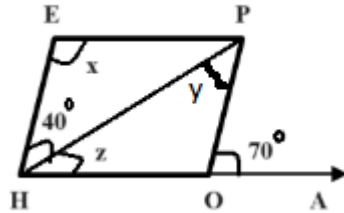**Time : $2\frac{1}{2}$ Hrs**   **M.M : 60**
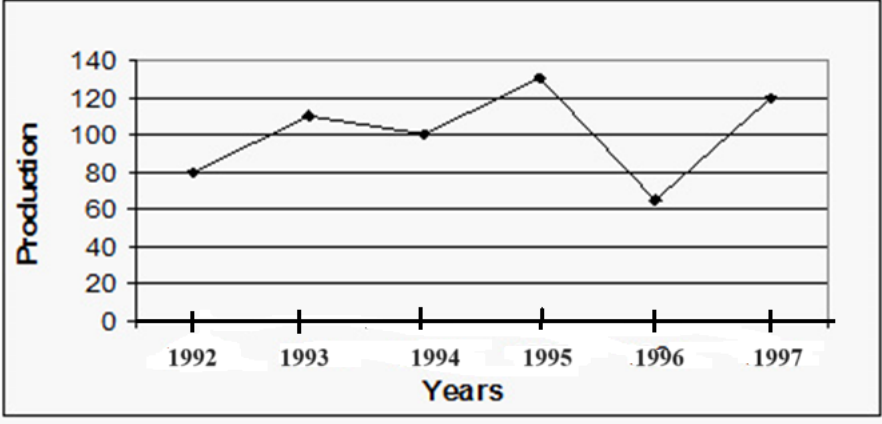
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Note: 1. This question paper contains 4 printed pages and 34 questions.
*   2. Read all the instructions carefully.*

		Section – A **All questions are compulsory. In MCQ write the correct option with complete answer.**	
1.		If the adjacent angles of a parallelogram are equal, then it is a a) rectangle b) trapezium c) rhombus d) both (a) and (c)	**1**
2.		If $\sqrt{\dfrac{m}{289}} = \dfrac{15}{17}$, then the value of '**m**' is a) 15 b) 125 c) 225 d) 625	**1**
3.		In a pie chart, the total angle at the centre of circle is a) 180° b) 270° c) 360° d) 90°	**1**
4.		x and y vary inversely with each other. When x = 10, y = 6, the constant of variation is a) $\dfrac{3}{5}$ b) 30 c) $\dfrac{5}{3}$ d) 60	**1**
5.		What is the coefficient of x^2 in the expression $2x^2 - 5x^2 + 9$? a) 2 b) 5 c) -5 d) -3	**1**
6.		Product of two monomials is always a a) binomial b) trinomial c) monomial d) none of these	**1**
7.		In a cuboidal room of dimension 6m × 5m × 4m, the area of floor is a) 25 m^2 b) 16 m^2 c) 22 m^2 d) 30 m^2	**1**
8.		Which of the following is equal to $(a+1)(a-1)$? a) $(a+1)^2$ b) $(a-1)^2$ c) $a^2 - b^2$ d) $a^2 - 1$	**1**
9.		Simplified form of $(12a^5b^7c^3) \div (-10a^5b^5c^2)$ is a) $\dfrac{6}{5}$ abc^2 b) $\dfrac{-6}{5}$ b^{2}c c) $\dfrac{6}{5}$ ab^{2}c d) $\dfrac{6}{5}$ b^{2}c	**1**
10.		When 36% is expressed in ratio we get a) 9 : 6 b) 9 : 25 c) 16 : 9 d) 25 : 9	**1**

11.		Which of the following expressions is a polynomial?	1
		a) $3x^2 + 2\sqrt{x}$ b) $3xy^2 - 2xy$ c) $2x^{3/2} - x + 1$ d) $2x^3 + \frac{1}{x}$	
12.		Vikram bought a smart watch for ₹12,390 including GST. If the original cost is ₹10,500, how much is the GST% ?	1
		a) 5% b) 12% c) 15% d) 18%	
		In questions13-15, an Assertion (A) and a corresponding Reason (R) supporting it are given. Study both the statements and state which of the following is correct : **(a) Both A and R are true and R is the correct explanation of A** **(b) Both A and R are true but R is not the correct explanation of A.** **(c) A is true but R is false.** **(d) A is false but R is true.**	
13.		**Assertion (A)**: If length of a rectangular plot is $(4x + 3)$ units and breadth is $(x + 1)$ units, then its area is $(4x^2 + 7x + 3)$ sq.units. **Reason (R)**: Area of rectangle $= l \times b$	1
14.		**Assertion (A)**: Product of any number with 1 results in the number itself. **Reason (R)**: 1 is the multiplicative identity for all rational numbers.	1
15.		**Assertion (A)**: Volume of a cylinder = area of the base × height **Reason (R)**: A cylinder is generated by rotating a rectangle along one of its sides.	1
16.		**Fill in the blanks:**	3X1=3
	i)	The equation $2x + 9 = 17$ is a _____ equation in _____ variable.	
	ii)	If m is a cube root of n, then n can be expressed in terms of m as _____.	
	iii)	Horizontal axis drawn on a two-dimensional plane is called _____ axis.	
17.		**State True/False**	2X1=2
	i)	The value of $(5 \times 3)^{-2}$ is $\frac{1}{(15)^2}$.	
	ii)	In rectangle diagonals are perpendicular to each other.	

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Section – B
Do any 6 questions from Q18 to Q24. Over attempt will not be evaluated.

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18.		The quotient for $(121 - 4x^2) \div (2x + 1)$ is $11 - 2x$. Is this statement true or false. Justify your answer with proper steps.	2
19.		If $\sqrt{3 + \sqrt{a^2}} = 4$, then the value of **a** is 16. Show the steps to justify your answer.	2
20.		The number $(\frac{-2}{3})$ should be multiplied by $(-6)^{-1}$ so that the product is $(9)^{-1}$. State whether the given statement is true or false. Justify your answer.	2

21.		Why $4(y - 1) = 14 - 2y$ is a linear equation in one variable? Which value of 'y' satisfy the given equation?	2
22.		If 250 bricks of length 6 cm, width 6 cm and height 10 cm are used to construct wall, then the volume of the space occupied by wall is 0.9 m^3. State true or false. Justify your answer.	2
23.		If a private taxi charges a fare of ₹960 for a journey of 160 km, then it will travel 100 km for ₹600. State true or false. If the given statement is true, then give the steps to justify it.	2
24.		If the perimeter of a triangle is $5a^2 - 5a + 9$ and two of its sides are $a^2 + 2a - 3$ and $2a^2 + a - 3$ then the third side is $2a^2 - 8a + 15$. Check whether the given statement is correct or not. Give the steps to justify your answer.	2

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Section – C
Do any 4 questions from Q25 to Q29. Over attempt will not be evaluated.

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25.		Simplify : $\frac{6x+1}{3} + 1 = \frac{x-3}{6}$	3
26.		The given figure HOPE is a parallelogram. Find the angle measures x, y and z. State the properties used to find them.	3
27.		Verify : $$\frac{2}{5} \div \left(\frac{8}{15} \times \frac{-7}{10}\right) = \left(\frac{2}{5} \div \frac{8}{15}\right) \times \left(\frac{2}{5} \div \frac{-7}{10}\right)$$	3
28.		Factorise : $x^4 - (y + z)^4$	3
29.		Evaluate : $\sqrt[3]{27} + \sqrt[3]{0.008} + \sqrt[3]{0.064}$	3

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Section – D
Do any 3 questions from Q30 to Q33. Over attempt will not be evaluated.

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30.		A solid cylinder has total surface area 462 cm^2. Its curved surface area is one-third of its total surface area. Find the volume of the cylinder, if its height is 3.5 cm.	4
31.		The following data represents the different number of animals in a zoo. Draw a pie - chart for the given data.	4

Animals	Deer	Tiger	Elephant	Reptiles
No. of animals	50	15	30	25

32.		If the simple interest on a sum of money for 2 years at 5% per annum is ₹50, what will be the compound interest on the same value?	4
33.		Given graph shows the annual food grain production (in kg) from 1992 to 1997. Refer to the graph and answer the questions based on it.	4
	i)	How much grains were produced in year 1994? Is the production greater than the previous year?	
	ii)	What was the difference in the production of grains in year 1997 and 1992?	
	iii)	In which year the production of grains was least?	
	iv)	Find the ratio of grains produced in year 1994 to the grains produced in year 1992.	

Section – E

In MCQ write the correct option with complete answer.

34.		A social activist began 'Say No to Plastic' campaign in a village. To remove the plastic from a local river, he created a group of $(x + 3)$ persons. Each of them was instructed to collect $(x + 3)$ bottles from the river in a day. Read the above information and answer the following questions:	
	i)	How many bottles were collected from river in a day? a) $x + 3$ b) $2x + 3$ c) $x^2 + 9$ d) $(x + 3)^2$	1
	ii)	Expansion of $(a + b)^2$ is a) $a^2 + 2ab + b^2$ b) $a^2 + b^2$ c) $a^2 - b^2$ d) $a^2 - 2ab + b^2$	1
	iii)	How many bottles will be collected by the team in $(x - 10)$ days? a) $10(x + 3)$ b) $10x + 30$ c) $x^3 - 4x^2 - 51x - 90$ d) $x^3 + 4x^2 + 7x - 90$	2