


جامعة المنوفيا
قسم الاتصالات
السنة الرابعة

<p>University : Menoufia Faculty : Electronic Engineering Department : Communications Academic Level : 4th Year Course Name: Elective Course5 Broadcasting and Television Engineering Course Code : ECE 416</p>		<p>Date : 4th January 2018 Time : 3 Hours No of pages : 1 Full Mark : 70 marks Exam : Final Examiner : Professor Adel Abdel Masieh</p>
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Answer all the following questions

Question No. 1 (15 marks)

- What is : (a) Vestigial side band modulation ? (5 marks)
(b) Cliff effect in digital TV transmission? (5 marks)
(c) disadvantage of interlaced scanning? (5 marks)

Question No. 2 (12 marks)

- (a) The transfer function of the power amplifier and filters in a digital TV transmitter is : $H(\omega) = A(\omega) e^{-j\phi(\omega)}$, $\phi(\omega) = b(\omega^2 - \omega)$
Find the transfer function of the suitable equalizer and the group delay.
(6 marks)
- (b) How TV channels in DBS are arranged in the frequency range 11.7 to 12.5 GHz? (6 marks)

Question No. 3 (15 marks)

- (a) Draw the sequence 11 00 11 00 using NRZ and NRZI coding. (5 marks)
- (b) Channel 15 starts at 476 MHz. Find the carrier frequencies for the audio and video signals. (5 marks)
- (c) The log periodic antenna is used for wideband TV receivers. Draw diagram of the antenna showing all its relative dimensions. (5 marks)

Question No.4 (14 marks)

- (a) What are the different types of delays in a digital audio broadcasting (DAB) network? (7 marks)
- (b) What is the effect of power amplifier non-linearity upon the spectrum of the DAB transmitted signal ? (7 marks)

Question No. 5 (14 marks)

- (a) Define single frequency network and find the maximum distance between any two transmitters in the network if the guard time is 0.5 ms. (7 marks)
- (b) The transmitted power is 1 KW. The received power is 1 mW at a distance 'd'. Find the received power at a distance 3d in case of free space propagation and ground-reflected wave propagation. (7 marks)

Question No.	Q1a	Q1b	Q1c	Q2a	Q2b	Q3a	Q3b	Q3c	Q4a	Q4b	Q5a	Q5b
A-Knowledge and understanding	A1	A2		A3	A6	A12		A14		A11		A13
B-Intellectual skills	B9		B1		B8		B2	B5	B4		B6	
C- Professional and practical skills		C13		C7		C6			C8	C5		C1
D-General and transferable skills	D1		D2		D3		D5		D8		D11	D13