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No. of pages - 16

COMMON ANNUAL SCHOOL EXAMINATION (2024-25)
CLASS : VIII
SUBJECT: MATHEMATICS

Time Allowed : 2½ hours
समय : 2½ घंटे

Maximum Marks : 60
अधिकतम अंक : 60

सामान्य निर्देश:

निम्नलिखित निर्देशों को बहुत सावधानी से पढ़िए और उनका पालन कीजिए:

1. इस प्रश्न पत्र में 16 प्रश्न हैं। सभी प्रश्न अनिवार्य हैं।
2. प्रश्न-पत्र पाँच खण्डों में विभाजित है - खण्ड 'क', 'ख', 'ग', 'घ' तथा 'ङ'।
3. खण्ड 'क' में प्रश्न संख्या 1 में एक-एक अंक के बहु-विकल्पीय प्रश्न हैं।
4. खण्ड 'ख' में प्रश्न संख्या 2 से 7 तक वस्तुनिष्ठ प्रकार के दो-दो अंकों के प्रश्न हैं।
5. खण्ड 'ग' में प्रश्न संख्या 8 से 10 तक लघु उत्तरीय प्रकार के तीन-तीन अंकों के प्रश्न हैं।
6. खण्ड 'घ' में प्रश्न संख्या 11 से 13 तक दीर्घ उत्तरीय प्रकार के पाँच-पाँच अंकों के प्रश्न हैं।
7. खण्ड 'ङ' में प्रश्न संख्या 14 से 16 तक स्रोत आधारित/प्रकरण अध्ययन आधारित चार-चार अंकों के प्रश्न हैं। प्रत्येक स्रोत आधारित/प्रकरण अध्ययन आधारित प्रश्न में आंतरिक विकल्प दो-दो अंकों के प्रश्न में दिया गया है।
8. प्रश्न-पत्र में समग्र विकल्प नहीं दिया गया है। यद्यपि, खण्ड 'ख' के 1 प्रश्न में, खण्ड 'ग' के 1 प्रश्न में, खण्ड 'घ' के 2 प्रश्नों में आंतरिक विकल्प का प्रावधान दिया गया है।
9. जहाँ आवश्यक हो, स्वच्छ आकृतियाँ बनाइए। यदि आवश्यक हो तो $\pi = \frac{22}{7}$ लीजिए, यदि अन्यथा न दिया गया हो।
10. कैलकुलेटर का उपयोग वर्जित है।

GENERAL INSTRUCTIONS:

Read the following instructions carefully and follow them:

1. This question paper contains 16 questions. All questions are compulsory.
2. Question paper is divided into FIVE sections-Section A, B, C, D and E.
3. In section A-question number 1 have multiple choice questions (MCQs) of 1 mark each.
4. In section B-question number 2 to 7 are Objective type questions of 2 marks each.
5. In section C- question number 8 to 10 are Short Answer (SA) type questions carrying 3 marks each.
6. In section D - question number 11 to 13 are Long Answer (LA) type questions carrying 5 marks each.
7. In section E-question number 14 to 16 are source based/case study questions carrying 4 marks each. Internal choice is provided in 2 marks question in each source based/case study question.
8. There is no overall choice. However, an internal choice has been provided in 1 question in Section B, 1 question in Section C and 2 questions in Section D.
9. Draw neat figures wherever required. Take $\pi = \frac{22}{7}$ wherever required if not stated.
10. Use of calculators is NOT allowed.

SECTION-A

Question 1 consists of Multiple-Choice questions (i-xii) of 1 mark each. Choose the appropriate option from the given options :

1.(i) If $\frac{2}{3}x + 1 = \frac{7}{3}$, then the value of x is : 1

(a) 2 (b) –2

(c) 3 (d) –3

(ii) Length of the side of a square whose area is 441 sq. cm. is : 1

(a) 20 cm (b) 21 cm

(c) 22 cm (d) 12 cm

(iii) The cube root of 0.027 is : 1

(a) 3 (b) 0.003

(c) 0.03 (d) 0.3

(iv) The ratio of 90 cm to 1.5 m is : 1

(a) 2 : 5 (b) 5 : 3

(c) 5 : 2 (d) 3 : 5

(v) The total surface area of cylinder of base radius 'r' and height 'h' is: 1

(a) $\pi r (r + h)$ (b) $4\pi r (r + h)$

(c) $2\pi r (r + h)$ (d) $3\pi r (r + h)$

(vi) If Manoj bought 12 pens for ₹ 156, then the value (in ₹) of 7 such pens is : 1

(a) 89 (b) 91

(c) 90 (d) 92

(vii) A parallelogram whose all sides are equal is called : 1

(a) Kite (b) Rectangle

(c) Rhombus (d) Trapezium

(viii) The value of $\sqrt[3]{\sqrt{256}+\sqrt{121}}$ is : 1

(a) 3 (b) 9

(c) 81 (d) 27

(ix) A cricket team played 20 matches in one season. It won 25% of them. How many matches did they lose? 1

(a) 12 (b) 13

(c) 14 (d) 15

(x) Using suitable identity, the value of $502^2 - 498^2$ is : 1

(a) 3000 (b) 4000

(c) 5000 (d) 6000

(xi) The area of a circular sheet of radius 7 cm is : 1

(a) 154 cm (b) 154 sq. cm.

(c) 49 sq. cm. (d) 49 cm

(xii) The value of $(3° + 4° - 5°)°$ is : 1

(a) 12 (b) 2

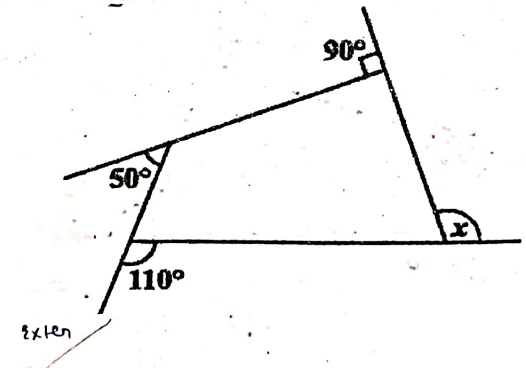
(c) 1 (d) 0

SECTION-B

Question 2 to 7 is Objective type questions of 2 marks each.

2. Express 100 as the sum of 10 odd numbers. 2

3. In the given figure, find the value of x. 2



4. Find the value of x in Pythagorean triplet: (6, 8, x + 1) 2

OR

Find the value of $\sqrt{108+\sqrt{154+\sqrt{225}}}$

5. Solve for x : 2

$\frac{1}{4}x-3=7$

6. Find the smallest number by which 256 must be multiplied to obtain a perfect cube. 2

7. Daksh sold a table for ₹ 987 at a loss of 6%. Find the cost price of the table. 2

SECTION-C

Question 8 to 10 is Short Answer type questions of 3 marks each.

8. The area of a trapezium shaped field is 10500 m^2 and the perpendicular distance between the two parallel sides is 100 m. If the length of one of the parallel sides is twice the other, then find the lengths of the parallel sides. 3

OR

Find the area of a rhombus whose side is 5 cm and whose altitude is 4.8 cm. If one of its diagonals is 8 cm long, find the length of the other diagonal.

9. Simplify and solve the following linear equation: 3

$$\frac{2y-3}{4}-\frac{3y-5}{2}=y+\frac{3}{4}$$

10. A 14 m high vertical pole casts a shadow 10 m. Find the height of a pole which casts a shadow 15 m long at the same time. 3

SECTION-D

Question 11 to 13 is Long Answer type questions of 5 marks each.

11. Simplify: $\left(5m^2 - \frac{m}{3} + \frac{5}{2}\right) - \left(\frac{m}{2} - \frac{m^2}{3} - \frac{1}{3}\right) + \left(-2m^2 - \frac{1}{6} + \frac{m}{5}\right)$ 5

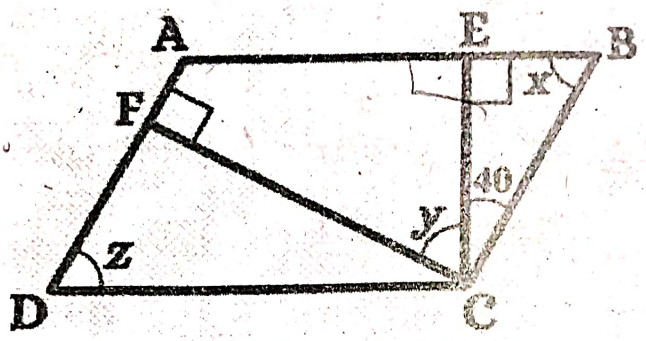
OR

Simplify:

(i) $(2.5p - 0.5q)(2.5p + 0.5q)$

(ii) $(a + 2b + c)(a + 2b - c)$

12. In the given figure, ABCD parallelogram. Find the angle measures of x, y and z. 5



13. Factorise : 5

(i) $c^2 - 4c - 12$

(ii) $v^4 - 256$

OR

Divide as directed : $15(y + 3)(y^2 - 16)$ by $5(y^2 - y - 12)$

SECTION-E

Question 14 to 16 is Source-based/ Case Study questions of 4 marks each.

14. Radhika's daily routine is shown in the table given below :

Activities	Hours per day
At School	6
Watching T.V.	2
Doing Homework	1.5
Playing Games	2.5
Sleeping	8
Other Activities	4

Based on the above information, answer the following questions :

(i) Find the ratio of number of hours spent at school to number of hours spent while watching TV. 1

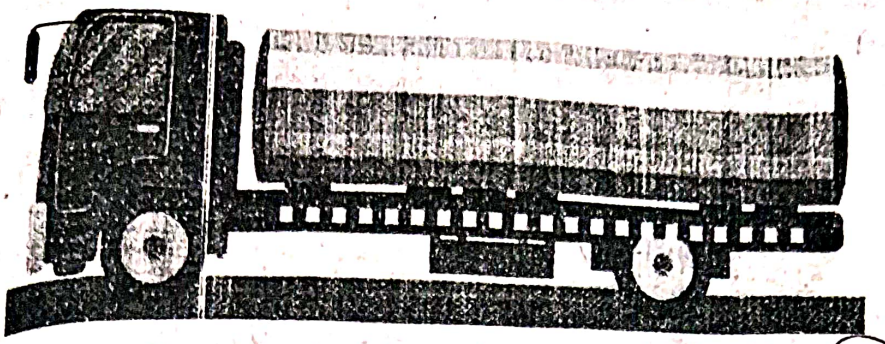
(ii) Find the ratio of number of hours spent in doing homework to number of hours spent in other activities. 1

(iii) Find the percentage of hours spent doing homework from the whole day. 2

OR

Find the percentage of hours spent in sleeping from the whole day.

15. Oil is transported through a special kind of truck with a cylindrical tank as shown in the figure given below. The radius and height of the cylindrical tank is 7 cm and 15 cm.



Based on the above information, answer the following questions:

(i) Find the sum of the radius and height of cylindrical tank. 1

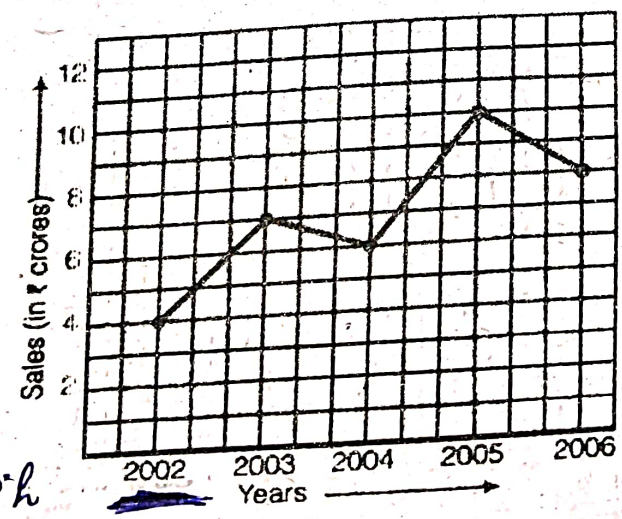
(ii) Find the curved surface area of the cylindrical tank. 1

(iii) Find the volume of the cylindrical tank. 2

OR

Find the total surface area of the cylindrical tank.

16. The following line graph shows the yearly sales figures for a manufacturing company.



Based on the above information, answer the following questions:

(i) In which year was the maximum sale done? 1

(ii) In which year was the minimum sale done? 1

(iii) Find the total sales of the year 2005 and the year 2006. 2

OR

Find the difference between the sales of the year 2002 and the year 2004.