DAV PUBLIC SCHOOLS, ODISHA
PA-III, SUBJECT:MATHEMATICS, CLASS - VIII
MARKING SCHEME

Q. NO.	Value Points	Marks Allotted	PAGE NO. OF TEXT BOOK
	SECTION-I		
1.	(b) 6	1	PG 46 TB
2.	(b) a compound interest of 20% compounded quarterly	1	PG 104 TB
3.	(c) 5	1	Concept from PG 144 of TB
4.	$(c) - x^3 + 3x^2 - 3x + 5$	1	PG 135 TB
5.	(a) Rs 102.01	1	PG 87 TB
6.	d) Assertion(A) is false and Reason(R) is true	1	Concept from PG130 of TB
	SECTION-II		
7.	**CASE BASED QUESTIONS:** **(i)**$(c) 350x + (50 - x) 230 = 14260$	1	
	(ii)$350x + (50 - x) 230 = 14260$ $\Rightarrow 350x + 11500 - 230x = 14260$ $\Rightarrow x = \dfrac{2760}{120}$ $\Rightarrow x = 23$ The total cost of printed T-shirts= ₹$(350 \times 23) = $ ₹ 8,050 **OR** The total cost of plain T-shirts= ₹ $(230 \times 27) = $ ₹ 6,210	2	SELF
	(iii)(b) Plain T-shirts	1	

SECTION-III

8.	$2^x + 2^x + 2^x = 192$		
	$\Rightarrow 3 \times 2^x = 192$	**0.5**	
	$\Rightarrow 2^x = 64$	**0.5**	PG 49TB
	$\Rightarrow 2^x = 2^6$	**0.5**	
	So, $x = 6$	**0.5**	
9.	$\dfrac{3 - x^2}{8 + x^2} = \dfrac{-3}{4}$		
	$\Rightarrow 4(3 - x^2) = -3(8 + x^2)$	**0.5**	
	$\Rightarrow 12 - 4x^2 = -24 - 3x^2$		PG 148 TB
	$\Rightarrow -4x^2 + 3x^2 = -36$	**1**	
	$\Rightarrow -x^2 = -36$		
	$\Rightarrow x = 6$	**0.5**	
10.	Let, a sum of money (P) be $Rs. (x)$		
	ATQ, it amounts to (A)= Rs. $(27x)$ in 3 year	**0.5**	Concept from PG 94 of TB
	$\dfrac{A}{P} = \left(1 + \dfrac{R}{100} \right)^n$		
	$\Rightarrow \dfrac{27x}{x} = \left(1 + \dfrac{R}{100} \right)^3$		
	$\Rightarrow 3^3 = \left(1 + \dfrac{R}{100} \right)^3$	**1**	
	$\Rightarrow 3 = \left(1 + \dfrac{R}{100} \right)$		
	$\Rightarrow \dfrac{R}{100} = 3 - 1 = 2$		
	$\Rightarrow R = 200$		
	The rate of interest is 200%.	**0.5**	**OR**
	OR	**OR**	
	Let the time be T years. Given that, Amount (A) = Rs. 9261, P = Rs. 8000, Rate = 5% We can find required answer with the help of given formula,		Concept from PG 99 of TB
	$A = P \left(1 + \dfrac{R}{100} \right)^T$	**0.5**	
	$\Rightarrow 9261 = 8000 \left(1 + \dfrac{5}{100} \right)^T$	**0.5**	

	$\Rightarrow \dfrac{9261}{8000} = \left(1 + \dfrac{1}{20}\right)^T$ $\Rightarrow \left(\dfrac{21}{20}\right)^3 = \left(\dfrac{21}{20}\right)^T$ On equating powers both sides, we get $\Rightarrow$ T = 3 years	0.5 0.5	
11	$64^{\frac{1}{2}}\left(64^{\frac{1}{2}} + 5^0\right)$ $= 8(8 + 1)$ $= 8 \times 9$ $= 72$	1 1	PG 48 TB

SECTION-IV

12	y - 2) y³ + 0y² + 0y – 8 (y² + 2y + 4
	      y³ - 2y²
	     ....
	        2y² + 0y - 8
	        2y² - 4y
	     ....
	          4y - 8
	          4y - 8
	       ....
	           0
	
	 As the remainder is 0, so $(y - 2)$ is a factor of $(y^3 - 8)$
		2.5
		
		 0.5
			PG 138
			 TB

13.	Let son's age before 2 years ago be x years &Father's age $=\ 3x$ years Present age of son $= (x + 2)$ years Present age of father $(3x + 2)$ years After 2 years, son's age$= (x + 4)$ years Father' age $= (3x + 4)$ years ATQ, $2(3x + 4)\ =\ 5\,(x + 4)$ $\Rightarrow 6x + 8\ = 5x\ +\ 20$ $\Rightarrow x\ = 12$ $\therefore$Present age of son is$(x + 2) = 14$ years. **OR** Let one's digit be x Ten's digit is $(12 - x)$ Number is $10(12 - x) + x = 120 - 9x$ On interchanging, number is $10x + (12 - x) =\ 9x + 12$ ATQ,	1 2 OR 0.5 1	PG157 TB OR PG157 TB

	$(9x + 12) - (120 - 9x) = 54$	**0.5**	
	$\Rightarrow 18x = 162$	**0.5**	
	$\Rightarrow x = 9$		
	$\therefore$ Original Number $120 - 9x = 39$	**0.5**	
14.	$4^x - 4^{x-1} = 24$		
	$\Rightarrow 4^x \left(1 - \dfrac{1}{4}\right) = 24$	**1**	
	$\Rightarrow 4^x \left(\dfrac{3}{4}\right) = 24$	**1**	PG 49 TB
	$\Rightarrow 4^x = 32$		
	$\Rightarrow (2^2)^x = 2^5$		
	$\Rightarrow 2^{2x} = 2^5$		
	So, $2x = 5$	**0.5**	
	$\Rightarrow x = \dfrac{5}{2}$	**0.5**	
15.	Let, the price at which the refrigerator was purchased be $Rs.(x)$		
	The present value is represented by A		
	$A = P \left(1 - \dfrac{R}{100}\right)^n$	**1**	
	$\Rightarrow 9680 = x \left(1 - \dfrac{12}{100}\right)^2$		Concept from PG106 of TB
	$\Rightarrow 9680 = x \left(\dfrac{88}{100}\right)\left(\dfrac{88}{100}\right)$		
	$\Rightarrow 9680 = x \, (0.88) \, (0.88)$	**1**	
	$\Rightarrow 9680 = 0.7744x$		
	$\Rightarrow x = \dfrac{9680}{0.7744}$		
	$\Rightarrow x = 12500$	**1**	
	$\therefore$ The refrigerator was purchased for Rs.12500		

SECTION-V

16	Given CI−SI = Rs.283.50		PG 99TB
	R=15%		
	$T = n = 3$ Years (as compounded annually)		
	Let, the sum is Rs. x		
	We know that:		
	$CI = P \left[\left(1 + \dfrac{R}{100}\right)^n - 1\right]$	**1**	
	$CI = x \left[\left(1 + \dfrac{15}{100}\right)^3 - 1\right]$		

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The table has three columns: solution content, marks, and reference.

$= x\left[\left(\dfrac{23}{20}\right)^3 - 1\right]$		
$= x\left(\dfrac{12167 - 8000}{8000}\right)$	**1**	**OR**
$= \dfrac{4167}{8000}x$ _____ (1)	**1**	
Also, SI $= \dfrac{PRT}{100} = \dfrac{x \times 15 \times 3}{100} = \dfrac{45}{100}x$ _____ (2)		
Thus, we have:		
$\dfrac{4167}{8000}x - \dfrac{45}{100}x = 283.50$ $[from \ (1)\&(2)]$	**1**	
$\Rightarrow \dfrac{4167 - 3600}{8000}x = \dfrac{28350}{100}$		
$\Rightarrow x = \dfrac{28350}{100} \times \dfrac{8000}{567}$		
$\Rightarrow x = 4000$	**1**	PG 105 TB
Thus, the sum is Rs 4000		
OR	**OR**	
Let,		
the sum borrowed by Mahesh = Rs. (P)		
and Rate of interest = R%		
ATQ, Simple Interest (SI) = Rs 400, time(T) = 2 years		
$$\dfrac{P \times 2 \times R}{100} = 400$$	**1.5**	
$\Rightarrow PR = 20000$		
Again, C.I = Rs. 410, n = 2		
$P\left[\left(1 + \dfrac{R}{100}\right)^2 - 1\right] = 410$	**1**	
$\Rightarrow P\left[1 + \dfrac{R^2}{10000} + \dfrac{2R}{100} - 1\right] = 410$		
$\Rightarrow P\left[\dfrac{R^2 + 200R}{10000}\right] = 410$	**1**	
$\Rightarrow PR\left[\dfrac{R + 200}{10000}\right] = 410$		
$\Rightarrow 20000\left[\dfrac{R + 200}{10000}\right] = 410$	**0.5**	
$\Rightarrow R = 5\%$	**0.5**	
And $P = \dfrac{20000}{5} = $ Rs 4000	**0.5**	

17	To convert the given polynomial to standard form	0.5	

$y + 1) y^3 - 6y^2 + 11y + 6 (y^2 - 7y + 18$

$\quad\quad y^3 + y^2$

$\quad (-) \quad (-)$

$\quad\quad \dots\dots\dots\dots\dots$

$\quad\quad -7y^2 + 11y + 6$

$\quad\quad -7y^2 - 7y$

$\quad (+) \quad\quad (+)$

$\quad\quad \dots\dots\dots\dots\dots\dots$

$\quad\quad\quad 18y + 6$

$\quad\quad\quad 18y + 18$

$\quad\quad (-) \quad\quad (-)$

$\quad\quad\quad \dots\dots\dots\dots$

$\quad\quad\quad\quad -12$

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PG 140
TB

(Finding the difference of the quotient & reminder)

Quotient$= y^2 - 7y + 18$, Remainder $= (-12)$ **0.5**

Difference$= Qoutient - Remainder$

$\quad\quad = (y^2 - 7y + 18) - (-12)$

$\quad\quad = y^2 - 7y + 30$ **1**