

MATHEMATICS
Annual Examination, 2025-26
(Sample Question Paper)

GRADE: VIII

Maximum Marks: 80

Please check that this question paper contains **3** printed pages.

Answers to this Paper must be written on the paper provided separately.

Reading time: 15 minutes

Writing time: 3 hours

General Instructions:

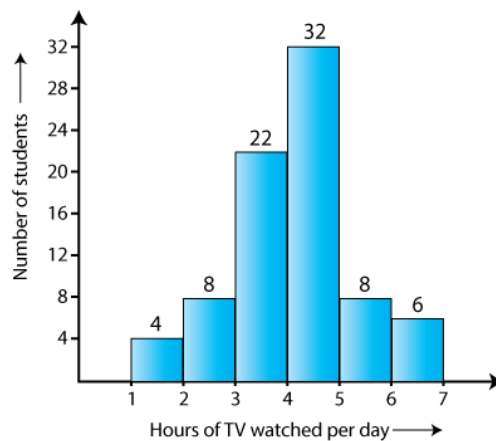
- This Question Paper has 5 Sections A-E.
- Section **A** has 20 MCQs carrying 01 mark each.
- Section **B** has 5 questions carrying 02 marks each.
- Section **C** has 6 questions carrying 03 marks each.
- Section **D** has 4 questions carrying 05 marks each.
- Section **E** has 3 case-based integrated units of assessment (04 marks each) with sub-parts of the values of 1, 1 and 2 marks each respectively.
- All Questions are compulsory. However, an internal choice in 2 Questions of 5 marks, 2 Questions of 3 marks and 2 Questions of 2 marks has been provided. An internal choice has been provided in the 2 marks question of Section E.
- Draw neat figures wherever required.
- Use of calculators is not permitted.

SECTION A

Section A consists of 20 questions of 1 mark each.

1.	Vidhya lent ₹5000 to Kavya for 3 years at the rate of 5% per annum compound interest. Calculate the amount that Vidhya will get after 3 years.							
	(A)	5789	(B)	5788.12	(C)	5788.13	(D)	5788
2.	Compute the compound interest on ₹16000 for 2 years 10% per annum when compounded half yearly.							
	(A)	3338.10	(B)	3448.10	(C)	3883.30	(D)	3884.30
3.	A farmer gets a loan of ₹100000 against his fixed deposits. If the rate of interest is 1.5%, calculate the compound interest payable after 2 years.							
	(A)	2022.25	(B)	2022.50	(C)	3022.25	(D)	3022.50
4.	If the weight of 12 sheets of thick paper is 40 grams, how many sheets of the same paper would weigh 2500 grams?							
	(A)	750	(B)	800	(C)	850	(D)	950
5.	The scale of a map is given as 1:300. Two cities are 4 km apart on the map. The actual distance between them is:							
	(A)	1000 km	(B)	1100 km	(C)	1200 km	(D)	1300 km

6.	6 pipes are required to fill a tank in 1 hour 20 minutes. If we use 5 such types of pipes, how much time it will take to fill the tank?							
	(A)	120 minutes	(B)	96 minutes	(C)	80 minutes	(D)	85 minutes
7.	On factorising $14pq + 35pqr$, we get:							
	(A)	$pq(14+35r)$	(B)	$p(14q+35qr)$	(C)	$q(14p+35pr)$	(D)	$7pq(2+5r)$
8.	The factors of $x^2+xy+8x+8y$ are:							
	(A)	$(x+y)(x+8)$	(B)	$(2x+y)(x+8)$	(C)	$(x+2y)(x+8)$	(D)	$(x+y)(2x+8)$
9.	The common factor of a^3b^2 and a^4b is:							
	(A)	a^4b^2	(B)	a^4b	(C)	a^3b^2	(D)	a^3b
10.	What should be added to $-\frac{7}{3}$ to get $\frac{3}{7}$?							
	(A)	$\frac{21}{58}$	(B)	$\frac{58}{21}$	(C)	$\frac{47}{21}$	(D)	$\frac{50}{21}$
11.	The perimeter of the rectangle is 20cm. If the length of the rectangle is 6cm, then its breadth will be:							
	(A)	4 cm	(B)	6 cm	(C)	10 cm	(D)	14 cm
12.	The age of the father is three times the age of the son. If the age of the son is 15 years old, then the age of the father is:							
	(A)	50 years	(B)	55 years	(C)	40 years	(D)	45 years
13.	The total surface area of a cube of side 6cm is:							
	(A)	214 cm^2	(B)	126 cm^2	(C)	106 cm^2	(D)	216 cm^2
14.	The height of a cylinder whose radius is 7 cm and the total surface area is 968 cm^2 is:							
	(A)	15 cm	(B)	17 cm	(C)	19 cm	(D)	21 cm
15.	The height of a cuboid whose volume is 275 cm^3 and base area is 25 cm^2 is:							
	(A)	10 cm	(B)	11 cm	(C)	12 cm	(D)	13 cm
16.	The width or size of the class interval 30-40, 40-50, 50-60 is:							
	(A)	10	(B)	30	(C)	40	(D)	
17.	From the given table calculate the total number of students for all ranges?							
	Range of marks obtained		Number of students					
	250-300		10					
	300-350		12					
	350-400		14					
	400-450		13					
	450-500		11					
	(A)	12	(B)	14	(C)	50	(D)	60
18.	From the given histogram calculate the number of students spent more than 5 hours watching TV?							

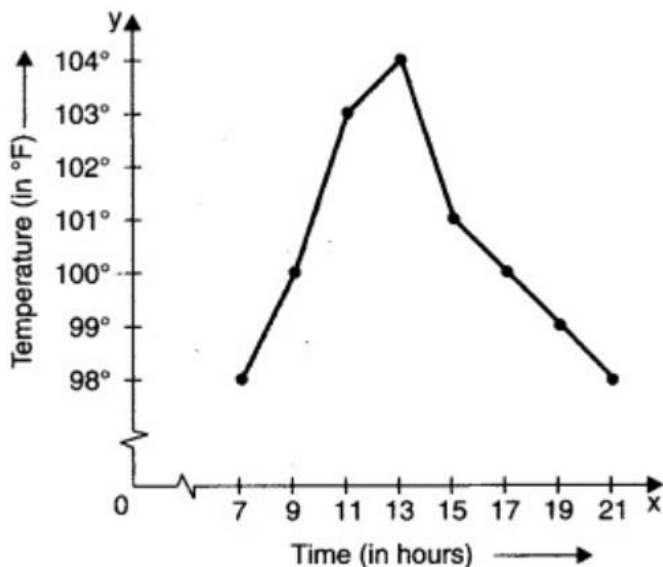


- (A) 12 (B) 6 (C) 8 (D) 14

19. Statement 1: A pie chart is divided into sectors to represent numerical data of different values.
Statement 2: Pie chart is very effective when we have so many data series.

- (A) Both the statements are true.
(B) Both the statements are false.
(C) Statement 1 is true, and Statement 2 is false.
(D) Statement 1 is false, and Statement 2 is true.

20. Observe the following temperature time graph to answer the following

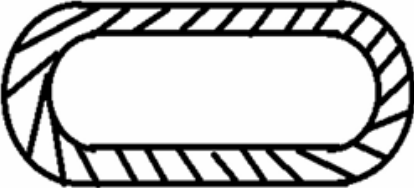


Assertion (A): At 13 hours the maximum temperature is recorded
Reason (R): Since the maximum temperature is 104° and it is recorded at 13 hours

- (A) (A) is true, (R) is false
(B) (A) is false, (R) is true
(C) Both (A) and (R) are true, and (R) is the correct reason for (A)
(D) Both (A) and (R) are true, and (R) is the incorrect reason for (A)

SECTION B

Section B consists of 5 questions of 2 marks each.

21.	A 5m 60cm high vertical pole casts a shadow which is 3m 20cm long. At the same time find length of the shadow cast by a different pole which is 10m 50cm high.(write answer in m)																		
22.	Factorize $4x^2 + 9 - 12x - a^2 - b^2 + 2ab$																		
23.	Cube A has side thrice as long as that of Cube B. (a)What is the ratio of the volume of Cube A to that of Cube B?																		
	OR																		
	(b) The areas of three adjacent faces of a cuboid are x, y and z. If the volume is V, Prove that $V^2 = xyz$.																		
24.	(a)The weekly wages (in ₹) of 30 workers in a factory are: 830, 835, 890, 810, 835, 836, 869, 845, 898, 890, 820, 860, 832, 833, 855, 845, 804, 808, 812, 840, 885, 835, 835, 836, 878, 840, 868, 890, 806, and 840. Using tally marks, make a frequency table with intervals as 800 – 810, 810 – 820 and so on.																		
	OR																		
	(b) The performance of students in 1st term and 2nd term is as given below. Draw a double bar graph choosing appropriate scale.																		
	<table border="1"> <thead> <tr> <th>Subject</th> <th>English</th> <th>Hindi</th> <th>Mathematics</th> <th>Science</th> <th>Social Science</th> </tr> </thead> <tbody> <tr> <td>1st Term</td> <td>67</td> <td>72</td> <td>88</td> <td>81</td> <td>73</td> </tr> <tr> <td>2nd Term</td> <td>70</td> <td>65</td> <td>95</td> <td>85</td> <td>75</td> </tr> </tbody> </table>	Subject	English	Hindi	Mathematics	Science	Social Science	1 st Term	67	72	88	81	73	2 nd Term	70	65	95	85	75
Subject	English	Hindi	Mathematics	Science	Social Science														
1 st Term	67	72	88	81	73														
2 nd Term	70	65	95	85	75														
25.	Draw the line passing through (2, 3) and (3, 2). Find the coordinates of the points at which this line meets the x-axis and y-axis.																		
SECTION C																			
Section C consists of 6 questions of 3 marks each.																			
26.	Find the compound interest on ₹8000 for 9 months at 20% per annum compounded quarterly.																		
27.	(a) The scale of a map is given as 1: 80000000. Two places A and B on the map are 3 cm apart. What is the actual distance between A and B? If C and D are at a distance of 3200 km, then find the distance between them on map?																		
	OR																		
	(b) There are 50 students in a hostel. The food provision for them is for 15 days. How long will their provision last if 5 students leave the group?																		
28.	(a) The area of a circle is given by the expression $\pi x^2 + 6\pi x + 9\pi$. Find the radius of the circle.																		
	OR																		
	(b) The area of a rectangle is $x^2 + 7x + 12$. If the breadth is $(x + 3)$, find its length.																		
29.	Jane is 6 years older than her younger sister. After 10 years, the sum of their ages will be 50 years. Find their present ages.																		
30.	An athletic track 14 m wide consists of two straight sections 120 m long joining semi-circular ends whose inner radius is 35 m. calculate the area of the shaded region.																		
																			

31.	The number of students in a hostel, speaking different languages is given below. Display the data in a pie chart.						
	Language	Hindi	English	Marathi	Tamil	Bengali	Total
	No. of students	40	12	9	7	4	72

SECTION D

Section D consists of 4 questions of 5 marks each.

32. (a) Simple interest on a sum of money for 2 years at $6\frac{1}{2}\%$ per annum is ₹5200. What will be the compound interest on the sum at the same rate for the same period?

OR

(b) Kamala borrowed from Ratan a certain sum at a certain rate for two years simple interest. She lent this sum at the same rate to Hari for two years compound interest. At the end of two years she received ₹210 as compound interest, but paid ₹200 only as simple interest. Find the sum and the rate of interest.

33. (a) There is a narrow rectangular plot. The length and breadth of the plot are in the ratio of 11:4. At the rate of ₹100 per meter it will cost the village panchayat ₹75000 to fence the plot. What are the dimensions of the plot?

OR

(b) Amina thinks of a number and subtracts $\frac{5}{2}$ from it. She multiplies the result by 8. The final result is 3 times her original number. Find the number.

34. A village, having a population of 4000, required 150 litres water per head per day. It has a tank which is 20 m long, 15 m broad and 6 m high. For how many days will the water of this tank last?

35. Construct a line graph for the given data which shows the annual profit percentage earned by the company during the years 1995 to 2000.

Year	Profit percent
1995	40
1996	55
1997	45
1998	65
1999	70
2000	60

(i) Find the year where the expenditure is minimum.

(ii) What is the average profit earned during the years 1995 to 2000?

SECTION E

Section E consists of 3 questions of 4 marks each.

36. Jagjith Singh has a road map with a scale of 1 cm=20 km. Based on the above information.

(i) He drives on a road for 72 km. What would be his distance covered in the map?

(ii) Suppose the distance between two places on the map is 3.5 cm, find the exact distance between the two places.

	(iii)	(a) Jagjith Singh went from place a to b to meet his parents and then b to c to join his office. If the distance between a and b is 4cm, the distance between b and c is 2 cm on the map, total how much distance is covered by Jagjith Singh.
		OR
		(b) Write the condition when x and y are in inverse proportion. y_1, y_2 are values of y corresponding to the values of x_1, x_2 of x respectively, with an example.
37.		Two brothers Anuj and Aman started a business together. They decided to share the profit depending upon the variable expenditure. The profit of two brothers together is given by the expression ₹($p^2 + 10p + 21$), which is the product of their individual share factors.
	(i)	Find the profit of the two partners when $p=8$.
	(ii)	If the profit had to be shared with p number of people, what will be the new profit each person receives?
	(iii)	(a)What is the individual share of both brothers?
		OR
		(b) What is the sum of their profit?
38.		The pie chart shows the result of a survey carried out to find the modes of transport used by children to go to school. Study the pie chart and answer the following questions.
		<p>The pie chart is divided into five sectors representing different modes of transport. The sectors are: Car (90°), Bus (120°), Cycle (60°), Taxi (60°), and Walk (60°). The angles are labeled with their respective degree values.</p>
	(i)	What is the most common mode of transport?
	(ii)	By which two modes of transport are equal numbers of children travelling?
	(iii)	(a) If 18 children travel by car, how many children took part in the survey? How many children use taxis to travel to school?
		OR
		(b) What fraction of children travel by car?

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(PracticePaper-1)

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SECTION A

Section A consists of 20 questions of 1 mark each.

1.	The simple interest on ₹2000 at 5% per annum for 2 years is:			
	(A) ₹100	(B) ₹200	(C) ₹300	(D) ₹400
2.	If $x \propto y$ and $x = 12$ when $y = 3$, find x when $y = 5$.			
	(A) 15	(B) 18	(C) 20	(D) 25
3.	Factorise: $x^2 - 25$			
	(A) $(x - 5)(x + 5)$	(B) $(x - 25)(x + 1)$	(C) $(x - 1)(x + 25)$	(D) $x(x - 25)$
4.	Solve: $4x - 8 = 0$			
	(A) 0	(B) 2	(C) -2	(D) 4
5.	The volume of a cube of side 4 cm is:			
	(A) 16 cm^3	(B) 32 cm^3	(C) 64 cm^3	(D) 164 cm^3
6.	The value of $(2x + 5)$ when $x = 3$ is:			
	(A) 11	(B) 13	(C) 15	(D) 17
7.	Two quantities are in direct variation. If one quantity is doubled, the other will:			
	(A) Become half	(B) Remain unchanged		
	(C) Become double	(D) Become four times		

8.	The curved surface area of a cylinder depends on:			
	(A)	Radius	(B)	height
	(C)	radius and height	(D)	volume
9.	If the mean of 8 observations is 15, then their total sum is:			
	(A)	100	(B)	110
	(C)	120	(D)	130
10.	If interest is compounded half-yearly, then the rate of interest becomes:			
	(A)	Double	(B)	Half
	(C)	Same	(D)	One fourth
11.	Factorise: $a^2 + 3a$			
	(A)	$a(a + 3)$	(B)	$a(a - 3)$
	(C)	$(a + 1)(a + 3)$	(D)	a^2
12.	The mode of the data: 3, 5, 7, 5, 9, 5, 11 is:			
	(A)	3	(B)	5
	(C)	7	(D)	9
13.	The value of $9^2 - 5^2$ is:			
	(A)	16	(B)	36
	(C)	56	(D)	64
14.	To find the median of an ungrouped data, the data must be:			
	(A)	Added	(B)	Multiplied
	(C)	Arranged in order	(D)	Grouped
15.	The formula for total surface area of a cube is:			
	(A)	a^2	(B)	$4a^2$
	(C)	$5a^2$	(D)	$6a^2$
16.	When interest is compounded quarterly, how many times is interest added in one year?			
	(A)	Once	(B)	Twice
	(C)	Thrice	(D)	Four Times
17.	The solution of $5x + 25 = 40$ is:			
	(A)	0	(B)	3
	(C)	-5	(D)	1
18.	Which of the following represents an inverse variation?			
	(A)	Speed and time for a fixed distance		
	(B)	Cost and number of items		
	(C)	Wages and number of days		
	(D)	Distance and speed for a fixed time		
19.	Statement 1: The mean of a data set is affected by extreme values. Statement 2: Mean is calculated by dividing the sum of observations by the number of observations.			
	(A)	Both the statements are true.		
	(B)	Both the statements are false.		
	(C)	Statement 1 is true, and Statement 2 is false.		
	(D)	Statement 1 is false, and Statement 2 is true.		
20.	Assertion (A): A line graph is useful for showing change over a period of time. Reason (R): In a line graph, points are plotted on a graph and joined by line segments.			
	(A)	(A) is true, (R) is false		
	(B)	(A) is false, (R) is true		
	(C)	Both (A) and (R) are true, and (R) is the correct reason for (A)		
	(D)	Both (A) and (R) are true, and (R) is the incorrect reason for (A)		

SECTION B**Section B consists of 5 questions of 2 marks each.**

21. (a) The length, breadth and height of a cuboid are 8 cm, 5 cm and 4 cm respectively. Find its lateral surface area.

OR

(b) Find the volume of a cuboid whose length, breadth and height are 0.9 m, 60 cm and 15 cm respectively.

22. (a) Find the mean of the following frequency distribution:

Class Interval	Frequency
0-10	4
10-20	6
20-30	10

OR

(b) Prepare a frequency table and find the range of the the following data that shows the number of students present in a class for 20 days:

40, 42, 41, 40, 43, 42, 41, 44, 40, 42,
43, 41, 45, 44, 42, 40, 43, 41, 44, 42

23. Factorise

(i) $x^2 + xy + x + y$

(ii) $4x^2 - 12x + 9$

24. A train covers a distance of 240 km in 6 hours.
How long will it take to cover 360 km at the same speed?

25. Plot the points (2, 5), (-2, -6), (-4, 3), (-8, 7) in a rectangular coordinate plane

SECTION C**Section C consists of 6 questions of 3 marks each.**

26. (a) Factorise completely:

(i) $x^2 - 9x + 18$

(ii) $\frac{a^2}{64} - \frac{b^2}{36}$

OR

(b) Factorise: $9x^2 - 25y^2 + 30y - 9$

27. (a) The intensity of sound varies directly as the square of the amplitude of vibration.
If the intensity is 200 units when the amplitude is 5 units, find the intensity when the amplitude is 9 units.

OR

(b) A water tank can be filled by Pipe A in 12 hours and by Pipe B in 18 hours. Both pipes are opened together. How long will it take to fill the tank?

28. A sum of ₹7,500 is invested at 6% per annum for 1 year, compounded semi-annually. Find the amount.

29. The ratio of the present ages of two sisters is 4 : 7. Eight years ago, the ratio of their ages was 2 : 5. Find their present ages.

30.	A cylindrical pillar has a diameter of 70 cm and height 5 m. Find the cost of polishing its curved surface at ₹4 per m ² .										
31.	Draw a histogram for the following table shows the marks obtained by students in a test. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Marks</th> <th>Number of students</th> </tr> </thead> <tbody> <tr> <td>10 - 20</td> <td>6</td> </tr> <tr> <td>21 - 30</td> <td>12</td> </tr> <tr> <td>31 - 40</td> <td>18</td> </tr> <tr> <td>41 - 50</td> <td>4</td> </tr> </tbody> </table>	Marks	Number of students	10 - 20	6	21 - 30	12	31 - 40	18	41 - 50	4
Marks	Number of students										
10 - 20	6										
21 - 30	12										
31 - 40	18										
41 - 50	4										

SECTION D

Section D consists of 4 questions of 5 marks each.

32.	(a) The population of a town increased from 40,000 to 44,100 in 2 years at a constant annual rate compounded annually. Find the rate of increase per annum.
	OR
	(b) A man invested a certain sum at 12% per annum. Calculate the difference between the interest he would earn after 1 year if the interest is compounded half-yearly versus if it were compounded annually, given the principal is ₹50,000.
33.	(a) A train travels 180 km partly at 40 km/h and the rest at 60 km/h. The total time is 4 hours. Find the distance travelled at each speed.
	OR
	(b) Solve (i) The sum of digits of a two-digit number is 10. The number formed by reversing digits exceeds the original number by 36. Find the number. (ii) The length of a rectangle is 5 cm less than twice its breadth. The perimeter is 110 cm. Find the dimensions.
34.	Two cuboids each of dimensions 11 cm × 5 cm × 5 cm are melted to form a cylinder of height 7 cm. Find the radius.

35. The given graph describes the distances of a car from a city P at different times when it is travelling from City P to City Q, which are 350 km apart. Study the graph and answer the following: (Note: On Y-axis – Distance is from city P to city Q)

Time	Distance from P (in km)
8 a.m.	0
9 a.m.	50
10 a.m.	150
11 a.m.	200
12 noon	200
1 p.m.	200
2 p.m.	350

(a) What information is given on the two axes?

	(b) From where and when did the car begin its journey? (c) How far did the car go in the first hour? (d) Did the car stop for some duration at any place? Justify your answer. (e) When did the car reach City Q?
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SECTION E

Section E consists of 3 questions of 4 marks each.

36.	The length of a rectangular plot is $(x+5)$ m and breadth is $(x+2)$ m.
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(i)	Write the expression for the area of the plot.
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(ii)	Expand the expression obtained
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(iii)	(a) Find the area of rectangle, if the length is increased by 2 and breadth is decreased by 1.
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	OR
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	(b) What will be cost of tiling the rectangular area $(x + 5)(x + 2)$ m ² if area of each tile is $(x + 2)$ m ² and cost of each tile is ₹ $(x + 20)$?
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37.	The distance travelled by a bus is given below:
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Time (hours)	1	2	3	4
Distance (km)	50	100	150	200

(i)	Identify the type of variation.
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(ii)	Find the constant of variation.
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(iii)	(a) Find the distance travelled in 6 hours.
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	OR
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	(b) Find the distance travelled in 8 hours
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38.	The annual sales (in %) of different types of books are:
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Type	Percentage
Textbooks	40%
Storybooks	25%
Magazines	20%
Others	15%

(i)	Find the central angle for textbooks.
-----	---------------------------------------

(ii)	Check whether the given data can form a pie chart.
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(iii)	(a) Find the difference between the angles of storybooks and others.
-------	--

	OR
--	----

	(b) Find the sum between the angles of textbooks and magazines.
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