

GENERAL MATH 2016

Time: 30 minutes

Max. Marks: 20

SECTION "A" (MULTIPLE CHOICE QUESTIONS)

1. Choose the correct answer for each from the given options:

- (ii) $(25x^3y^4) \div (5xy^2) =$
• $5x^4y^6$ • $5x^3y^4$ • $-5xy$ • $5x^2y^2$
- (ii) If the sum of the measures of two angles is 90° , they are called:
• Complementary angles
• Right angles • Supplementary angles • None of these
- (iii) $\{1, 3, 5, 7, 9, \dots\}$ is a set of:
• Odd Number • even Number • Natural Number
- (iv) $(a - b)(a + b) =$
• $a^2 + b^2$ • $a^2 + 2ab + b^2$ • $a^2 - 2ab + b^2$ • $a^2 - b^2$
- (v) $2_5 \times 3_5 =$ • 6_5 • 5_5 • 11_5 • None of these
- (vi) The exponential form of $\log_4 64 = 3$ is:
• $4^3 = 64$ • $3^4 = 64$ • $64^3 = 4$ • $3^{64} = 4$
- (vii) The A.M. of 8, 9, 10, -9, -8 is:
• $\frac{10}{2}$ • 5 • 2 • None of these
- (viii) The sum of the measures of three angles of a triangle is:
• 180° • 90° • 360° • 45°
- (ix) $\begin{bmatrix} 1 & 2 \\ -3 & 4 \end{bmatrix} - \begin{bmatrix} 1 & 2 \\ 3 & -4 \end{bmatrix} =$
• $\begin{bmatrix} 0 & 0 \\ 6 & -8 \end{bmatrix}$ • $\begin{bmatrix} 0 & 0 \\ -6 & 8 \end{bmatrix}$ • $\begin{bmatrix} 2 & 4 \\ 0 & 0 \end{bmatrix}$ • None of these
- (x) Rate of Zakat is = • $2\frac{1}{2}\%$ • 5% • 10% • $5\frac{1}{2}\%$
- (xi) $(b - 5)^2 =$
• $b^2 - 25$ • $b^2 + 25$ • $b^2 - 10b + 25$ • $b^2 + 10b + 25$
- (xii) $2(2x^0)^2 =$ • 4 • 2 • 8 • None of these
- (xiii) If the determinant of the matrix is zero, the matrix called a/an:
• Singular matrix • Non singular matrix
- (xiv) Additive inverse of $x + y$ is:
• $x - y$ • $-x + y$ • $-x - y$ • None of these
- (xv) $\sqrt{3} \times \sqrt{3} =$ • $\sqrt{3}$ • 3 • $2\sqrt{3}$ • $\frac{1}{\sqrt{3}}$
- (xvi) The set of $\{0, 1\}$ has closure property w.r.t.:
• Addition • Subtraction • Multiplication • Division
- (xvii) $11_2 + 11_2 =$ • 22_2 • 110_2 • 11_2 • None of these
- (xviii) A line segment whose end points are two points of a circle is called a:
• Radius • Arc • Chord • None of these
- (xix) The characteristic of $\log 56761$ is:
• 4 • 3 • 4 • 3
- (xx) Σ is a Greek symbol which is called:
• Sigma • Theta • Pie • None of these

GENERAL MATH 2016

Time: 2 ½ Hours

Max. Marks: 80

SECTION "B" (SHORT-ANSWER QUESTIONS)

Note: Answer any 10 questions from the section. (50)

2. Subtract 24344_5 from 32012_5 .
3. If $\log_{10} 2 = 0.3010$, $\log_{10} 3 = 0.4771$ and $\log_{10} 5 = 0.6990$, find the value of $\log_{10} 30$.
4. A Store of food is sufficient for 250 soldiers for 21 days. For how many days the same food will be sufficient if there arrive 100 soldiers more?
5. Divide: $x^4 - y^4$ by $x - y$
6. Find the multiple inverse of : $A = \begin{bmatrix} 1 & 2 \\ 3 & 7 \end{bmatrix}$
7. If $A = 2x^3 - 4x^2 - 5$, $B = 4x^3 - 9x^2 - 8x + 3$ and $C = -6x^2 - 3x^3 + 2 - 5x$, find the value of $A + B + C$.
8. Find the cube of $3a - 2b$.
9. 8 students obtained 48, 16, 10, 45, 12, 36, 45 and 32 marks respectively in English. Find their median.
10. Find the value of $x^2 + y^2$ when $x - y = -4$ and $xy = 21$.
11. 8 masons can build a 10 metre long wall in 22 days. How many masons would be required to build a 165 metres long wall in 6 days?
12. Solve: $1101_2 \times 101_2$ in base two system.
13. Simplify by using formula. $(1005)^2$
14. The measure of the central angle of the minor arc of a circle is double the measures of the inscribed angle of the corresponding major arc. Prove.
15. With the help of formula find the continued product of: $(2 - x)(2 + x)(4 + x^2)$
16. On a clearance sale the price of a bag was reduced from 64 rupees to 48 rupees. Find the discount percent.

SECTION C (DETAILED-ANSWER QUESTION)(30)

17. Simplify by using formula:

$$\frac{(4.49)^3 + 3.51 \times 3.51 \times 3.51}{(4.49) \times (4.49) - (3.51) \times (4.49) + (3.51)^2}$$

18. A woman died. Her heirs were her husband, two daughters and a real brother. A Tarka worth rupees 2700 was distributed among her heirs in the ratio $\frac{1}{4} : \frac{2}{3} : \frac{1}{12}$. Find the shares of each.
- 19.(a) Factorize: (i) $ab + xy + by + xa$ (ii) $3x^4 - 48$
(b) Find the value of $x^3 - \frac{1}{x^3}$ when $x - \frac{1}{x} = 4$
- 20.(a) For what value of q is the expression $5x^3 - 14x + q$ exactly divisible by $x - 2$?
(b) If $A = \{1\}$, $B = \{x, y, z\}$ then find $A \times B$.
21. Construct the triangle ABC when $m\overline{AB} = 5\text{cm}$, $m\overline{AC} = 4\text{cm}$ and $m\overline{BC} = 3\text{cm}$. Draw a circle passing through its vertices.