

Question No. 1 - 5 carries 3 marks each

1. Which of the following can be expressed by a Boolean formula in the Boolean variables p_1, p_2, p_3, p_4 (Negation of variable not allowed) and the connectives \wedge (AND) and \vee (OR) only:

- (A) At least three of p_1, p_2, p_3, p_4 are true.
- (B) Exactly three of p_1, p_2, p_3, p_4 are true.
- (C) An even number of p_1, p_2, p_3, p_4 are true.

2. What is the number of 1's in the binary representation of the decimal expression $16^3 \times 9 + 16^2 \times 7 + 16 \times 5 + 3$.

3. The clock frequency of a microprocessor is 100 MHz. What is its clock period?
