

INDIAN SCHOOL MUSCAT

ANNUAL EXAMINATION

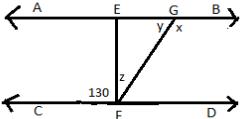
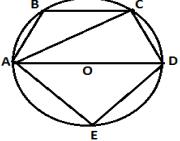
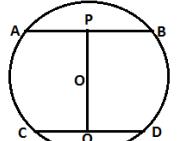
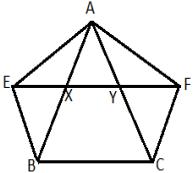
SET A

FEBRUARY 2020

CLASS IX

Marking Scheme – MATHEMATICS

	Q	SET A	SET B	SET C	
	1	b) $10\sqrt{6}$	c) 15°	c) 15° b) AC = DE	Q1 TO Q16 1 mark each
	2	b) 0	b) AC = DE	b) rectangle	
	3	a) 4	b) rectangle	c) 15°	
	4	d) any number	b) 1:2	b) $10\sqrt{6}$	
	5	c) 15°	b) 20:27	b) 0	
	6	b) AC = DE	c) 70°	a) 4	
	7	b) rectangle	d) any number	d) any number	Q17 TO Q 20 $\frac{1}{2} + \frac{1}{2}$
	8	b) 1:2	b) $10\sqrt{6}$	b) 20:27	
	9	b) 20:27	b) 0	c) 70°	
	10	c) 70°	a) 4	b) 1:2	
	11	-5/2	64cm^3	60°	
	12	Right triangle	27	27	
	13	60°	-5/2	-5/2	
	14	64cm^3	Right triangle	Right triangle	
	15	27	60°	64cm^3	
	16	0.875 OR 2	0.875 OR 2	$\angle B=105^\circ$ $\angle D=75^\circ$	
	17	$\pi/2, -7$ OR $2x^2 + kx = 0$ $k = 2$	$x + 3x = 180^\circ$ $x = 45^\circ$	$x + 3x = 180^\circ$ $x = 45^\circ$	
	18	$\angle B=105^\circ$ $\angle D=75^\circ$	$100 - 64 = 36$ $P(T) = 9/25$	$100 - 64 = 36$ $P(T) = 9/25$	
	19	$x + 3x = 180^\circ$ $x = 45^\circ$	$\pi/2, -7$ OR $2x^2 + kx = 0$ $k = 2$	$\pi/2, -7$ OR $2x^2 + kx = 0$ $k = 2$	
	20	$100 - 64 = 36$ $P(T) = 9/25$	$\angle B=105^\circ$ $\angle D=75^\circ$	0.875 OR 2	
21		i) II quadrant ii) III quadrant			1+1
22		$3x - y = -5$, $3x + 5 = y$ take any 3 values for x and get corresponding values for y. OR $3x - 2y + 7 = 0$, $b = -2$, $c = 7$			$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$ $1 + \frac{1}{2} + \frac{1}{2}$
23		$\text{Ar} (\parallel \text{gm } ABCD) = AD \times CF = CD \times AE$ $= AD \times 10 = 16 \times 8$, $AD = 16 \times 8 / 10 = 12.8\text{cm}$			$\frac{1}{2}$ $\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$
24		$10 - 6 = 4$, $4 \div 2 = 2$, lower limit = $6-2 = 4$, upper limit = $6+2 = 8$, $4 - 8, 8 - 12$,			$\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$
25		TSA of hemisphere = $3\pi r^2 = 3 \times 22/7 \times 14 \times 14 = 1848 \text{ cm}^2$ OR Area of 4 walls and ceiling = $2h(l+b) + l \times b = 2 \times 4(15+8) + 15 \times 8 = 8 \times 23 + 120 = 304\text{m}^2$			$\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$
26		No. of women = $70 - (15+20+30) = 5$ $P(\text{woman}) = 5/70 = 1/14$			$\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$
27		(a) $1000s^3 + 27t^3 = (10s)^3 + (3t)^3$			$\frac{1}{2}$

	$= (10s + 3t)(100s^2 - 30st + 9t^2)$ (b) $(1)^3 + (-2x)^3 + (y)^3 - 3 \times 1 \times -2x \times y$ $= (1 - 2x + y)(1 + 4x^2 + y^2 + 2x + 2xy - y)$	Each bracket $\frac{1}{2}$ $\frac{1}{2}$ Each bracket $\frac{1}{2}$																	
28		$EF \perp CD \Rightarrow \angle CEF = 90^\circ$ $90^\circ + z = \angle CFG$ $z = 130^\circ - 90^\circ$ $= 40^\circ$ $x = \angle CFG$ $= 130^\circ$ $x + y = 180^\circ$ $130^\circ + y = 180^\circ$ $y = 180^\circ - 130^\circ$ $= 50^\circ$																	
29	$2x = -7 \quad x = -3.5$ One variable number line Two variables Cartesian system	$\frac{1}{2}$ 1 $\frac{1}{2}$ x and y axis line $x=3.5$ 1mk																	
30	 	$\angle ACD = 90^\circ$ $\angle ABC = 180^\circ - 70^\circ = 110^\circ$ $\angle ACB = 180^\circ - 140^\circ = 40^\circ$ $\angle BCD = 40^\circ + 90^\circ = 130^\circ$ $\angle AED = 90^\circ, \angle ADE = 90^\circ - 60^\circ = 30^\circ$ OR $PB = \frac{1}{2} AB = 4\text{cm}, QD = \frac{1}{2} CD = 3\text{cm}$ $OP^2 = 5^2 - 4^2 = 3^2, OP = 3\text{cm}, \text{Similarly } OQ = 4\text{cm}$ $PQ = OP + OQ = 3 + 4 = 7\text{cm}$																	
31		1 1 $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2}$																	
32	Median = mean of 5 th and 6 th obs $63 = x + x + 2/2$ $126 = 2x + 2$ $124 = 2x$ $x = 62$ OR <table border="1"><tr><th>x</th><th>f</th><th>fx</th></tr><tr><td>4</td><td>4</td><td>16</td></tr><tr><td>6</td><td>8</td><td>48</td></tr><tr><td>8</td><td>14</td><td>112</td></tr><tr><td>10</td><td>11</td><td>110</td></tr></table>	x	f	fx	4	4	16	6	8	48	8	14	112	10	11	110	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\sum f \text{--- } \frac{1}{2}$ $f_x \text{ --- } 1$ $\sum f_x \text{--- } \frac{1}{2}$	MEAN = $614/10 = 61.4$ $\text{Mean} = \sum fx / \sum f$ $= 322/40$ $= 8.05$	1 Mean 1
x	f	fx																	
4	4	16																	
6	8	48																	
8	14	112																	
10	11	110																	

	12	3	36		
		$\sum f = 40$	$\sum fx = 322$		
33		$\angle Q + \angle 1 + \angle 3 = 180^\circ, \angle 2 + \angle 4 + \angle R = 180^\circ$ $\angle Q + \angle 1 + \angle 3 = \angle 2 + \angle 4 + \angle R$ $\angle Q + \angle 3 = \angle 4 + \angle R \text{ AS } \angle 1 = \angle 2$ $PR > PQ$ $\angle Q > \angle R \text{ as angle opposite to greater side}$ $\text{Therefore } \angle 4 > \angle 3 \quad \angle PSR > \angle PSQ$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$		
		$\Delta ABD = \Delta ACD \text{ by SSS}$ $\angle BAD = \angle CAD \text{ by CPCT}$ $AD \text{ bisects } \angle A$ $\Delta BAP = \Delta CAP \text{ by SAS}$ $BP = CP \text{ by CPCT}$ $AP \text{ bisects of BC}$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$		
34	$2(lb + lh + bh) = 1372, 2(8x^2 + 2x^2 + 4x^2) = 1372,$ $28x^2 = 1372$ $x^2 = 49, x = 7, \text{ length} = 4 \times 7 = 28\text{cm}$			$\frac{1}{2} + 1$ $\frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$	
35	$\frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} = \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}-\sqrt{3}} \times \frac{\sqrt{5}+\sqrt{3}}{\sqrt{5}+\sqrt{3}}$ $= \frac{8+2\sqrt{15}}{2} = 4 + \sqrt{15}$ $a+b\sqrt{15} = 4 + \sqrt{15} \Rightarrow a=4, b=1$ <p>OR</p> <p>Drawing AB and AC Drawing perpendicular bisector and semicircle Drawing perpendicular at B and getting point D Getting $\sqrt{6.7}$ on number line</p>			1 $\frac{1}{2} + \frac{1}{2}$ $1 + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2}$ Deduct $\frac{1}{2}$ if 0,1, 2.... Not shown	
36		<p>GIVEN: In quad ABCD $AC \perp BD$, P,Q,R,S are midpoints of AB, BC ,CD and AD respectively TPT: quad PQRS is a rectangle</p> <p>PROOF: $SP \parallel DB$ and $SP = \frac{1}{2} DB$, $RQ \parallel DB$ and $RQ = \frac{1}{2} DB$.Midpoint thm</p> <p>Quad PQRS is a parallelogram</p> <p>Similarly, $PQ \parallel AC$, therefore $PN \parallel MO$ and $MP \parallel ON$.</p> <p>Therefore, quad PNOM is a parallelogram</p> <p>$\text{Angle } MON = 90^\circ \dots\dots AC \perp BD$</p> <p>Therefore angle MPN = $90^\circ \dots\dots \text{opp angles}$</p> <p>Therefore quad PQRS is a rectangle one angle of a parallelogram is a right angle</p>	1 $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$		
OR				1	

	<p>1) In $\triangle CDB$ P and Q are midpoints of CD and CB 2) $PQ \parallel DB$ 3) In $\triangle CDO$ PR $\parallel DO$ and D is midpoint of CD 4) PR bisects CO 5) $CR = \frac{1}{2} CO$ 6) $CO = \frac{1}{2} CA$ 7) $CR = \frac{1}{2} (1/2 CA)$ 8) $CR = \frac{1}{4} CA$</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 $\frac{1}{2}$
37	$CSA = \text{TOTAL COST / RATE} = \text{Rs } 2200 / \text{Rs } 20 \text{ per m}^2 = 110 \text{ m}^2$ $2\pi rh = 110$ $r = 110 / 2\pi h = 110 \times 7 / 2 \times 22 \times 10 = 7/4 \text{ m}$ $\text{VOLUME} = \pi r^2 h = 22/7 \times 7/4 \times 7/4 \times 10 = 385/4 = 96.25 \text{ m}^3$ OR $r = 12 \text{ m}$ $l^2 = r^2 + h^2 = 12^2 + 5^2 = 144 + 25 = 169$ $l = 13 \text{ m}$ $\text{Cost of canvas} = CSA \times \text{RATE} = \pi rl \times \text{Rs } 7 \text{ per m}^2$ $= 22/7 \times 12 \times 13 \times 7 = \text{Rs } 3432$	1 $\frac{1}{2}$ 1 $\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$
38	$s = a + b + c / 2 = 540/2 = 270 \text{ m}$ $A = \sqrt{s(s-a)(s-b)(s-c)} =$ $= \sqrt{270 \times 150 \times 100 \times 20}$ $= \sqrt{81000000}$ $= 9000 \text{ cm}^2$ $H = 2A/b = 2 \times 9000 / 250 = 72 \text{ m}$	1 $\frac{1}{2}$ 1 $\frac{1}{2}$ 1
39	BC $\angle B = 45^\circ$. Point P and P to C Perpendicular bisector Mark point A Complete triangle ABC	$\frac{1}{2}$ 1 $\frac{1}{2}$ 1 $\frac{1}{2}$ $\frac{1}{2}$
40	Histogram Frequency polygon	$2+2$ Deduct $\frac{1}{2}$ mark for not closing the polygon correctly