

Name :
Reg No :

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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
07 THRISSUR CLUSTER**

SECOND SEMESTER M.TECH. DEGREE EXAMINATION APRIL 2018

Electronics and Communication Engineering

Communication Engineering & Signal Processing

07EC6204

WIRELESS COMMUNICATION

Time : 3 hours

Max.Marks: 60

Answer all six questions. Part 'a' of each question is compulsory.

Answer either part 'b' or part 'c' of each question

Q.no.	Module 1	Marks
1a	Define the parameters Delay spread, Coherence bandwidth, Coherence time, Doppler spread in connection with fading channels,	4
	Answer b or c	
b	Analyse Frequency selective fading and flat fading in terms of resolvable multipath components. Model the received signal in each case	5
c	Derive the Ten ray Model of Path loss for a wireless channel and comment on the power falloff?	5
Q.no.	Module 2	Marks
2a	Show that transmit diversity without power adaptation will not help in improving SNR	4
	Answer b or c	
b	What is Array gain in diversity combining? Develop and Compare array gains of MRC and EG combining methods	5
c	Deduce an expression for received SNR in 2X1 Alamouti Transmit diversity scheme	5
Q.no.	Module 3	Marks
3a	Derive the capacity of a flat fading channel with Optimum Power allocation	4

Answer b or c

b Show how Singular Value Decomposition helps in achieving multiplexing gain in MIMO systems. **5**

c What is zero-outage capacity and truncated channel inversion in connection with capacity of fading channels? **5**

Q.no.	Module 4	Marks
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4a	Explain the channel reuse strategy in cellular communication system	4
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Answer b or c

b How is the Grade of service measured for cellular communication systems? Give Erlang's formulae and explain them **5**

c How is the Signal to Interference Ratio related to the User capacity related in TDMA/FDMA and CDMA **5**

Q.no.	Module 5	Marks
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5a	Show how of the jamming rejection and multipath rejection is achieved in DSSS system	5
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Answer b or c

b With block schematics, explain how RAKE receiver mitigates multipath fading **7**

c What are the criterions for selecting codes for multiuser DSSS communication? Give the method of generating any one such code. **7**

Q.no.	Module 6	Marks
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6a	Explain power control in CDMA system	5
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Answer b or c

b With block schematic, explain MC-CDMA. Compare it with OFDM **7**

c Derive the capacity of cellular CDMA networks and explain its significance **7**