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الجامعة - ٢٠٢٠
الكلية / ١١ / ٢٠٢٠
د. عادل عبد المسيح

<p>University : Menoufia Faculty: Electronic Engineering Department : Communications Academic Level : 4th Year Course Name: Elective 5 Broadcasting and Television Engineering Course Code : ECE 416</p>		<p>Date : January 2020 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 (16 marks)

- (a) Draw the block diagram of vision and sound sections of a TV receiver
- (b) Show the color triangle and define : complementary colors, saturated colors, chrominance signal and luminance signal.

Question No. 2 (8 marks)

- (a) What are the components of the digital TV signal?
- (b) Show in detail the components of the transmitter of a digital TV signal?

Question No. 3 (10 marks)

- (a) What is interactivity in digital TV systems?
- (b) What are the levels of interactivity?
- (c) Draw in block diagram the model of a general interactive system.

Question No. 4 (8 marks)

What are the requirements for the implementation of digital terrestrial television broadcasting (DTTB) networks?

Question No. 5 (10 marks)

Two signals $d(t)$ and $b(t)$ to be transmitted using quadrature amplitude modulation (QUAM).

- (a) Derive an expression for the transmitted modulated carrier.
- (b) In the receiver, if the phase of the local oscillator is different by a value of $\Delta\Phi$ from the phase of the incoming signal, find the amplitude of the detected signal.

Question No. 6 (18 marks)

- (a) Draw the block diagram of digital audio broadcasting (DAB) transmitter, showing the details of COFDM.
- (b) What are the parameters used for the evaluation of DAB coverage?
