940111 - A1

Class - IX

MATHEMATICS

Time : 3 ... hours

समय : 3 ... घण्टे

Maximum Marks : 80

अधिकतम अंक : 80

Total No. of Pages : 8

कुल पृष्ठों की संख्या : 8

General Instructions :

1. All questions are **compulsory**.

2. The question paper consists of **34** questions divided into **four** sections A, B, C and D. Section - A comprises of **10** questions of **1** mark each, Section - B comprises of **8** questions of **2** marks each, Section - C comprises of **10** questions of **3** marks each and Section - D comprises of **6** questions of **4** marks each.

3. Question numbers **1** to **10** in Section - A are multiple choice questions where you are to select **one** correct option out of the given four.

4. There is no overall choice. However, internal choice has been provided in **1** question of **two** marks, **3** questions of **three** marks each and **2** questions of **four** marks each. You have to attempt only one of the alternatives in all such questions.

5. Use of calculator is **not** permitted.

6. An additional **15** minutes time has been allotted to read this question paper only.

सामान्य निर्देश :

1. सभी प्रश्न अनिवार्य हैं।

2. इस प्रश्न-पत्र में 34 प्रश्न हैं, जो **चार** खण्डों में **अ, ब, स व द** में विभाजित है। **खण्ड – अ** में 10 प्रश्न हैं और प्रत्येक प्रश्न 1 अंक का है, **खण्ड – ब** में 8 प्रश्न हैं और प्रत्येक प्रश्न 2 अंकों के हैं, **खण्ड – स** में 10 प्रश्न हैं और प्रत्येक प्रश्न 3 अंकों का है, **खण्ड – द** में 6 प्रश्न हैं और प्रत्येक प्रश्न 4 अंकों का है।

3. प्रश्न संख्या 1 से 10 बहुविकल्पीय प्रश्न हैं। दिए गए चार विकल्पों में से **एक सही** विकल्प चुनें।

4. इसमें कोई भी सर्वोपरि विकल्प नहीं है, लेकिन आंतरिक विकल्प 1 प्रश्न 2 अंकों में, 3 प्रश्न 3 अंकों में और 2 प्रश्न 4 अंकों में दिए गए हैं। आप दिए गए विकल्पों में से एक विकल्प का चयन करें।

5. कैलकुलेटर के प्रयोग वर्जित है।

6. इस प्रश्न-पत्र को पढ़ने के लिए 15 मिनट का समय दिया गया है। इस अवधि के दौरान छात्र केवल प्रश्न-पत्र को पढ़ेंगे और वे उत्तर-पुस्तिका पर कोई उत्तर नहीं लिखेंगे।

SECTION - 'A'

Question numbers 1 to 10 carry 1 mark each.

1. The value of $\sqrt[4]{(64)^{-2}}$ is :

   (A) $\frac{1}{8}$ (B) $\frac{1}{2}$ (C) 8   (D) $\frac{1}{64}$

2. A number is an irrational if and only if its decimal representation is :

   (A) non-terminating

   (B) non-terminating and repeating

   (C) non-terminating and non-repeating

   (D) terminating

3. The degree of the polynomial $2 - y^2 - y^3 + 2y^7$ is :

   (A) 2   (B) 7   (C) 0   (D) 3

4. If two interior angles on the same side of a transversal intersecting two parallel lines are in the ratio 2 : 3, then the smaller of two angles is :

   (A) 72°   (B) 108°   (C) 54°   (D) 36°

5. Abscissa of a point is positive in :

   (A) I and II quadrant

   (B) I and IV quadrant

   (C) I quadrant only

   (D) IV quadrant only

6. Euclid's stated that all right angles are equal to each other in the form of :

   (A) an axiom   (B) a defination   (C) a postulate   (D) a proof

7. If E is a point on side QR of ΔPQR such that PE bisects ∠QPR, then :

   (A) QE = ER   (B) QP > QE   (C) QE > QP   (D) ER > RP

8. The things which are double of same thing are :

   (A) equal

   (B) halves of same thing

   (C) unequal

   (D) double of the same thing

9. $\triangle ABC \cong \triangle PQR$. If $AB = 5$ cm, $\angle B = 40°$ and $\angle A = 80°$, then which of the following is true.

(A) $QP = 5$ cm, $\angle P = 60°$

(B) $QP = 5$ cm, $\angle R = 60°$

(C) $QR = 5$ cm, $\angle R = 60°$

(D) $QR = 5$ cm, $\angle Q = 40°$

10. If the sum of two adjacent angles is 100° and one of them is 35°, then the other is :

(A) 70° (B) 65° (C) 135° (D) 145°

SECTION - 'B'

Question numbers 11 to 18 carry 2 marks each.

11. Simplify $\left(\dfrac{81}{16}\right)^{-3/4} \times \left(\dfrac{25}{9}\right)^{-3/2}$. ▪

12. In figure 1, if line segment AB intersects CD at O such that $\angle OAD = 80°$, $\angle ODA = 50°$ and $\angle OCB = 40°$, then find $\angle OBC$.
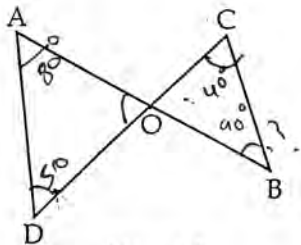

Figure 1

13. A point lies on x-axis at a distance of 9 units from y-axis. What are its coordinate. What will be its coordinate if it lies on y axis at a distance of −9 units from x-axis.

14. In $\triangle ABC$, the bisector AD of $\angle A$ is perpendicular to side BC. Show that $\triangle ABC$ is an isosceles triangle.

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25. Factorise : $x^2 + \dfrac{1}{x^2} + 2 - 2x - \dfrac{2}{x}$.

OR

Determine whether $(3x - 2)$ is a factor of $3x^3 + x^2 - 20x + 12$?

26. Express $0.\overline{001}$ in the form of $\dfrac{p}{q}$, where p and q are integers and $q \neq 0$.

27. E and F are respectively the mid points of equal sides AB and AC of $\triangle ABC$. Show that BF = CE.

OR

In figure 6, AB‖CD and O is the mid point of AD. Show that

(i) $\triangle AOB \cong \triangle DOC$.
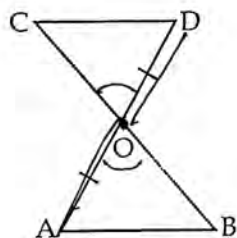
(ii)   O is also the mid point of BC.

Figure 6

28. Expand the following :

(i) $(x - 2y - 3z)^2$.

(ii) $\left(y - \sqrt{3}\right)^2$.

SECTION - 'D'

Question numbers 29 to 34 carry 4 marks each.

29. Prove that the sum of the angles of a triangle is 180°.

OR

Prove that the angles opposite to the equal sides of a triangle are equal.

30. Factorise : $x^3 - 6x^2 + 11x - 6$.

31. D is a point on side BC of $\triangle ABC$ such that AD = AC. Show that AB > AD.

OR

In figure 7, the side QR of $\triangle PQR$ is produced to a point S. If the bisectors of $\angle PQR$ and $\angle PRS$ meet at point T, then prove that $\angle QTR = \frac{1}{2} \angle QPR$.
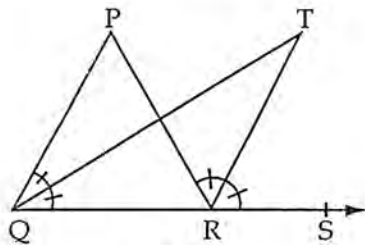
Figure 7

32. Without actual division, prove that $(2x^4 - 6x^3 + 3x^2 + 3x - 2)$ is exactly divisible by $(x^2 - 3x + 2)$.

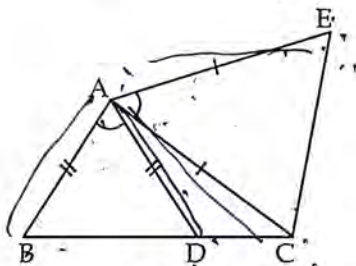33. In figure 8, AC = AE, AB = AD and $\angle BAD = \angle EAC$. Prove that BC = DE.

Figure 8

34. If $a + b = 12$ and $ab = 27$, find the value of $a^3 + b^3$.

- o O o -

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

CURRENT AFFAIRS

Q.1. Which Indian player won the mixed double finals of tennis in partnership with Zimbabwe's Casa black?

Q.2. Name the player who will lead our country's challenge in common wealth games in men's tennis event in Delhi.

Q.3. Arjun Atwal became the first and just the sixth Asian-Born player to win Wyndham championship. With which game is he associated?

Q.4. Name the first Indian player to qualify for 2012 Olympics games after winning bronze in World Shooting Championship.

Q.5. Name the legendry hockey goal keeper, who recently passed away.