1. All questions are compulsory.
2. The question paper consists of 8 questions divided into four sections A, B,C and D.
3. Section A contains 2 questions of 1 marks each, which are multiple choice questions. Section B contains 2 questions of 2 marks each, section C contains 2 questions of 3 marks each and Section D contains 2 questions of 4 marks each.
4. There is no overall choice in the paper. However internal choice is provided in 1 question of 4 marks . In questions with choices only one of the choices to be attempted.
5. Use of calculators is not permitted.

SECTION – A

Question numbers 1 to 2 carry 1 mark each. In each question, four options are provided ,out of which one is correct. Select and write the correct option.

1. $\sin 2x =$ - - - - .
   (A) $2\sin x \cos x$
   (B) $\cos^2 x - \sin^2 x$
   (C) $2\cos^2 x - 1$
   (D) $1 - 2\sin^2 x$

2. The collection of all subsets of a set is called - - - -.
   (A) Empty set
   (B) Singleton set
   (C) Power set
   (D) Union of set

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SECTION – B

Question numbers 3 to 4 , carry 2 marks each.

3. A function f is defined by $f(x) = x^2 - 4x + 6$, $-1 \leq x \leq 5$.
   Find values of $f(4)$ and $f(-1)$.

4. Find the radian measure corresponding to $22°30'$.

SECTION - C

Question numbers 5 to 6, carry 3 marks each.

5) Prove that , $\cosec A - 2\cot 2A \cos A = 2 \sin A$.

6) Define relation R.
   If $R = \{ (x, y) : y = 2x + 7$, where $x \in Z$ and $-3 \leq x \leq 2 \}$. Find R and the domain of R.

SECTION - D

Question numbers 7 to 8, carry 4 marks each.

7. If $\tan x = \frac{1}{2}$, x lies in third quadrant. Find the value of $\cot x$, $\sec x$ and $\cos x$.

8. **Attempt any one of the following**

   In a survey of university students, 64 had taken mathematics course, 94 had taken chemistry course, 58 had taken physics course , 28 had taken mathematics and physics, 26 had taken mathematics and chemistry, 22 had taken physics and chemistry course , and 14 had taken all 3 courses. Find the

   (i) number of students who had taken only one course.

   (ii) number of students who had taken Maths and physics , but not chemistry.

   (iii) Total number of students enrolled in atleast one subject.

   OR

   In a group of 100 persons, 72 people can speak English and 43 can speak French. How many can speak English only? How many can speak French only ? and how many can speak both English and French ?

*** THE END ***

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