INDIAN SCHOOL AL WADI AL KABIR

Final Examination (2023-24)

Class: VIII | Sub: MATHEMATICS | Max Marks: 80

Date:12/03/2024 | Set -II | Time: 3 hours

Instructions:

Section A: Multiple Choice Questions (Q.1 to Q.15) & Source based Question (Q.16)

Section B: Short Answer Questions of 2 marks each (Q.17 to Q.21)

Section C: Long Answer Questions (Type – 1) of 3 marks each (Q.22 to Q.27)

Section D: Long Answer Questions (Type – 2) of 4 marks each (Q.28 to Q.33)

& Case study Question (Q.34 & Q.35) of 4 marks each.

NOTE: This question paper consists of 6 printed pages.

Section A: Multiple Choice Questions (Q.1 to Q.15) of **1** mark each

Q1. $6x^5\,y \div 42x^3y^4 =$ _____

	A	$\frac{x^2}{7y^3}$	**B**	$\frac{7x^3}{y^2}$	**C**	$\frac{2x^2}{5y^3}$	**D**	$\frac{7x^2}{6y^3}$

Q2. Alexander was able to cover 40% of 150 km journey in the morning. The distance left to cover in his journey is:

	A	100km	**B**	60km	**C**	90km	**D**	70km

Q3. The following data shows the agricultural production in India during a certain year. The central angle for wheat in a pie chart is:

Food grains	Rice	Pulses	Wheat	Maize	Total
Production in millions of tons	20	50	70	40	180

	A	120°	**B**	140°	**C**	40°	**D**	80°

Q4. Identify the property used in the given statement: $\frac{-11}{13} \times \frac{-17}{5} = \frac{-17}{5} \times \frac{-11}{13}$

	A	Associative Property	**B**	Commutative Property	**C**	Multiplicative Identity	**D**	Distributive Property

Q5. If x and y vary directly with each other, the constant of variation from the following table is:

x	30	20	15
y	6	4	3

	A	3	**B**	1	**C**	5	**D**	6

Q6. In the algebraic expression $3x + \frac{4}{5}y^2 - yz$, the coefficient of y^2 is:

	A	-1	**B**	1	**C**	$\frac{4}{5}$	**D**	3

Q7. Which of the following points lie on the x axis?

	A	(1, 1)	**B**	(2, 0)	**C**	(0, 5)	**D**	(2, 3)

Q8. Which of the following is the additive inverse of $(\frac{-3}{5} \times \frac{35}{8})$.

	A	$\frac{21}{8}$	**B**	$\frac{-21}{8}$	**C**	$\frac{8}{21}$	**D**	$\frac{-8}{21}$

Q9. The area of rectangle whose length and breadth are $2m^2n$ and $4m^3n^2$ respectively is:

	A	$2mn$	**B**	$8m^5n^3$	**C**	$8m^2n^2$	**D**	$16m^5n^3$

Q10. u is inversely proportional to v. If u = 12 then v = 3, the value of u when v = 9, is:

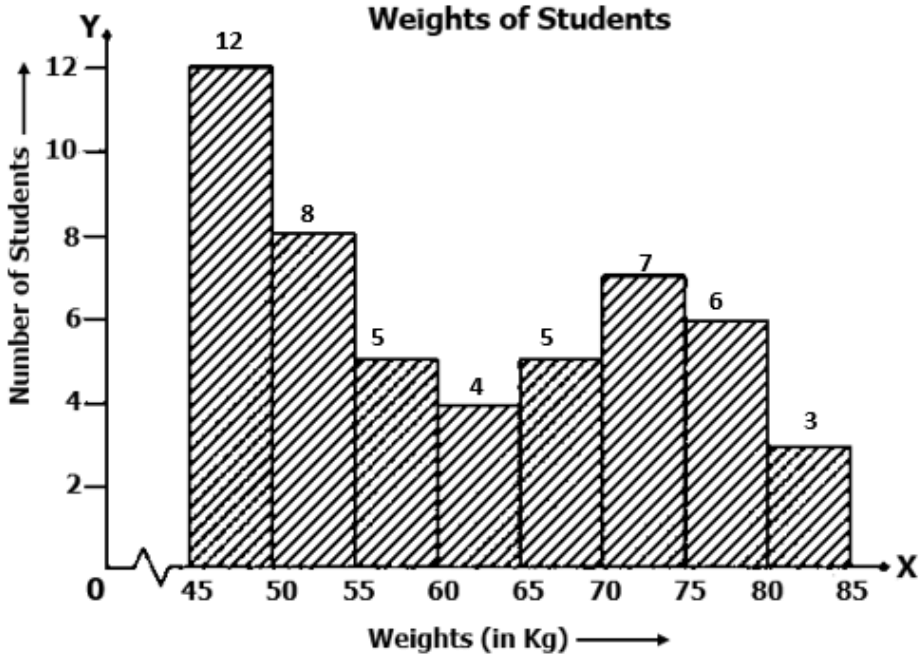
	A	36	**B**	4	**C**	27	**D**	3

Q11. The factorization of the expression $(9a^2 - 16)$ is:

	A	$(3a^2 + 4)(3a^2 - 4)$	**B**	$(3a + 4)(3a - 4)$	**C**	$(3a - 4)^2$	**D**	$(a + 4)(a - 4)$

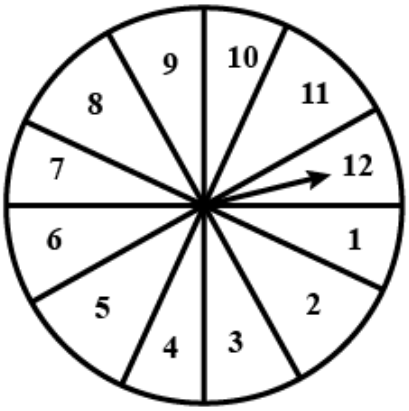
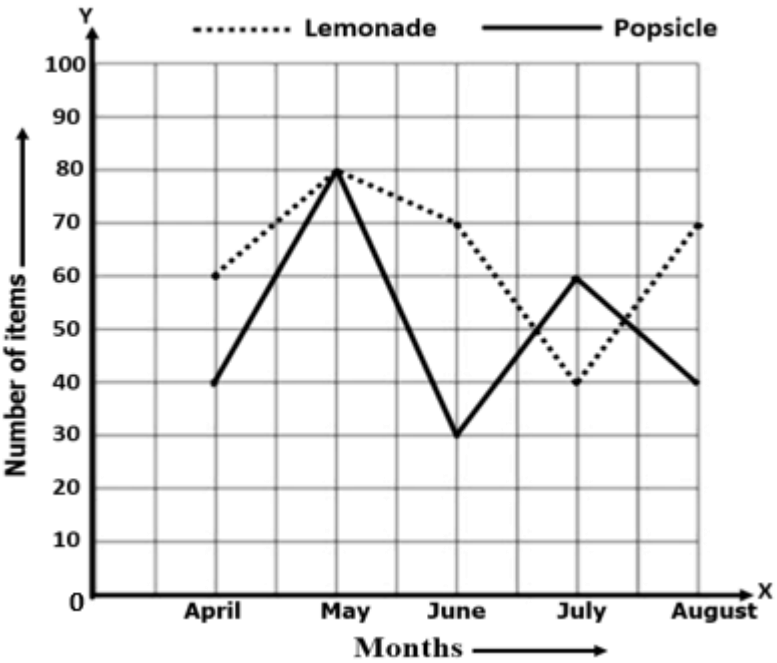
Q12. Joy bought a medicine whose marked price was ₹500. If there is a discount of ₹140 for the medicine, then the discount percentage is:

	A	10%	**B**	15%	**C**	28%	**D**	12%

Q13.	If the sides of a triangle are $(3x^2 + y), (-4y + 1)$ and $(2 + 2x^2)$, then its perimeter is:							
	A	$5x^2 + 3y + 2$	**B**	$5x^2 - 3y + 3$	**C**	$6x^2 + 3y - 2$	**D**	$2x^2 + 2y + 2$
Q14.	Arun bought a laptop for ₹45,000 including GST. If the original price of the laptop is ₹36,900, then the GST amount is:							
	A	₹11900	**B**	₹8100	**C**	₹1990	**D**	₹3900
Q15.	The common factors of the given terms $7xy, 21x^2$ is:							
	A	x^2	**B**	7	**C**	xy	**D**	$7x$
Q16.	**Source based Question - 5 Marks** The histogram of a frequency distribution is shown below. Read the histogram and answer the following questions.  							
I	What the size of the class interval?							
	A	15	**B**	2	**C**	5	**D**	10
II	How many more students are there in the weight group 50 – 55 as compared to the weight group 80 – 85?							
	A	6	**B**	5	**C**	4	**D**	3

III	How many students have weight less than 60kg?							
	A	29	**B**	25	**C**	34	**D**	22
IV	Which class interval has maximum number of students?							
	A	80–85	**B**	70–75	**C**	50–55	**D**	45–50
V	How many students weigh 70kg and more?							
	A	16	**B**	15	**C**	14	**D**	13
Section B: Short Answer Questions (Type – 1) of **2** marks each (Q.17 to Q.21)								
Q17.	Find the product of $(5a + 4b)(2a^2 + 5b)$							
Q18.	Harsh takes 150 steps in walking a distance of 125 meters. How much distance would he cover in 360 steps?							
Q19.	Evaluate by using distributive property: $\frac{-3}{8} \times \frac{4}{7} + \frac{-11}{7} \times \frac{-3}{8}$							
Q20.	Factorize: $5x + 3y + 10x^2 + 6xy$							
Q21.	A table lamp is sold at ₹3150 inclusive of 5% VAT. What is the cost of the table lamp before VAT is added?							
Section C: Long Answer Questions (Type – 1) of **3** marks each (Q.22 to Q.27)								
Q22.	In a relief camp there was sufficient food for 200 people for 15 days. How long will the same stock of food last if 50 more people arrived in this camp?							
Q23.	Do as directed: i) Find the factors of $x^2 - 12xy + 36y^2$ ii) Carry out the division $9p^2q(p-q)^2 \div 27(p-q)$							
Q24.	Praveen took a loan of ₹7250 against his insurance policy at the rate of 10% per annum compound interest. Calculate the amount and the compound interest payable by him after 2 years.							
Q25.	Represent the following rational numbers on a number line. $\frac{-4}{5}$, $\frac{3}{5}$, $\mathbf{0}$, $\frac{2}{5}$							

<table>
<tr><td>Q26.</td><td>Evaluate using appropriate identity: $(103)^2$</td></tr>
<tr><td>Q27.</td><td>Plot the following points in a graph sheet.
P(4, 4); Q(1, 3); R(2,6); S(5, 2)</td></tr>
<tr><td colspan="2">Section D: Long Answer Questions (Type – 2) (Q.28 to Q.33)
& Case study (Q.34 & 35) of 4 marks each</td></tr>
<tr><td>Q28.</td><td>Show that $(7a-5)^2+140a = (7a+5)^2$</td></tr>
<tr><td>Q29.</td><td>Insert any four rational numbers between $\frac{-9}{4}$ and $\frac{-7}{3}$.</td></tr>
<tr><td>Q30.</td><td>If x and y are in direct proportion, complete the following table by finding the values of m, n, p and q.
<table>
<tr><td>x</td><td>3</td><td>21</td><td>n</td><td>33</td><td>q</td></tr>
<tr><td>y</td><td>7</td><td>m</td><td>56</td><td>p</td><td>112</td></tr>
</table></td></tr>
<tr><td>Q31.</td><td>Factorize the expression and divide them as directed:
$35xy^2(y^2-5y-24) \div 7y(y-8)$</td></tr>
<tr><td>Q32.</td><td>The following table gives the quantity of petrol and its cost. Plot a linear graph to show the data.
<table>
<tr><td>No. of liters of petrol</td><td>5</td><td>10</td><td>15</td><td>20</td></tr>
<tr><td>Cost of petrol</td><td>200</td><td>400</td><td>600</td><td>800</td></tr>
</table></td></tr>
<tr><td>Q33.</td><td>Anya invested ₹24,000 for 3 years at the rate of 10% per annum compounded annually. Maya invested the same amount at the rate of 12% per annum for the same period of time on simple interest. Who received more interest?</td></tr>
</table>

Q34.	**Case Study-1** Alan and Joe visited a festival ground during holiday. They played variety of games. One among them was a game of chance consists of spinning an arrow which is equally likely to come to rest pointing to one of the numbers 1,2,3,4,5,6,7,8,9,10,11,12 as shown in the figure. Observe the figure and answer the following questions:  **I.** Find the probability that the arrow will point at 4. **II.** What is the probability that the arrow will point at a number greater than 2? **III.** Find the probability that the arrow will point at number divisible by 4. **IV.** Find the probability that the arrow will point at a prime number.
Q35.	**Case Study-2** Edwin sells lemonades and popsicles. The graph shows the overall sales of both the items from April to August. Use the graph to answer the questions.   **a)** How many lemonades did Edwin manage to sell on June? **b)** In which month Edwin sell fewer popsicles? **c)** Which item was sold more in August? **d)** How many popsicles were sold altogether in April & May?

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