

University : Menoufia Faculty : Electronic Engineering Department : Electronics and Electrical Comm. Academic level : 3 rd Year Course Name : Digital Comm.		Date : 25/12/2019 Time : 1:30 Hours No. of pages : 1 Full Mark : 45 Marks Exam : Final Exam (Part I) Examiner : Prof. Mona
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Answer all the following Questions :

Question No 1 :

(15 Marks)

- a) *Verify Parseval's Theorem for the signal $g(t)=e^{-at}u(t)$* (10 Marks)
b) *Estimate the essential bandwidth W rad/sec of the signal $e^{-at}u(t)$ if the essential band is required to contain 95% of the signal energy?* (5 Marks)

Question No 2:

(15 Marks)

- a) *If $g(t)$ is approximated by another signal $x(t)$ as $g(t) \approx cx(t)$, find the optimum value of c that minimizes the energy of the error signal?* (10 Marks)
b) *What is the difference between baseband communication and carrier communication?* (5 Marks)

Question No 3 :

(15 Marks)

- a) *Find the relation between input and output of linear time invariant system?* (10 Marks)
b) *What are the characteristics of distortionless system?* (5 Marks)

Best Regards

Mona Shokair