Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: EE401

Course Name: ELECTRONIC COMMUNICATION

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1		Explain the advantages of FM over AM.	(5)
2		What are the factors to be considered in selecting Intermediate Frequency?	(5)
3		Explain the features of interlaced scanning.	(5)
4		Illustrate PWM and state the merits and demerits.	(5)
5		Give comparison between TDMA and FDMA	(5)
6		Explain CDMA referred to satellite communication.	(5)
7		Explain the major components in a fibre optic communication link with the help of block diagram.	(5)
8		Explain the concept of frequency reuse.	(5)

PART B

Answer any two full questions, each carries 10 marks.

9	a)	Calculate the percentage power saving for the SSB signal if the AM wave is modulated to a depth of (a) 100% and (b) 50%	(4)
	b)	With the help of block diagram, explain filter method for the generation of SSB AM.	(6)
10	a)	Describe the frequency spectra of SSB and VSB signals.	(4)
	b)	With neat circuit diagram, explain the operation of Balanced slope detector	(6)
11	a)	Draw the block diagram of a super heterodyne AM receiver. Describe its operation stating the primary functions of each stage.	(10)

PART C

Answer any two full questions, each carries 10 marks.

12	a)	Draw the block diagram of a pulsed radar system. Explain the functions of each block.	(5)
	b)	Explain with the help of a neat sketch, the working of a TV picture tube.	(5)
13	a)	Calculate the maximum range of a radar system which operates at 3cm,with a peak pulse power of 500 kW,if its minimum receivable power is 10^{-13}W,the	(4)

capture area of its antenna is $5m^2$ and the radar cross sectional area of target is $20m^2$.

b) Explain the schematic for PAM generation process using flat top sampling. (6)

14 a) Explain the block schematic for PCM generation process. (6)

b) Explain the principles of differential PCM system? (4)

PART D

Answer any two full questions, each carries 10 marks.

15 a) Explain the block diagram of an earth station used for satellite communication. (6)

b) What are the advantages of optical fibre communication? (4)

16 a) Explain any two detectors used in optical fibre communication. (6)

b) Explain the networking capability of Zig-Bee? (4)

17 a) Identify any three features of Bluetooth and explain how does it benefit for wireless applications? (5)

b) Explain cell splitting technique. (5)

****

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2019

Course Code: EE401

Course Name: Electronic Communication

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

		Marks
1	With the help of block diagram, explain the working of balanced modulator.	(5)
2	Draw the block diagram of super heterodyne receiver and explain the function of mixer stage.	(5)
3	Explain the block diagram of a colour television transmitter	(5)
4	Differentiate between PPM and PWM with sketches.	(5)
5	Explain the significance of TDMA for satellite communication?	(5)
6	Explain the role of earth station in the satellite communication systems?	(5)
7	With a block schematic explain the operation of GPS.	(5)
8	Explain how cell splitting improves the capacity.	(5)

PART B

Answer any two full questions, each carries 10 marks.

9	a)	A modulating signal $v_m(t)= 5 \sin (6280\ t)$ is used to modulate a carrier signal $v_c(t)= 15 \sin(62800\ t)$. Determine the modulation index, side band frequencies, amplitudes and bandwidth. Also draw the frequency spectrum.	(5)
	b)	When do you prefer VSB signals to SSB. Why?	(5)
10	a)	With a neat schematic explain the function of each block in FM transmitter using Armstrong Modulator.	(6)
	b)	Explain following parameters of Radio receiver: i) adjacent channel selectivity and ii) image frequency rejection.	(4)
11	a)	Draw typical AGC circuit for a super heterodyne receiver and explain its working.	(5)
	b)	Explain the working principle of a FET reactance modulator for FM generation.	(5)

PART C

Answer any two full questions, each carries 10 marks.

12	a)	Derive the basic radar equation, as governed by the minimum receivable echo power Pmin.	(5)

	b)	Differentiate between interlaced scanning and progressive scanning.	(5)
13	a)	Draw and explain the block diagram of an HDTV system.	(5)
	b)	Explain the block diagram of monochrome TV receiver.	(5)
14	a)	State the significance of Nyquist rate in sampling process.	(4)
	b)	Explain the role of encoder and decoder in PCM.	(6)

PART D

Answer any two full questions, each carries 10 marks.

15	a)	Differentiate between FDMA and CDMA?	(4)
	b)	Write notes on step index and graded index fibres.	(6)
16	a)	Explain the schematic diagram of a WiFi cellular architecture.	(4)
	b)	What is co-channel interference and how is it reduced?	(6)
17	a)	Explain the features of any photodiode as an optic light detectors.	(5)
	b)	Draw and explain the schematic diagram of a typical optical fibre link.	(5)

****

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code: EE401

Course Name: Electronic Communication

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1. Obtain the expression for amplitude modulated wave. (5)
2. Draw and explain the basic block diagram of FM receiver. (5)
3. Explain the need of blanking pulses in the scanning process of television system. (5)
4. Explain with sketch, the principle of Pulse Amplitude Modulation (5)
5. Compare the basic principles of TDMA and FDMA. (5)
6. Explain the principle of any two Photo-detection methods in optical fiber communication. (5)
7. Explain the working of GPS system. (5)
8. Explain the term cell sectoring in cellular telephone system. (5)

PART B

Answer any two full questions, each carries 10 marks.

9. a) Explain vestigial side band modulation. Mention its advantages. (5)
   b) Show that the maximum transmitting power of an AM signal is 1.5 times the carrier power. (5)
10. a) Explain the phase shift method for the generation of SSB AM. (5)
    b) Explain the significance of modulation index in frequency modulation. (5)
11. a) Explain the working of Foster Seeley discriminator with circuit diagram and relevant vector diagrams. (10)

PART C

Answer any two full questions, each carries 10 marks.

12. a) Explain the basic performance factors of RADAR and derive the radar range equation. (10)
13. a) Draw and explain the block diagram of cable TV. (5)
    b) With schematic, explain the concept of pulse position modulation. (5)

14. a) Explain the process involved in pulse code modulation. (10)

PART D

Answer any two full questions, each carries 10 marks.

15. a) With block diagram, explain the encoding and decoding process in CDMA technique applicable to satellite communication. (10)

16. a) Explain the block diagram of fibre optical link. (5)

    b) Explain the Bluetooth based communication systems. (5)

17. a) Describe any two call processing methods in a cellular telephone system. (5)

    b) Explain the various interferences associated with cellular communication. (5)

****

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech S7 (S) Exam Sept 2020

Course Code: EE401

Course Name: Electronic Communication

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1. Define AM and derive the equation for AM wave. (5)
2. Explain with a neat sketch, the working of super heterodyne receiver. (5)
3. Draw and explain the block diagram of HDTV transmitter or receiver. (5)
4. Write short note on natural sampling and flat top sampling process in digital communication. (5)
5. Explain different types of optical fibre. (5)
6. Draw and explain the block diagram of earth station. (5)
7. Explain the architecture of Zigbee system. (5)
8. Explain with schematic, the architecture of Bluetooth. (5)

PART B

Answer any two full questions, each carries 10 marks.

9. a) With the help of a block diagram, explain "phase shift method" of SSB generation. Show mathematically how one of the sideband is cancelled in this method. (10)
10. a) Compare and contrast between SSB and VSB. (5)
    b) Explain the operation of balanced slope detector. (5)
11. a) Explain the generation of FM using Armstrong method with suitable block diagram. (10)

PART C

Answer any two full questions, each carries 10 marks.

12. a) Explain the block diagram of monochrome TV receiver. (10)
13. a) Derive the radar range equation and mention factors affecting range of a radar. (5)
    b) Explain with diagram, different pulse modulation techniques. (5)
14. a) With neat sketches, explain the complete system of transmission and reception of pulse code modulation. (6)
    b) Differentiate between PAM, PWM and PPM (4)

PART D

Answer any two full questions, each carries 10 marks.

15	a)	Explain CDMA satellite system with block diagram.	(10)
16	a)	With block diagram, explain the working of an optical fibre communication system	(5)
	b)	Differentiate between Wi-fi and Wi-max.	(5)
17	a)	Explain different techniques to improve the capacity in cellular system.	(10)

****

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination (Regular and Supplementary), December 2020

Course Code: EE401

Course Name: Electronic Communication

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks. Marks

1		How DSB-FC wave is generated using diode nonlinearity?	(5)
2		Explain the working of AGC circuit.	(5)
3		With relevant sketch explain the principle of operation of any one of the camera tube.	(5)
4		Explain the sampling theorem used in pulse modulation.	(5)
5		Highlight the role of FDMA in satellite communication.	(5)
6		Explain frequency hopping referred to CDMA.	(5)
7		State the basic requirements of fibre optic light sources.	(5)
8		Explain cell sectoring technique.	(5)

PART B

Answer any two full questions, each carries 10 marks.

9	a)	With the help of neat schematic, prove that the balanced modulator produces an output consisting of sidebands only.	(10)
10	a)	Explain with neat block diagram, the generation of SSB using phase shift method.	(6)
	b)	Describe the frequency spectra of SSB and VSB signals.	(4)
11	a)	With necessary circuit and phasor diagrams, explain the working of Foster Seeley discriminator.	(10)

PART C

Answer any two full questions, each carries 10 marks.

12	a)	Explain the operation of a typical cable TV system with a neat sketch.	(6)
	b)	In a television the Picture and Sound modulations are distinct. Explain.	(4)
13	a)	Differentiate between Luminance and chrominance signal in a colour television.	(5)
	b)	Draw and explain the schematic diagram of a wireless CCTV configuration. How does it differ from wired CCTV system?	(5)

14	a)	Explain the schematic for PPM generation process.	(6)
	b)	Distinguish between ideal, natural and Flat top sampling.	(4)

PART D

Answer any two full questions, each carries 10 marks.

15	a)	Explain the block diagram of a satellite repeater.	(5)
	b)	Explain SDMA referred to satellite communication.	(5)
16	a)	Explain the steps involved in call processing in cellular communication for: i) mobile to mobile, ii) mobile to wire line.	(6)
	b)	Give the difference between co-channel interference and adjacent channel interference.	(4)
17	a)	Write notes on ZigBee architecture.	(5)
	b)	With a schematic explain the principle of WiMax system.	(5)

****