# O. P. JINDAL SCHOOL, SAVITRI NAGAR

## Half Yearly Examination – (2024-2025)

**Class: VIII** **(SET – A)** **M.M: 80**
**Subject: Mathematics** **Time: 3 Hrs**
Name:_____ Roll No.:___

***(Fifteen Minutes Extra will be given for reading the Question Paper.)***

***General Instructions:***

i. *This question paper contains **38** questions. All questions are compulsory.*
ii. *This question paper is divided into **5 sections – Sections A,B,C, D and E.***
iii. ***Section A** comprises **16** questions (Q. no.1to 16) of **1** mark each.*
iv. ***Sections B** comprises **8** questions (Q. no.17to 24) of **2** marks each.*
v. ***Section C** comprises **8** questions (Q. no.25 to 32) of **3** marks each.*
vi. ***Section D** comprises **4** questions (Q. no.33 to 36) of **4** marks each.*
vii. ***Section E** comprises **2** case study based question(Q. no.37 to 38)of 4 marks each.*
viii. *There is no overall choice. However an internal choice has been provided. You have to attempt only one of the alternatives in all such questions.*
*(Use of calculator is not allowed.)*

## SECTION A

**Q1.** Find the value of A and B.

$$\begin{array}{r} A\ \ B \\ +\ 3\ \ 7 \\ \hline 6\ \ A \\ \hline \end{array}$$

a) 1 , 3 b) 5, 2 c) 2, 5 d) 3, 3

**Q2.** $\sqrt{125 \times 20}$ = ?
a) $5 \times 4$ b) $5 \times 2$ c) $5 \times 5$ d) $5 \times 10$

**Q3.** Which of the following is not a perfect cube?
a) 0.027 b) 0.27 c) 0.000027 d) 27

**Q4.** If $4^m \div 4^{-3} = 4^4$, then the value of m is:
a) 6 b) 5 c) 1 d) 0

**Q5.** Hexahedron is also known as,
a) cuboid b) tetrahedron c) cube d) none of these

**Q6.** The volume of a cuboid whose length, breadth and height are 2x, $4x^3$ and $3x^5$ respectively is:
a) $24x^{16}$ b) $24x^9$ c) $9x^{16}$ d) $9x^9$

**Q7.** $(2x^3 + 3x - 5) + (-4x + x^3)$ =?
a) $5 - 3x^3 + x$ b) $-x + 3x^3 - 5$ c) $3x^3 + x - 5$ d) none of these

**Q8.** The number 724362 is divisible by:

a) 6 b) 7 c) 11 d) 13

**Q9.** The value of: $(1331)^{1/3}$

a) 11 b) 21 c) 1331 d) none of these

**Q10.** Find the value of: $-4 \div \frac{-6}{5}$

a) -20 b) $+\frac{24}{5}$ c) $-\frac{10}{3}$ d) $\frac{10}{3}$

**Q11.** Find the HCF of: 125pq and $-25p^2q^2$

a) $25p^2q$ b) 5pq c) 25pq d) none of these

**Q12.** Number of faces and vertices in hexagonal pyramid are:

a) 6, 8 b) 7, 7 c) 5, 5 d) 8, 8

**Q13.** Exponential form of 3125 is:

a) $3^5$ b) $15^3$ c) $5^5$ d) None of these

**Q14.** If a number is divisible by 9 then it is also divisible by:

a) 2 b) 3 c) 6 d) 18

**Directions:** In the question number 15 and 16, a statement of assertion (A) is followed by a statement of Reason (R). Choose the correct option.

**Q15.** **Assertion A:** Cube of a negative integer is always negative,
**Reason R:** There are only nine perfect positive cubes less than 1000.

a) Both assertion (A) and reason (R) are true and reason (R) is correct explanation of assertion (A).
b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A).
c) Assertion (A) is true but reason (R) is false.
d) Assertion (A) is false but reason (R) is true.

**Q16.** **Assertion A:** $(-1)^{50} = 50$
**Reason R:** An exponent refers to the number of times a number is multiplied by itself.

a) Both assertion (A) and reason (R) are true and reason (R) is correct explanation of assertion (A).
b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A).
c) Assertion (A) is true but reason (R) is false.
d) Assertion (A) is false but reason (R) is true.

## Section B

**Answer the following questions:**

**Q17.** Find the volume of a cubical box whose edge is 18cm.

**Q18.** Find the square root of 2304 by prime factorization.

**Q19.** Find three rational numbers between $\frac{1}{2}$ and $\frac{1}{3}$.

**Q20.** Factorise: $19x^2 + 57x$

**OR**

Factorise: $36n^2m - 63nm^2$

**Q21.** What is the minimum number of faces that a polyhedron must have? Name the polyhedron.

**Q22.** Solve by using property: $\frac{2}{9} \times \frac{5}{7} - \left(\frac{-2}{7}\right) \times \frac{2}{9}$

**Q23.** Write the reciprocal of: $\left(\frac{12}{19}\right)^{-10}$

**Q24.** Multiply: $(2a - 3b + 2c + abc)$ by $-4a$

**OR**

Solve: $(3z - 2)(3z - 2)$

## Section C

**Q25.** Factorise: $y^2 - 22y + 121$

**Q26.** Find the value of $\sqrt{9216}$ and then the value of $\sqrt{0.9216}$

**Q27.** Divide: $16x^2y^2 + 12xy^2 - 8xy$ by $2xy$

**Q28.** Divide the sum of $\frac{-3}{4}$ and $\frac{-5}{12}$ by their product.

**OR**

Evaluate: $\left(\frac{3}{7} \times \frac{-2}{5}\right) + \left(\frac{7}{9} \times \frac{3}{7}\right) - \left(\frac{3}{7} \times -\frac{4}{5}\right)$

**Q29.** The total volume of two identical cubical containers is 3456 $cm^3$. Find the edge of one container.

**OR**

Find the smallest number by which 648 be multiplied to get a perfect cube.

**Q30.** Simplify: $(ax + b)^2 - (ax - b)^2$

**OR**

Evaluate by using suitable identity: $103 \times 107$

**Q31.** Find the value of x so that: $8^2 \times 8^4 = 2^x$

**Q32.** Find the smallest number that must be subtracted from 3240 to get a perfect square. Also find the perfect square so obtained.

## Section D

**Q33.** The volume of a cube is $\frac{512}{729}$ cm$^3$. What will be the volume of another cube whose sides are double of this cube.

**Q34.** Find the value of q (by using suitable identity), if

$$6q = \frac{(9.2)^2-(2.8)^2}{6.4}$$

**Q35.** Factorise by using identity: $4x^2 + 12xy + 9y^2 - 50x - 75y$

**OR**

Divide: $4a^3(5 - 7a)$ by $2a(7a - 5)$

**Q36.** Verify and name the property used.

$$\left[\left(\frac{-8}{9}\right) \times \left(\frac{-1}{5}\right)\right] + \left[\left(\frac{-8}{9}\right) \times \left(\frac{-3}{7}\right)\right] = \left(\frac{-8}{9}\right) \times \left[\left(\frac{-1}{5}\right) + \left(\frac{-3}{7}\right)\right]$$

## Section E
## Case study based question

**Q37.** Read the question and answer the following questions.

An algebraic expression is: $-9x^2y + 6x^2y^3 - \frac{5}{6}x^2y^2 + 15y^2x^2 + \frac{-11}{3}$

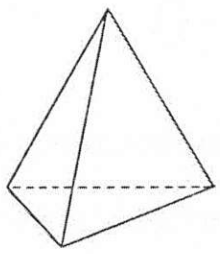
**(I)** Write the like terms in the given expression.

**(II)** Which is the constant term in the expression?

**(III)** What is the coefficient of y in the given expression?

**(IV)** What are literal factors of the term $6x^2y^3$?

**Q38.** A figure of polyhedron is given. Write the answer of the following questions based on this figure.



**(I)** Write the name of the given polyhedron.

**(II)** How many faces are there in this polyhedron.

**(III)** Verify Euler's formula for it.

**(IV)** Is this polyhedron is a platonic solid, justify your answer.

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