

Course No: **SWEN 2308**  
Course Title: **Descartes Mathematics**

Date:  
No. of Questions: **( 5 )**  
Time: **1 Hour**  
Total Grade: **( 15 ) Marks**

University of Palestine



**First Midterm Exam**  
**2<sup>nd</sup> Semester 2017/2018**

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**ANSWER ALL QUESTIONS**

**QUESTION 1: Show that  $(p \leftrightarrow q) \wedge q$  logically implies  $p$ . (2 Marks)**

**QUESTION 2: Show the validity for the following argument: “Every students has GPA less than 65 is not to be acceptable. Ali's GPA is 64. Therefore Ali is not to be acceptable”. (2 Marks)**

**QUESTION 3: Show that  $(p \wedge \neg q) \wedge (\neg p \vee q)$  is a Tautology, Contradiction, or Neither. (2 Marks)**

**QUESTION 4: Select the best *Description* for each of the following *Term*: (6 Marks)**

Term	Term No.	Description
1. Proposition		A sequence of steps, written mainly in symbols, where each step follows logically from an earlier part of the proof and where the last line is the statement being proved.
2. Tautology		If, whenever proposition P is true, then proposition Q is also true
3. Logical Implication		Is a compound proposition which is true no matter what the truth values of its simple components
4. Predicate		Any mathematical statement that serves as a starting point from which other statements are logically derived. However, it not need be proved.
5. Axiom		Describes a property of one or several objects or individuals.
6. Mathematical Proof		A general proposition not self-evident but proved by a chain of reasoning; a truth established by means of accepted truths.
7. Theorem		Is a declarative statement which is either true or false, but not both

**QUESTION 5: Construct truth tables for the following compound propositions. (3 Marks)**

**(a)  $p \rightarrow (q \wedge r)$**

**(b)  $(\neg p \vee q) \leftrightarrow \neg r$**

===== BEST WISHES =====