

AMITY INSTITUTE

FOR COMPETITIVE EXAMINATIONS

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SynConnect Programme

UNIT TEST - 1

CLASS - IX

MATHEMATICS

Time: 50 Minutes

Date: 21.04.2016

Maximum Marks: 50

GENERAL INSTRUCTIONS:

TOPIC: NUMBER SYSTEM

1. Fill in the response sheet with your Name, Class, School etc, in the respective columns, using a blue pen.
2. *This paper is divided into four Sections I, II, III & IV.*

Section-I: *Single Choice: Questions 1 to 10, 1 mark for each correct answer and no negative marking for incorrect answer.*

Section-II: *More than one correct type : Questions 11 to 20, 2 marks for each correct answer and no negative marking for incorrect answer.*

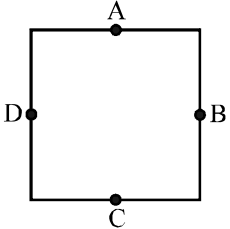
Section-III: *Match the following: Question 21, 4 marks for correct answer and no negative marking for incorrect answer.*

Section-IV: *Integer Type Question: Questions 22 to 25, 4 marks for each correct answer and no negative marking for incorrect answer.*

Darken the correct alternative on the given answer-column, with an HB pencil.

SECTION - I: STRAIGHT OBJECTIVE TYPE

1. Smallest positive integer is
(a) 0 (b) 0.1 (c) 1 (d) None of these
 2. In 337^{337} , what is the unit digit?
(a) 9 (b) 7 (c) 1 (d) 3
 3. If $a = \sqrt{12}$ and $b = \sqrt{3}$ then $\frac{a}{b}$ is a/an
(a) rational number (b) irrational number (c) non-terminating (d) fraction
 4. The simplest form of $\left(\frac{64}{729}\right)^{-1/6}$ is
(a) $\frac{2}{3}$ (b) $\frac{3}{2}$ (c) $\frac{4}{3}$ (d) $\frac{3}{4}$
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5. If $x = (7 + 5\sqrt{2})$, then $\left(x^2 + \frac{1}{x}\right) = ?$
 (a) 160 (b) 198 (c) 109 (d) 156
6. Value of $(1^3 + 2^3 + 3^3)^{1/2}$ is
 (a) 2 (b) 3 (c) 4 (d) 6
7. Coloured light bulbs are hung in the following pattern:
 3 red, 4 yellow, 5 green, 3 red, 4 yellow, 5 green and so on. What is the colour of 200th bulbs.
 (a) Red (b) Yellow (c) Green (d) None of these
8. There are 4 points on the 4 sides of a square as shown. How many triangles can be drawn with any 3 of the points as vertices?
 (a) 8
 (b) 12
 (c) 4
 (d) None of these
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9. If $ab + 4 = cd$ and $ba + 40 = dc$, where ab, cd, ba and dc are two digit prime numbers. Further b and d are the prime numbers digits and a, c are neither prime nor composite, find the value of $\frac{ab + ba}{cd + dc}$
 (a) 2 (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) 4
10. Find the number of pair of two digit primes which remain prime even on inverting the position of its digits
 (a) 4 (b) 3 (c) 5 (d) 6

SECTION- II: ONE OR MORE THAN ONE CORRECT ANSWER TYPE

11. The remainder when any whole number is divided by 2.
 (a) 0 (b) 1 (c) 2 (d) 3
12. Every integer is a
 (a) Whole number (b) Rational number (c) Natural number (d) Irrational number
13. A rational number has non-terminating repeating decimal if prime factors of its denominator are of the form
 (a) $2^m \times 5^m$ (b) $3^m \times 7^m$ (c) $2^m \times 3^m$ (d) $3^m \times 5^m$
14. Number zero is
 (a) Natural number (b) Rational number (c) Whole number (d) Integer
15. The value of $\left(\frac{81}{18}\right)^{-3/4} \times \left[\left(\frac{25}{9}\right)^{-3/2} \div \left(\frac{5}{2}\right)^{-3}\right]$ is
 (a) $\left(\frac{3}{2}\right)$ (b) $\left(\frac{5}{3}\right)^1$ (c) 1 (d) $\left(\frac{5}{3}\right)^0$
16. Which of the following rational numbers lying between $\frac{1}{3}$ and $\frac{1}{2}$?
 (a) $\frac{5}{6}$ (b) $\frac{7}{18}$ (c) $\frac{5}{12}$ (d) $\frac{11}{24}$

17. If $\frac{p}{q}$ is a rational number, then which may be correct?
 (a) $p, q \in R, q \neq 0$ (b) $p, q \in Q, q \neq 0$ (c) $p, q \in Z, q \neq 0$ (d) $p, q \in N, q \neq 0$
18. Which of the following pairs are twin prime?
 (a) 37, 39 (b) 3, 5 (c) 11, 13 (d) 17, 19
19. Which of the following is equal to x ?
 (a) $\sqrt[12]{(x^3)^4}$ (b) $x^{12/7} - x^{5/7}$ (c) $(\sqrt{x^3})^{2/3}$ (d) $x^{12/7} \times x^{7/12}$
20. Period of a rational number is
 (a) Number of decimal places after which repetition starts
 (b) Number of decimal places after which it terminates
 (c) Number of decimal places after which first zero appears
 (d) None of these

SECTION- II: MATRIX-MATCH TYPE

21. Match the following:

Column - I

(A) π is

(B) $0.\bar{9}$

(C) $\sqrt[4]{(81)^{-2}}$

(D) If $\left(\frac{a}{b}\right)^{x-2} = \left(\frac{b}{a}\right)^{x-4}$ then x is

Column - II

(p) 1

(q) $(9)^{1/2}$

(r) A rational number

(s) An irrational number

(t) $(16)^{1/2}$

(u) $\frac{22}{7}$

- (a) (A) – (s, u); (B) – (p, r); (C) – (r); (D) – (q, r) (b) (A) – (s); (B) – (p, r); (C) – (r); (D) – (q, r)
 (c) (A) – (s); (B) – (p, r); (C) – (s, q); (D) – (q, r) (d) (A) – (r); (B) – (p, r); (C) – (q, r); (D) – (s, q)

SECTION-IV: INTEGER TYPE QUESTIONS

22. $\frac{1}{(3-\sqrt{8})} - \frac{1}{(\sqrt{8}-\sqrt{7})} + \frac{1}{(\sqrt{7}-\sqrt{6})} - \frac{1}{(\sqrt{6}-\sqrt{5})} + \frac{1}{(\sqrt{5}-2)} = \underline{\hspace{2cm}}$.

23. If $\frac{2+\sqrt{3}}{2-\sqrt{3}} = a+b\sqrt{3}$ then value of $(a-b)$ is _____.

24. The length of period of $\frac{1}{7}$ is _____.

25. If $\frac{(\sqrt{5}-1)}{(\sqrt{5}+1)} + \frac{(\sqrt{5}+1)}{(\sqrt{5}-1)} = (a+b\sqrt{5})$ then value of $\frac{b}{a}$ is _____.

Space for rough work