

Roll No. 

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**Total No. of Pages: 02**  
**Total No. of Questions: 07**

**B. Sc(IT) (Sem.1<sup>ST</sup>)**  
**BASIC MATHEMATICS-I**  
**Subject Code: BS-103**  
**Paper ID: B0402**

**Time: 3 Hrs.****Max. Marks: 60****INSTRUCTION TO CANDIDATES:-**

1. Section A is compulsory.
2. Attempt any four questions from section B

**Section A**

Q 1.

- a) Sum the series  $51+ 50+49+ \dots\dots\dots 21$ .
- b) Define set.
- c) Define cardinality of a set.
- d) What is de- Morgan's law?
- e) Define any two properties of determinant.
- f) Define median and mode.
- g) Write the nth formula for A.P. and G.P.
- h) Define condition for matrix multiplication.
- i) Write the general term of  $(x + a)^n$ .
- j) Define A.M. and G.M.

**Section -B**

Q2. Expand the following:  $\left(x + \frac{1}{y}\right)^{11}$ .

Q3. Solve for x,  $\begin{vmatrix} x^2 & 0 & 3 \\ x & 1 & -4 \\ 1 & 2 & 0 \end{vmatrix} = 11.$

Q4. Calculate the median from the following distribution:

Class	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency	5	6	15	10	5	4	2	2

Q5. The first term and second term of a G.P. are 192 and -48 respectively and the last term is  $-\frac{3}{256}$ . Find the number of terms.

Q6. If the 1st term of an A.P. is 2 and sum of first five terms is equal to one fourth of the sum of next five terms. Find the sum of first 30 terms.

Q7. If A, B, C are any sets, prove that

(i)  $A - (B \cap C) = (A - B) \cap (A - C)$

(ii)  $A - (B \cup C) = (A - B) \cap (A - C).$

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