Inner Product Space MCQ Questions

Q1. Given that u and v are the vectors with magnitudes 3 and 4 respectively and  
 the angle between them is 60 **°, what is the dot product of u and v?**

1. 5
2. 6
3. 3
4. 4

Q2. Let u and v are the two vectors, then the projection of u onto v is:

1. | v | cos θ, where θ is the angle between the two vectors
2. ( u · v) / | u |
3. | u | cos θ, where θ is the angle between the two vectors
4. Both a and b

Q3. The Inner Product is a generalization of Dot Product.  
 True/False

Q4. Which of the following is not an Inner Product Space?

1. Euclidean Space over real field
2. The set of the continuous functions *C* [a, b] defined over real numbers
3. The set of complex numbers over a complex field, where the inner product   
   of any two complex vectors u and v is defined as <u, v> = u · v
4. None of the above

Q5. Let V be a vector space over a field F, then the length of any vector v ϵ V   
 is called the ‘Norm’ of the vector.  
 True/False

ANSWER KEY

Q1. 6

Q2. Both a and b

Q3. True

Q4. The set of complex numbers over a complex field, where the inner product   
 of any two complex vectors u and v is defined as <u, v> = u · v

Q5. True