

# DAV PUBLIC SCHOOLS, ODISHA, ZONE

## PERIODIC ASSESSMENT – II (2023 – 24)

### MARKING SCHEME

QES NO.	VALUE POINTS	Marks Allotted	PAGE NO OF NCERT/ TEST BOOK
1	(a) 420	1 mark	p-2
2	(c) $\frac{x^2}{2} - \frac{x}{2} - 6$	1 mark	p-21
3	b. Any real value other than -2	1 mark	p-36
4	(c) intersecting or coincident	1 mark	p-29
5	(b) $30^\circ$	1 mark	p-121
6	(a) 3 cm	1 mark	p-147
7	c) $1/6$	1 mark	p-207
8	d) $231 \text{ cm}^2$	1 mark	p-197
9	d) PA=4 cm	1 mark	p-149
10	c) $\frac{3}{8}$	1 mark	p-210
11	d) 4 cm	1 mark	p-84
12	a) 7 cm	1 mark	p-158
13	(b) similar	1 mark	p-78
14	c)3	1 mark	p-181
15	(c) 1	1 mark	p-127
16	b) 1	1 mark	p-127
17	d) 132 cm	1 mark	p-197
18	(c) $3\text{median} = 2\text{mean} + \text{mode}$	1 mark	p-155
19	(c) A is true but R is false	1 mark	p-7
20	a)Both A and B are true and R is the correct explanation of A	1 mark	p-21
<b>SECTION-B</b>			
21	PQ  RS [Given] $\angle P = \angle S$ [Pair of alternate angles] and $\angle Q = \angle R$ [Pair of alternate angles] Also, $\angle POQ = \angle SOR$ [Vertically opposite angles] $\therefore \Delta POQ \sim \Delta SOR$ [AAA similarity criterion]	1 mark  1 mark	p-91
22	AP = AS ....(i) [tangents from A] BP = BQ ....(ii) [tangents from B] CR = CQ ....(iii) [tangents from C] DR = DS ....(iv) [tangents from D] Therefore, $AB + CD = (AP + BP) + (CR + DR)$ $= (AS + BQ) + (CQ + DS)$ $= (AS + DS) + (BQ + CQ)$ $= (AD + BC).$	1 mark  1 mark	p-152
23	SinA=4/5 ,Cos A=3/5 and Tan A=4/3 $\cos A + \tan A = 29/15$  Or	1 mark 1 mark	p-127

	$\frac{\sin 30^\circ + 2\cos^2 45^\circ + \tan^2 60^\circ}{\frac{1}{2}\cot 45^\circ + \cos^2 30^\circ + \tan^2 45^\circ} = \frac{\frac{1}{2} + 1 + 3}{\frac{1}{2} + \frac{3}{4} + 1} = 2$	1+1 Marks	
24	<p>Number multiple of 4 are 4,8,12  P=3/15  Or  P=2/52</p>	1 mark 1 mark 2 mark	p-215
25	$\frac{4\sin\theta - \cos\theta}{4\sin\theta + \cos\theta} = \frac{4 \times \frac{3}{4} - 1}{4 \times \frac{3}{4} + 1} = \frac{2}{4}$	1 mark  1 mark	p-127
<b>SECTION-C</b>			
26	<p>The time of their meeting is the LCM of 18 and 12 in minutes.</p> <p>Prime factorization of 18=2×3×3  Prime factorization of 12=2×2×3  Hence, LCM of 18, 12=2×3×3×2=36  Sonia and Ravi meet after 36 minutes.</p>	1 mark  1 mark  1 mark	p-6
27	$x^2 - 6x + 5 = x^2 - 5x - x + 5$ $= (x-5)(x-1) = 0$ <p>X=5 Or 1  Or  Product = c/a  a = 0</p>	1 mark 1 mark 1 marks	p-21
28	<p>Let the digits at units and tens place of the given number be a and b respectively.  Its value is 10a + b  a + b = 9 ----- (1)  Also  9(10a + b) = 2(10b+a)  8a - b = 0 ----- (2)  Solving, we get a= 1, b= 8  Hence our number is 18</p>	1 mark  1 mark  1 mark	p-36

29	$\frac{\tan A}{1 + \sec A} - \frac{\tan A}{1 - \sec A} = 2 \cdot \operatorname{cosec} A$ <p>L.H.S</p> $\frac{\tan A}{1 + \sec A} - \frac{\tan A}{1 - \sec A}$ $= \frac{\tan A(1 - \sec A) - \tan A(1 + \sec A)}{1 - \sec^2 A}$ $= \frac{\tan A(1 - \sec A - 1 - \sec A)}{-\tan^2 A}$ $= \frac{-2 \sec A}{-\tan A}$ $= \frac{2 \cdot 1/\cos A}{\sin A/\cos A}$ $= \frac{2}{\sin A}$ <p>=2 cosec A (RHS)</p> <p>OR</p> $= \frac{\sec \theta + \tan \theta - 1}{\tan \theta - \sec \theta + 1}$ $= \frac{\sec \theta + \tan \theta - (\sec^2 \theta - \tan^2 \theta)}{\tan \theta - \sec \theta + 1} \quad \{\because \sec^2 \theta - \tan^2 \theta = 1\}$ $= \frac{(\sec \theta + \tan \theta)[1 - (\sec \theta - \tan \theta)]}{\tan \theta - \sec \theta + 1}$ $= \frac{(\sec \theta + \tan \theta)(1 - \sec \theta + \tan \theta)}{\tan \theta - \sec \theta + 1}$ $= \sec \theta + \tan \theta = \frac{1}{\cos \theta} + \frac{\sin \theta}{\cos \theta}$	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p>	p-131
30	<p>For correct figure</p> <p>Correct proof</p>	<p>1 mark</p> <p>2 marks</p>	p-149
31	<p>Modal Class=40-60</p> <p>Correct Formula</p> <p>Correct value of Mode</p>	<p>1 mark</p> <p>1 mark</p> <p>1 mark</p>	p-187
32	<p>Let us consider <math>\sqrt{2}</math> is rational.</p> <p><math>\sqrt{2} = p/q</math>.</p> <p>(where p and q are co-prime number and <math>q \neq 0</math>)</p> <p>Squaring on both sides give,</p> <p><math>2 = p^2/q^2</math></p> <p><math>2q^2 = p^2</math></p> <p>From this we can say that 2 divides <math>p^2</math> so 2 will also divide p.</p> <p>So, 2 is one of the factor of p.</p> <p>So we can write,</p>	<p>1 mark</p>	p-9



34	<p>Let cost of one bat be Rsx Let cost of one ball be Rsy          ATQ <math>4x + 1y = 2050</math> _____(1)  <math>3x + 2y = 1600</math> _____(2)  <i>from (1)</i> <math>4x + 1y = 2050</math>  <math>y = 2050 - 4x</math>  <i>Substitevalueof yin (2)</i> <math>3x + 2(2050 - 4x) = 1600</math>  <math>3x + 4100 - 8x = 1600</math>  <math>-5x = -2500</math>  <math>x = 500</math>  <i>Substiturevalueof x in (1)</i> <math>4x + 1y = 2050</math>  <math>4(500) + y = 2050</math>  <math>2000 + y = 2050</math>  <math>y = 50</math>          Hence Cost of one bat = Rs. 500          Cost of one ball = Rs. 50</p> <p style="text-align: center;"><b>(OR)</b></p> <p>Let the fixed charge for first 3 days= Rs. <math>x</math>          And additional charge after 3 days= Rs. <math>y</math>          ATQ <math>x + 4y = 27</math>------(1)  <math>x + 2y = 21</math> -----(2)          Subtract eqn (2) from (1) <math>2y = 6</math>  <math>y = 3</math>          Substitute value of <math>y</math> in (2) <math>x + 2(3) = 21</math>  <math>x = 21 - 6</math>  <math>x = 15</math></p> <p style="text-align: center;">Fixed charge= Rs. 15 Additional charge per day = Rs. 3</p>	1 mark  1 mark  1 mark   1 mark  1 mark	p-33
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35	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">CI</th> <th style="width: 25%;">F</th> <th style="width: 50%;"><math>C_f</math></th> </tr> </thead> <tbody> <tr> <td>0 - 10</td> <td>5</td> <td>5</td> </tr> <tr> <td>10 - 20</td> <td><math>x</math></td> <td><math>5+x</math></td> </tr> <tr> <td>20 - 30</td> <td>20</td> <td><math>25+ x</math></td> </tr> <tr> <td>30 - 40</td> <td>15</td> <td><math>40 + x</math></td> </tr> <tr> <td>40 - 50</td> <td><math>y</math></td> <td><math>40 + x + y</math></td> </tr> <tr> <td>50- - 60</td> <td>5</td> <td><math>45 + x + y</math></td> </tr> </tbody> </table> <p>Total number = 60  <math>45+x+y = 60</math>, <math>x+ y = 15</math>          Median 28.5 , median class 20 – 30, <math>l = 20</math> , <math>c_f = 5+x</math> , <math>f = 20</math></p> <p>Median = <math>l + \frac{\frac{n}{2} - c_f}{f} \times h</math>          On solving we got <math>x = 8</math>  <math>y = 7</math></p>	CI	F	$C_f$	0 - 10	5	5	10 - 20	$x$	$5+x$	20 - 30	20	$25+ x$	30 - 40	15	$40 + x$	40 - 50	$y$	$40 + x + y$	50- - 60	5	$45 + x + y$	1 mark  1 mark       1 mark  1 mark  1 mark	p-198
CI	F	$C_f$																						
0 - 10	5	5																						
10 - 20	$x$	$5+x$																						
20 - 30	20	$25+ x$																						
30 - 40	15	$40 + x$																						
40 - 50	$y$	$40 + x + y$																						
50- - 60	5	$45 + x + y$																						

<b>SECTION – E</b>			
36	(a) 2 (b) - 2, 4	1 mark	p-23

	(c) $x^2 - 3\sqrt{3}x + 6$ OR +1 , - 1	1 mark 2 marks	
37	(a) $2/52$ (b) $12/52$ (c) $28/52$ Or $44/52$	1 mark 1 marks 2 marks	p-207
38	(a) $36^0$ (b) 4.4cm (c) 114cm Or $15.4cm^2$	1 mark 1 mark 2 marks	p-159

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