Assignment 3

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1) Consider two cyclic groups of order m and n respectively. What is the necessary and sufficient condition for $A \times B$ to be cyclic?
   - Either of m and n must be a prime number.
   - Both m and n must be some prime power.
   - Both m and n must be relatively prime.
   - None of the above.

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   Both m and n must be relatively prime.

2) Suppose every proper subgroup H of a group G is cyclic. Which of the following statements is true?
   - G may not be cyclic.
   - G must be a cyclic group.
   - G must be an abelian group.
   - G must be a product of two cyclic groups.

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   G may not be cyclic.

3) Consider the following statements
   S1: Any abelian group of order 45 has an element of order 9.
   S2: An abelian group of order 2 must have an odd number of elements of order 2.

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   S1 is false, S2 is true.

4) Let $GL_2(F_2) = \{A|A\}$ is a 2x2 matrix with entries in $F_2$ and $\det(A) \neq 0$ be a group defined over matrix multiplication operation. Then what is the order of $GL_2(F_2)$?
   - 4
   - 6
   - 8
   - 16

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   6

5) What is the smallest positive integer n such that there are exactly four non-isomorphic Abelian groups of order n?
   - 18
   - 12
   - 36
   - 48

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   36