[pq - q^2 + qr]$ $(p+r)^2 = 4[q(p+r) - q^2]$ $(p+r)^2 - 4q(p+r) + 4q^2 = 0$ $let\ (p+r) = y$ $y^2 - 4qy + 4q^2 = 0$ $(y-2q)^2 = 0$ $y - 2q = 0$ $or\ p + r = 2q \qquad proved$	[4]
Question 10		
(i)	$let\ three\ numbers\ be\ (x-2), x\ and\ (x+2)$ $(x-2)^2 + x^2 + (x+2)^2 = 596 \rightarrow 3x^2 = 588 \rightarrow x^2 = 196 \ \ \therefore x = 14$ The required numbers are 12, 14 & 16	[3]
(ii)	$X^2 = \begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix}\begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix}$ $= \begin{bmatrix} 1\times 1 + (1)\times(8) & 1\times(1) + (1)\times 3 \\ (8)\times 1 + 3\times(8) & (8)\times(1) + 3\times 3 \end{bmatrix}$ $= \begin{bmatrix} 1+8 & 1+3 \\ 8+24 & 8+9 \end{bmatrix}$ $\therefore X^2 = \begin{bmatrix} 9 & 4 \\ 32 & 17 \end{bmatrix}$ $and\ 4X = 4\begin{bmatrix} 1 & 1 \\ 8 & 3 \end{bmatrix} = \begin{bmatrix} 4 & 4 \\ 32 & 12 \end{bmatrix}$ $4X + 5I = \begin{bmatrix} 4 & 4 \\ 32 & 12 \end{bmatrix} + \begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix} = \begin{bmatrix} 9 & 4 \\ 32 & 17 \end{bmatrix}$ $\therefore X^2 = 4X + 5I, \qquad proved$	[3]

(iii)	(a) Square 	[4]