

**ANNEXURE-A****DAV PUBLIC SCHOOLS, ODISHA ZONE****PA-II/HALF YEARLY EXAM., SUBJECT – MATHEMATICS,  
CLASS: VII****BLUE PRINT OF QUESTION PAPER**

<b>CHAPTER</b>	<b>MCQ (1M)</b>	<b>Fill in the Blank (1M)</b>	<b>VSA (1M)</b>	<b>SA-I (2M)</b>	<b>SA-II (3M)</b>	<b>LA (4M)</b>	<b>TOTAL</b>
Rational numbers	1	0	1	1	1	0	7
Operations on Rational Numbers	2	0	1	1	1*	1	12
Rational Numbers as Decimals	0	0	0	1*	1	1	9
Application of percentage	2	1	1	1	1*	1*	13
Linear Equations in one Variable	2	2	1	1*	1	1	14
Triangles and Its Properties	3	2	1	0	2	1*	16
Data Handling	0	0	0	1	1*	1	9
<b>TOTAL</b>	<b>1x 10=10</b>	<b>1x5=5</b>	<b>1x5=5</b>	<b>2x6=12</b>	<b>3x8=24</b>	<b>4x6=24</b>	<b>80(40 )</b>

Difficulty level for Half yearly Examination

SL. No.	Objective	Percentage of Marks	Total Marks
1	Good	40%	32
2	Average	50%	40
3	Difficult	10%	08
Total		100%	80 Marks

PREPARATION OF QUESTION PAPER ACCORDING TO BLOOM'S TAXONOMY

Question paper should contain questions of the type

REMEMBERING & UNDERSTANDING - 50%

APPLICATION OF CONCEPTS- 40%

ANALYSIS, EVALUATION & CREATION- 10%

DAV PUBLIC SCHOOLS, ODISHA ZONE				
PA-II/HALF YEARLY EXAM., SUBJECT – MATHEMATICS CLASS: VII				
QUESTION WISE ANALYSIS				
Q. NO.	Chapters/Units	Forms of Question (LA, SA-II, SA-I, VSA)	Marks Allotted	Typology of Questions R, U, A, H
1	Rational Numbers	MCQ	1	R
2	Operations on Rational numbers	MCQ	1	R
3	Operations on Rational numbers	MCQ	1	R
4	Application of percentage	MCQ	1	U
5	Application of percentage	MCQ	1	U
6	Linear equation in one variable	MCQ	1	U
7	Linear equation in one variable	MCQ	1	U
8	Triangle and its properties	MCQ	1	U
9	Triangle and its properties	MCQ	1	A
10	Triangle and its properties	MCQ	1	R
11	Linear equation in one variable	Fill in the blanks	1	U
12	Triangle and its properties	Fill in the blanks	1	R
13	Application of percentage	Fill in the blanks	1	U
14	Triangle and its properties	Fill in the blanks	1	A
15	Linear equation in one variable	Fill in the blanks	1	A
16	Triangle and its properties	VSA	1	A
17	Application of percentage	VSA	1	U

18	Linear equation in one variable	VSA	1	U
19	Operations on Rational numbers	VSA	1	U
20	Rational Numbers	VSA	1	U
21	Rational Numbers	SA-I	2	U
22	Operations on Rational numbers	SA-I	2	E
23	Rational numbers as Decimals	SA-I	2	E
24	Application of percentage	SA-I	2	U
25	Data handling	SA-I	2	R
26	Linear equation in one variable	SA-I	2	A
27	Data handling	SA-II	3	U
28	Linear equation in one variable	SA-II	3	U
29	Triangle and its properties	SA-II	3	R
30	Triangle and its properties	SA-II	3	U
31	Application of percentage	SA-II	3	R
32	Rational numbers as Decimals	SA-II	3	E
33	Rational Numbers	SA-II	3	A
34	Operations on Rational numbers	SA-II	3	A
35	Operations on Rational numbers	LA	4	A
36	Rational numbers as Decimals	LA	4	H
37	Linear equation in one variable	LA	4	E
38	Application of percentage	LA	4	U
39	Triangle and its properties	LA	4	H
40	Data handling	LA	4	A

## ANNEXURE-C

<b>DAV PUBLIC SCHOOLS, ODISHA ZONE</b>
<b>PA-II/HALF YEARLY EXAM., SUBJECT – MATHEMATICS, CLASS: VII</b>
<b>MARKING SCHEME</b>

Q. NO.	VALUE POINTS Alternative answer can be considered.	Marks allotted to each value	PAGE NO. OF TEXT BOOK
1	d) 9	1	16
2	a) 1	1	47
3	c) $\frac{3}{19}$	1	47
4	a) 25%	1	104
5	a) ₹400	1	99
6	b) 5x	1	138
7	c) 13	1	138
8	d) $\angle QOR$	1	150
9	c) centroid	1	153
10	c) AC	1	158
11	2	1	138
12	2:1	1	158
13	CP	1	106
14	2	1	Exemplar
15	1	1	128
16	Between 7 cm to 11 cm	1	148
17	48 km	1	92
18	-10	1	Exemplar 106
19	$-\frac{43}{77}$	1	21

20	$\frac{90 \div 18}{216 \div 16} = \frac{5}{12}$	1	6
21	Correct representation	1+1	18
22	$\frac{4}{5} \times \left(\frac{3}{-8}\right) = \frac{3}{-10}$ The reciprocal of $\frac{3}{-10}$ is $-\frac{10}{3}$	1 1	47
23	$\frac{1}{5} + \frac{3}{10} + \frac{4}{25}$ $= \frac{10+15+8}{50}$ $= \frac{33}{50} = \frac{66}{100} = 0.66$ <b>OR</b> Here denominator is 250. Prime factorization of $250 = 2 \times 5 \times 5 \times 5 = 2 \times 5^3$ which is in the form of $2^n \times 5^m$ . So, it is a terminating decimal number.	1 1 1 1	60 63
24	a) $3.25\% = \frac{3.25}{100} = 0.0325$ b) $2:5 = \frac{2}{5} \times 100\% = 40\%$	$\frac{1}{2} + \frac{1}{2}$ $\frac{1}{2} + \frac{1}{2}$	92
25	Mean = 8 Mean = $\frac{\text{sum of observations}}{\text{no. of observation}} = \frac{7+4+x+10}{4} = 8$ $\frac{x+21}{4} = 8$ $x = 8 \times 4 - 21 = 11$ $x = 11$	1 1	239
26	Let the number be x. ATQ $2x = \frac{x}{2} + 45$ $2x - \frac{x}{2} = 45$ $3x = 90$ $x = 30$ <b>OR</b> $3x + \frac{1}{5} = 2 - x$ $3x + x = 2 - \frac{1}{5}$ $4x = \frac{9}{5}$ $x = \frac{9}{20}$	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1	132
27	Mean = $\frac{\text{sum of observation}}{\text{No. of observation}} = \frac{35+32+35+42+35+32+34}{7} = 35$ Arrange the data in ascending order 32, 32, 34, 35, 35, 35, 42 Here n= 7(odd)	1 1	229

	<p>Median = <math>\frac{n+1}{2}</math> th term = 4<sup>th</sup> term = 35  Mode = 35( which occurs most frequently)  OR  Mean of eight observations = 57  Sum of all the observations = 57 x 8 = 456  Since 48 was misread as 84, therefore, the correct sum of all the observations = 456-84 + 48 = 420  Correct mean = 420/8 = 52.5</p>	1 1	
<b>28</b>	<p>Let third side be x.  Two equal sides are 3x + 2 each.  Perimeter of the triangle = 3x + 2 + 3x + 2 + x = 67 cm  7x = 67cm – 4 cm = 63 cm  x = 9 cm  Therefore, length of its sides are 9 cm, 29 cm, 29 cm</p>	$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1	136 139
<b>29</b>	<p><math>\angle 3 + 136^\circ = 180^\circ</math> (linear pair)  <math>\angle 3 = 44^\circ</math>  <math>\angle 2 + 104^\circ = 180^\circ</math> (linear pair)  <math>\angle 2 = 76^\circ</math>  <math>\angle 1 + \angle 2 = 136^\circ</math> (exterior angle property)  <math>\angle 1 + 76^\circ = 136^\circ</math>  <math>\angle 1 = 136^\circ - 76^\circ = 60^\circ</math></p>	1 1 1	160
<b>30</b>	<p>Let each equal sides be x.  By Pythagoras theorem  <math>x^2 + x^2 = 800 \text{ cm}^2</math>  <math>2x^2 = 800</math>  <math>x^2 = 400</math>  <math>x = 20 \text{ cm}</math>  Therefore each equal sides is 20 cm.</p>	1 1 1	152
<b>31</b>	<p>P = Rs 1500, A = Rs 2400  SI = A – P = Rs 2400 – Rs 1500 = Rs 900  <math>R = SI \times \frac{100}{P \times T} = 900 \times \frac{100}{1500 \times 4} = 15\%</math>  <b>OR</b>  A = ₹ 5850, T = 6 years, R = 5 %  <math>SI = p \times r \times \frac{t}{100} = p \times 5 \times \frac{6}{100} = \frac{3p}{10}</math>  A – P = SI  SI + P = A  <math>\frac{3p}{10} + p = Rs 5850</math>  <math>p = Rs \frac{58500}{13} = Rs 4500</math></p>	1 1+1 1 1 1	105
<b>32</b>	$\frac{0.144 \div 1.2}{0.016 \div 0.02} + \frac{7}{5} - \frac{21}{8}$ $= \frac{\frac{144}{100} \times \frac{10}{12}}{\frac{16}{100} \times \frac{100}{2}} + \frac{7}{5} - \frac{21}{8} = \frac{12}{\frac{8}{1}} + \frac{7}{5} - \frac{21}{8}$ $= \frac{12}{10} \times \frac{1}{8} + \frac{7}{5} - \frac{21}{8}$	1 1	64

	$= \frac{12+112-210}{80} = -\frac{86}{80} = -\frac{43}{40}$	1	
<b>33</b>	Making standard form: Making denominator same by finding LCM Arranging correct order with reason	1 1 ½ ½	15
<b>34</b>	Sum of $\frac{5}{21} + \frac{4}{7} = \frac{5+12}{21} = \frac{17}{21}$ Their difference $\frac{5}{21} - \frac{4}{7} = \frac{5-12}{21} = -\frac{7}{21}$ Divide $\frac{17}{21} \div -\frac{7}{21} = \frac{17}{21} \times -\frac{21}{7} = -\frac{17}{7}$ <b>OR</b> Let total capacity be x litres. Oil in the drum = $\frac{3x}{4}$ 15 litres of oil drawn Remaining oil = $\frac{7x}{12}$ ATQ, $\frac{3x}{4} - \frac{7x}{12} = 15$ $2x = 15 \times 12$ $x = 90$ litres	1  1 1  ½ ½  ½  1  ½	48
<b>35</b>	LHS = $(x + y) \div z = \left(-\frac{5}{3} + \frac{2}{7}\right) \div -\frac{1}{4}$ $= -\frac{29}{21} \times -\frac{4}{1} = \frac{116}{21}$ RHS = $x \div z + y \div z = -\frac{5}{3} \div \left(-\frac{1}{4}\right) + \frac{2}{7} \div \left(-\frac{1}{4}\right)$ $= -\frac{5}{3} \times \left(-\frac{4}{1}\right) + \frac{2}{7} \times \left(-\frac{4}{1}\right) = \frac{20}{3} - \frac{8}{7}$ $= \frac{140 - 24}{21} = \frac{116}{21}$ Hence, LHS=RHS	1  1  1  1	44
<b>36</b>	Let length be x. Breadth = $\frac{x}{3}$ $\frac{2}{5}$ of 40 = 16m Perimeter of rectangle = 16m-2.4m = 13.6m ATQ, $2\left(x + \frac{x}{3}\right) = 13.6$ $4x = 6.8 \times 3$ $x = 1.7 \times 3 = 5.1$ m , breadth = 1.7m	½  ½ ½ 1  1 ½	64  61
<b>37</b>	$8y - 12 + 15y - 20 = 14$ $23y = 14 + 32$ $23y = 46$ $y = 2$ Check	1 1 1 1	133
<b>38</b>	Case-I CP = Rs 20, gain= 5 % $SP = \frac{CP(100+gain\%)}{100} = 20 \times \frac{105}{100} = Rs21$ Case-II	1	98  96

	<p>CP = Rs 20, loss= 5 %</p> $SP = \frac{CP(100-loss\%)}{100} = 20 \times \frac{95}{100} = Rs19$ <p>Total CP = Rs 40 Total SP = Rs 40 Here CP = SP So there is no loss no gain</p> <p><b>OR</b></p> <p>CP of almirah = Rs 2000 Money spend = Rs 400 Actual CP = Rs 2400 SP = Rs 3000 SP &gt; CP So, profit = SP – CP = Rs 3000 – Rs 2400 = Rs 600</p> $Profit \% = \frac{profit}{cp} \times 100 = \frac{600}{2400} \times 100\% = 25\%$	<p>1 ½ ½ ½ ½</p> <p>1</p> <p>1 1</p> <p>1</p>	
39	<p>Given : AE=AC, ∠ BAC=40°, ∠ ACF = 75° BCF is a line. To prove: BE = CE Proof: In isosceles triangle AEC, ∠ A = 40° ∠ AEC = ∠ ACE = 70°(angle opposite to equal sides) In triangle ABC, ∠ EBC = 75° – 40° = 35°(exterior angle property) ∠ BCE = 180° – (70+75)° = 35° (straight angle) Now in triangle BCE, ∠ EBC= ∠ BCE = 35° Hence BE = CE(side opposite to equal angles) OR In triangle ABC, O is a point interior of Δ ABC. As we know that, “the sum of any two sides of a triangle is greater than the third side”. In Δ AOB OA + OB &gt; AB -----(i) (Triangle inequality) In Δ AOC OA + OC &gt; AC.....(ii) (Triangle inequality) In Δ BOC OB + OC &gt; BC.....(iii) (Triangle inequality) Now, adding (i), (ii), (iii), we get 2(OA + OB + OC) &gt; AB + BC + CA (Proved)</p>	<p>1</p> <p>1 1</p> <p>½ ½</p> <p>1</p> <p>½ ½ ½ 1</p>	<p>161</p> <p>148</p>
40	<p>Correct Scale and drawing of x and y axis</p> <p>Each bar</p>	<p>1</p> <p>½ x 6 = 3</p>	<p>238</p>

