

Tsi-9M

Tenkas District Common Examinations  
Common Quarterly Examination - September 2022

**Standard 9**

Time: 3.00 Hrs.

**MATHEMATICS**

Marks: 100

**SECTION - A****I. Choose the correct answer:****14×1=14**

- 1) If  $B \subseteq A$  then  $n(A \cap B)$  is \_\_\_\_\_.  
 1)  $n(A-B)$                       2)  $n(B)$                       3)  $n(B-A)$                       4)  $n(A)$
- 2) Which of the following is correct?  
 1)  $\phi \subseteq \{a, b\}$                       2)  $\phi \in \{a, b\}$                       3)  $\{a\} \in \{a, b\}$                       4)  $a \subseteq \{a, b\}$
- 3) If  $A \cup B = A \cap B$  then  
 1)  $A \neq B$                       2)  $A = B$                       3)  $A \subset B$                       4)  $B \subset A$
- 4) If  $B-A$  is  $B$ , then  $A \cap B$  is  
 1)  $A$                       2)  $B$                       3)  $\cup$                       4)  $\phi$
- 5) Let  $A = \phi$  and  $B = P(A)$  then  $A \cap B$  is  
 1)  $\{\phi, \{\phi\}\}$                       2)  $\{\phi\}$                       3)  $\phi$                       4)  $0$
- 6) Which one of the following has a terminating decimal expansion?  
 1)  $\frac{5}{64}$                       2)  $\frac{8}{9}$                       3)  $\frac{14}{15}$                       4)  $\frac{1}{12}$
- 7) Which one of the following is an irrational number?  
 1)  $\sqrt{25}$                       2)  $\sqrt{\frac{9}{4}}$                       3)  $\frac{7}{11}$                       4)  $\pi$
- 8)  $0.\overline{34} + 0.\overline{34} =$   
 1)  $0.68\overline{7}$                       2)  $0.68$                       3)  $0.6\overline{8}$                       4)  $0.68\overline{7}$
- 9)  $\sqrt{27} + \sqrt{12} =$   
 1)  $\sqrt{39}$                       2)  $5\sqrt{6}$                       3)  $5\sqrt{3}$                       4)  $3\sqrt{5}$
- 10)  $4\sqrt{7} \times 2\sqrt{3} =$   
 1)  $6\sqrt{10}$                       2)  $8\sqrt{21}$                       3)  $8\sqrt{10}$                       4)  $6\sqrt{21}$
- 11) The root of the polynomial equation  $2x+3 = 0$  is  
 1)  $\frac{1}{3}$                       2)  $-\frac{1}{3}$                       3)  $-\frac{3}{2}$                       4)  $-\frac{2}{3}$
- 12) If  $x-3$  is a factor of  $P(x)$  then the remainder is  
 1)  $3$                       2)  $-3$                       3)  $P(3)$                       4)  $P(-3)$
- 13) Degree of the constant polynomial is \_\_\_\_\_.  
 1)  $3$                       2)  $2$                       3)  $1$                       4)  $0$
- 14) Complementary angle of  $64^\circ$  is \_\_\_\_\_.  
 1)  $116^\circ$                       2)  $26^\circ$                       3)  $180^\circ$                       4)  $90^\circ$

**SECTION - B****II. Answer any TEN of the following questions.****10×2=20****Q.No. 28 is compulsory.**

- 15) Define set.
- 16) Represent the following sets in Roster form?  $D = \{x : x \in \mathbb{Z}, -5 < x \leq 2\}$
- 17) Write down the proper set  $B = \{1, 2, 3\}$ .
- 18) If  $A = \{6, 7, 8, 9\}$  and  $B = \{8, 10, 12\}$  find  $A \Delta B$ .
- 19) If  $n(A) = 25$ ,  $n(B) = 40$ ,  $n(A \cup B) = 50$  and  $n(B')$  = 25 find  $n(A \cap B)$  and  $n(U)$ .

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- 20) Convert the decimal number  $0.4\bar{5}$  into the  $\frac{p}{q}$  form.
- 21) Represent  $\sqrt{3}$  on a number line.
- 22) Find the value of  $(81)^{\frac{5}{4}}$ .
- 23) Rationalise the denominator -  $\frac{3\sqrt{5}}{\sqrt{6}}$
- 24) Write the number into the decimal form  $2.00367 \times 10^{-5}$ .
- 25) Find the zeros of the polynomial of  $P(x) = 2x+5$ .
- 26)  $(3x+4y)^2$  expand the identities.
- 27) Factorise the equation  $x^2+5x+6$ .
- 28) Write the Remainder Theorem.

**SECTION - C****III. Answer to any TEN of the following.****10×5=50****Question No. 42 is a compulsory question.**

- 29) Verify  $(A \cap B)' = A' \cup B'$  using venn diagram.
- 30) In a group of 100 students, 85 students speak Tamil, 40 students speak English, 20 students speak French, 32 speak Tamil and English, 13 speak English and French and 10 speak Tamil and French. If each student knows atleast any one of these languages, then find the number of students who speak all these three languages.
- 31) If  $A = \{0, 2, 4, 6, 8\}$ ,  $B = \{x: x \text{ is a prime number and } x < 11\}$  and  $C = \{x: x \in \mathbb{N} \text{ and } 5 \leq x < 9\}$  then verify  $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ .
- 32) Find the number of subsets and the number of proper subsets of a set  $X = \{a, b, c, x, y, z\}$ .
- 33) If  $A = \{p, q, r, s\}$ ,  $B = \{m, n, q, s, t\}$  and  $C = \{m, n, p, q, s\}$  then verify the associative property of union of sets.
- 34) Find any three rational numbers between  $\frac{-7}{11}$  and  $\frac{2}{11}$ .
- 35) Find the decimal expansion of  $\sqrt{3}$ .
- 36) Arrange in ascending order:  $\sqrt[3]{2}$ ,  $\sqrt[2]{4}$ ,  $\sqrt[4]{3}$
- 37)  $3\sqrt{75} + 5\sqrt{48} - \sqrt{243}$  simplify.
- 38) Find the value of a and b if  $\frac{\sqrt{7}-2}{\sqrt{7}+2} = a\sqrt{7} + b$ .
- 39) Determine the value of m, if  $(x+3)$  is a factor of  $x^3-3x^2-mx+24$ .
- 40)  $(2x+3y+4z)^2$  expand the identities.
- 41) By using identity and evaluate  $10^3-15^3+5^3$ .
- 42) Verify  $(A \cap B)' = A' \cup B'$  by using Venn diagram.

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**SECTION - D****IV. Answer to any ONE from the following questions:****2×8=16**

- 43) Represent  $\sqrt{9.3}$  on a number line. (OR)  
Represent  $\sqrt{6.5}$  on a number line.
- 44) Draw the supplementary angle of  $110^\circ$ . (OR)  
Draw the complementary angle of  $25^\circ$ .