DAV PUBLIC SCHOOLS, ODISHA ZONE

HALF YEARLY EXAMINATION, SUBJECT – MATHEMATICS, CLASS: VI

BLUE PRINT OF QUESTION PAPER

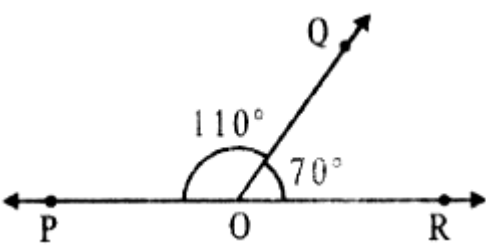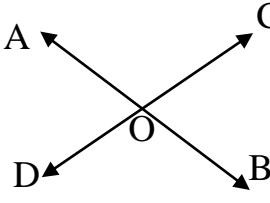| Sl. No	Chapters	MCQs (1 Mark)	Fill in the Blanks (1 Mark)	VSA (1Mark)	SA-I (2 Marks)	SA-II (3 Marks)	LA (4 Marks)	Total
1	Natural Numbers and Whole numbers	2	1	1	1	1	1	13
2	Factors and Multiples	2	1	2	1	1	1	14
3	Integers	2	1	1	1	1	1	13
4	Ratio proportion and unitary method	1	2	0	0	2	1	13
5	Basic Geometrical Concepts	1	0	0	0	1	1	8
6	Line Segments	0	0	0	1	1	0	5
7	Angles	2	0	1	1	1	0	8
8	Transversal and Pairs of lines	0	0	0	1	0	1	6
	TOTAL	**1×10=10**	**1 × 5 = 5**	**1 × 5 = 5**	**2×6 =12**	**3×8=24**	**4×6=24**	**80(40)**

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QUESTION WISE ANALYSIS

Sl. No.	Chapters / units	Forms of Question (LA, SA-II, SA-I, VSA, Fill in the blanks, MCQ)	Marks Allotted	(R), (U), (A), (H), (E)
1	Natural Numbers and Whole numbers	MCQ	1	R
2	Natural Numbers and Whole numbers	MCQ	1	R
3	Factors and Multiples	MCQ	1	R
4	Factors and Multiples	MCQ	1	R
5	Integers	MCQ	1	U
6	Integers	MCQ	1	U
7	Ratio proportion and unitary method	MCQ	1	U
8	Basic Geometrical Concepts	MCQ	1	R
9	Angles	MCQ	1	R
10	Angles	MCQ	1	R
11	Natural Numbers and Whole numbers	Fill in the blanks	1	U
12	Factors and Multiples	Fill in the blanks	1	R
13	Integers	Fill in the blanks	1	R
14	Ratio proportion and unitary method	Fill in the blanks	1	U
15	Ratio proportion and unitary method	Fill in the blanks	1	U
16	Natural Numbers and Whole numbers	VSA	1	R
17	Factors and Multiples	VSA	1	R
18	Factors and Multiples	VSA	1	U
19	Integers	VSA	1	U
20	Angles	VSA	1	U

21	Natural Numbers and Whole numbers	SA – I	2	R
22	Factors and Multiples	SA – I	2	U
23	Integers	SA – I	2	A
24	Line Segments	SA – I	2	R
25	Angles	SA – I	2	Creation/HOTs
26	Transversal and Pairs of lines	SA – I	2	A
27	Natural Numbers and Whole numbers	SA - II	3	A
28	Factors and Multiples	SA - II	3	A
29	Integers	SA - II	3	U
30	Ratio proportion and unitary method	SA - II	3	A
31	Ratio proportion and unitary method	SA - II	3	A
32	Basic Geometrical Concepts	SA - II	3	R
33	Line Segments	SA - II	3	A
34	Angles	SA - II	3	HOTs
35	Natural Numbers and Whole numbers	LA	4	A
36	Factors and multiples	LA	4	A
37	Integers	LA	4	A
38	Ratio proportion and unitary method	LA	4	HOTs
39	Basic Geometrical Concepts	LA	4	R
40	Transversal and Pairs of lines	LA	4	R

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MARKING SCHEME

QN NO.	Value Points	Marks Allotted	PAGE NO. OF NCERT/TEXT BOOK
1	(c) 99987	1	7
2	(c) 259	1	3
3	(b) 12	1	26
4	(a) 1	1	24
5	(a) $-10 < -4$	1	50
6	(c) 0	1	51
7	(d) 3 : 5	1	88
8	(b) point of concurrence	1	140
9	(a) a straight angle	1	170
10	(b) 150^0	1	171
11	50	1	12
12	Twin Primes	1	24
13	35	1	58
14	10 : 1	1	87
15	12	1	83
16	10 million =1 crore	1	01
17	2	1	36
18	$144 = 2 \times 2 \times 2 \times 2 \times 3 \times 3$	1	33
19	$(-1) + 1 = 0$	1	54
20	$90^0 - 59^0 = 31^0$	1	166
21	Smallest Number = 10000039 Largest Number = 99999310	1 1	21
22	 So, HCF of 348 and 1024 is 4. **OR** Sum of digits of the number = $3 + 4 + 5 + 6 + 7 + 2 = 27$ As 27 is divisible by 9, the given number is divisible by 9.	1.5 0.5 1 1	34 29
23	$(-2)^2 = 4, (-10)^2 =100$ $(-2)^2 \times (-10)^2 \times (-1) = 4 \times 100 \times (-1) = (-400)$ **OR** $325 \times (-641) + 325 \times (-359)$ $= 325 \times [(-641) + (-359)] = 325 \times (-1000) = (-325000)$	1 + 1 1 + 1	59

24	(a) AC – AE = EC (b) ED + BE = BD	1 1	155
25	(a) (b) 	1 1	165,166
26	∠BGE and ∠CHF are not corresponding angles. They are called alternate angles.	1 1	178
27	Weight carried by tempo = 482 × 15 kg Weight carried by Van = 518 × 15 kg Total weight carried by both tempo and Van = 482 × 15 + 518 ×15 $\qquad\qquad\qquad\qquad\qquad\qquad$ = 15(482 + 518) $\qquad\qquad\qquad\qquad\qquad\qquad$ = 15 × 1000 = 15000kg **OR** Largest 6-digit number = 999999 999999 ÷ 45, Quotient = 22222, Remainder = 9 Required no. = 999999 − 9 = 999990	0.5 0.5 1 1 1 1 1	13 15
28	Length, breadth and height of a room are 828cm, 675 cm, 450cm respectively. Longest tape required to measure the three dimensions of the room = HCF of 828cm, 675 cm, 450cm HCF of 828cm, 675 cm, 450cm = 75 cm Hence, the required longest tape = 75 cm **OR** Product of two numbers = HCF × LCM ∴ Other number $= \frac{HCF \times LCM}{First\ number} = \frac{13 \times 1989}{117} = 221$	1 2 1 2	36 40
29	$\|(-400) + 781 + (-1400) + (-81) + 300\|$ $= \|(-400) + (-1400) + (-81) + 300\ +\ 781\|$ $= \|(-1881) + 1081\|$ $= \|(-800)\| = 800$	 1 1 1	73
30	Here, we have to find out if 36, 90, 90 and 75 are in proportion. Product of extremes = 36 × 75 = 2700 Product of means = 90 × 90 = 8100 So, they are not in continued proportion.	 1 1 1	84
31	Distance travelled by scooter in 3 hours = 120 km Speed of scooter $= \frac{\text{Distance}}{\text{Time}} = \frac{120}{3} = 40$ km/h Distance travelled by train in 2 hours = 120 km Speed of train $= \frac{\text{Distance}}{\text{Time}} = \frac{120}{2} = 60$ km/h ∴ Ratio of their speeds $= \frac{40}{60} = \frac{2}{3} = 2{:}3$ **OR**	 1 1 1	NCERT EXEMPLAR

	Let number of large classrooms be 3 parts and small classroom be 4 parts. Here, 4 parts = 20 1 part = 20/4=5 3 parts = 3 × 5 = 15 So, number of large rooms = 15	1 1 1	
32	(a) l ∥ m, m ∥ n, l ∥ n (b) Point B (c) line 't' and line 'r'	1 1 1	141
33	For correct construction of AB = 4.5cm For correct construction of CD = 5.4cm For correct construction of 2AB – CD	1 1 1	153
34	$\frac{5}{6}$ of a right angle = $\frac{5}{6} \times 90^0 = 75^0$ Complement of $60^0 = 90^0 – 75^0 = 15^0$ Supplement of $15^0 = 180^0 – 15^0 = 165^0$	1 1 1	173
35	$500 – [90 − \{60 − (20 − 5)\} − 10]$ $= 500 − [90 − \{60 − 15\} −10]$ $= 500 − [90 – 45 −10]$ $= 500 − [90 − 55]$ $= 500 − 35$ $= 465$	 1 1 1 0.5 0.5	19
36	The required time duration = LCM of 8s, 12s, 15s and 18s $\begin{array}{c\|l} 2 & 8, 12, 15, 18 \\ 2 & 4, \ 6, 15, \ 9 \\ 2 & 2, \ 3, 15, \ 9 \\ 3 & 1, \ 3, 15, \ 9 \\ 3 & 1, \ 1, \ 5, \ 3 \\ 5 & 1, \ 1, \ 5, \ 1 \\ & 1, \ 1, \ 1, \ 1 \end{array}$ LCM = 2 × 2 × 2 × 3 × 3 × 5 = 360 The required time duration is 360s = 6 minutes So, after 6 minutes i.e 4.06 pm, all the four bells will toll together again.	 2 1 1	40

37	LHS: a ÷ (b ÷ c) = (−225) ÷ [15 ÷ (−3)] = (−225) ÷ (−5) = 45
	RHS: (a ÷ b) ÷ (a ÷ c) = [(−225) ÷ 15] ÷ [(−225) ÷ (−5)]
	$= (−15) ÷ 45 = \frac{−15}{45} = \frac{−1}{3}$
	
	So, LHS ≠ RHS
	 OR
	(a) 242 × (−95) + 242 × (−4) – 242
	    = 242(−95 − 4 − 1)
	    = 242 × (−100)
	    = (−24200)
	(b) $(−1)^9 + (−1)^{10} = (−1) + 1 = 0$
		2
		
		2
		
		1
		1
		1
		
		1
			67
			
			65

38	Distance covered by train in 5 hours =550 km Distance covered by train in 1 hour = 550/5 = 110 km (a) Distance covered by train in 2½ hours = 110 × 5/2 = 275 km (b) No. of hours required to covered 330km = 330 ÷ 110 = 3 hours **OR** The ratio of vertical pole and its shadow is = 7:2 Hence, 7 : 2 = x : 2.4 By cross multiplication x = (7 × 2.4) / 2 = 8.4 Length of pole 8.4m	2 1 1 2 2	86 89

39	(a) A – D – B, A – F – C (Any relevance answer) (b) Point F (c) Line m, r, p (d) (p, l), (n, r) (Any other correct answer)	1 1 1 1		142
40	(a) ∠5 (b) ∠3, ∠4, ∠5, ∠6 (Any two) (c) ∠1, ∠7 or ∠2, ∠8 (d) ∠7	1 1 1 1		179