Course No: ITGD4103 **Course Title: Data Communications and Networks** **Date: 17 / 01/ 2011** **No. of Questions: 4** **Time: 2 hours** **Using Calculator (yes)**	**University of Palestine** **Final Exam** **First Semester** **2010/2011** **Total Grade: 100**	**Instructor Name: Dr. Anwar Mousa** **Student No.: _____** **Student Name: _____** **College Name: Faculty of Information Technology** **Dep. / Specialist: _____** **Using Dictionary (No)**

- ***Answer all Questions***

First Question	**No. of Branches (2)**	**(30/100)**
Q1 B1		**(15/30)**
a. The most significant impairments for guided media are attenuation and delay distortion, describe the causes and natures of both of them. **b. Give solutions to combat attenuation for:** **-Analog signals** **-Digital signals**		
Q1 B2		**(15/30)**
Illustrate the functions of the following SONET/SDH equipments: **a. SONET regenerator** **b. SONET Add-Drop Multiplexer (ADM)**		
Second Question	**No. of Branches (2)**	**(20/100)**
Q2B1		**(10/20)**
A Frame Relay standards include two functional layers. Define these layers and their functions		
Q2B2		**(10/20)**
Explain why Frame Relay is faster than X.25 networks.		
Third Question	**No. of Branches (2)**	**(20/100)**
Q3 B1		**(10/20)**
ATM is called Asynchronous Transfer Mode. Explain why.		
Q3 B2		**(10/20)**
Draw the structure of an ATM cell showing number of bytes for the header and payloads and number of bits for the VPI and VCI in cases of NNI (Network-Network Interface) and UNI (User-Network Interface).		
Fourth Question	**No. of Branches (3)**	**(30/100)**
Q4 B1		**(15/30)**
A message of size 10Mbits is being sent on a link with length of 3000Km. The speed of electromagnetic wave inside the link is 2×10^8 m/s and the data transmission rate is 2.5Mbps? What is the total delay (latency)?		
Q4 B2		**(15/30)**
Draw the frequency domain of a nonperiodic composite signal that has a bandwidth of 800 kHz, with a middle frequency of 560 kHz and peak amplitude of 10V. The two extreme frequencies have amplitude of 0.		
	End of Questions	