This Question Paper contains 4 Printed Pages.

16E(B)

MATHEMATICS, Paper - II

(English version)

Parts A and B

Time : 2½ Hours] ***[Maximum Marks : 50***

Part - B

Time : 30 minutes ***Marks : 15***

NOTE :-

1. *Answer **all** the questions.*
2. *Each question carries ½ mark.*
3. *Answers are to be written in the question paper only.*
4. *Marks will **not** be awarded in case of any over-writing and rewriting or erased answers.*

I. *Write the CAPITAL LETTER showing the correct answer for the following questions in the brackets provided against them.* $10 \times ½ = 5$

1. If in ΔABC, $AB^2 + BC^2 = AC^2$, then $\angle B$ = ... [.....]

(A) 30°

(B) 60°

(C) 90°

(D) 120°

2. The line $y = mx + c$ intersect the X-axis at the point ..... [.....]

(A) $(0, c)$

(B) $(c, 0)$

(C) $\left(\frac{-c}{m}, 0\right)$

(D) $\left(0, \frac{-c}{m}\right)$

3. The line parallel to Y-axis through (h, k) is ..... [.....]

(A) $x = h$ (B) $x = k$

(C) $y = h$ (D) $y = k$

4. If Mean=12.5 and Median = 12, then Mode = ... [.....]

(A) 13.5 (B) 11

(C) 11.5 (D) 10.5

5. The range of the first "n" natural numbers is ..... [.....]

(A) $\frac{n+1}{2}$ (B) $\frac{n-1}{2}$

(C) $n + 1$ (D) $n - 1$

6. If $\cos\theta = \frac{12}{13}$, then $\sin(90° + \theta)$ = ... [.....]

(A) $\frac{-12}{13}$ (B) $\frac{12}{13}$

(C) $\frac{5}{13}$ (D) $\frac{-5}{13}$

7. If $\begin{bmatrix} 3 & 0 \\ 0 & P \end{bmatrix}$ is scalar matrix, then P = ... [.....]

(A) 0 (B) 1

(C) -3 (D) 3

8. The value of the determinant $\begin{vmatrix} \cos\theta & -\sin\theta \\ \sin\theta & \cos\theta \end{vmatrix}$ = ... [.....]

(A) 0 (B) 1

(C) $\sqrt{2}$ (D) -1

9. Vacuum tubes were used in ..... generation computers. [.....]

(A) I (B) II

(C) III (D) IV

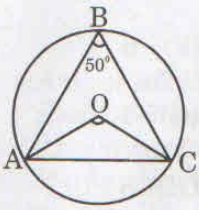
10. ..... is used as processing operation box in a Flow Chart. [.....]

(A) Rectangle (B) Circle

(C) Ellipse (D) Rhombus

II. *Fill in the blanks with suitable answers.* $10 \times \frac{1}{2} = 5$

11. 'O' is the centre of the circle.
If $\angle ABC = 50°$, then $\angle AOC =$ .....



12. If two circles having the radii 3 cm and 5 cm touch each other internally, then the distance between their centres is (in cms) .....

13. The slope of the line joining the points (4, –1) and (5, 6) is .....

14. If 1-8, 9-16, 17-24, ... are the classes of a frequency distribution, then the class interval is .....

15. For grouped data, formulae for Mode = ...

16. $\sin^2 45° + \cos^2 45° =$ .....

17. $120° =$ ..... radians .

18. If $A = \begin{bmatrix} 3 & 5 \\ 1 & 2 \end{bmatrix}$, then $A^{-1} =$ .....

19. Expand A.L.U. = ...

20. Example for Input device in Computers is .....

III. *Find the correct answer for the questions given under* ***Group-A*** *selecting them from* ***Group-B*** *and write the indicating letter in the brackets provided against each question.* $10 \times \frac{1}{2} = 5$

(i) **Group - A**

21. The number of common tangents for two externally touching circles is ..... [.....]

22. In ΔABC, if $\angle B = 90°$, $AB = 3$, $AC = 5$, then BC = ... [.....]

23. If mid point of (1, 4), (3, 6) is (K, 5), then K = ... [.....]

24. Slope of the line $x - y + 7 = 0$ is ..... [.....]

25. Arithmetic mean of 3, 4, 5, 6, 7 is ..... [.....]

Group - B

(A) 1

(B) 2

(C) 3

(D) 4

(E) 5

(F) 6

(G) 7

(H) 8

(ii) **Group - A**

26. $\tan\frac{\pi}{4}$ = ... [.....]

27. $\cos^2 0° + \sin^2 90°$ = ... [.....]

28. $\begin{vmatrix} 3 & -1 \\ 4 & 0 \end{vmatrix}$ = ... [.....]

29. If $\begin{bmatrix} 2 & K \\ 1 & 3 \end{bmatrix}$ is singular matrix, then K = ... [.....]

30. The number of major parts in a Computer is ..... [.....]

Group - B

(I) 2

(J) 3

(K) 6

(L) 1

(M) 5

(N) 4

(O) 7