Enrollment No: _____ Exam Seat No:_____

C. U. SHAH UNIVERSITY

Winter Examination-2019

Subject Name: Wireless Communication
Subject Code: 4TE06WCM1 Branch: B.Tech (EC)
Semester: 6 Date : 16/09/2019 Time : 10:30 To 01:30 Marks : 70

Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 Attempt the following questions: (14)

a) Vocoders analyze the speech signals at _____. 1
a) Transmitter b) Receiver c) Channel d) IF Filter

b) Vocoders _____ the voice at the receiver. 1
a) Analyze b) Synthesize c) Modulate d) Evaluate

c) What is the term used by ITU for a set of global standards of 3G systems? 1
a) IMT 2000 b) GSM c) CDMA d) EDGE

d) Which of the following is not a standard of 3G? 1
a) UMTS b) Cdma2000 c) TD-SCDMA d) LTE

e) What does the number 2000 in IMT-2000 signifies? 1
a) Year b) Number of subscribers per cell
c) Number of cells d) Area (Km)

f) Which of the following is not true for TDMA? 1
a) Single carrier frequency for single user
b) Discontinuous data transmission
c) No requirement of duplexers
d) High transmission rates

g) ____ carries digitally encoded user data. 1
a) Traffic channels b) Control channels
c) Signaling channels d) Forward channels

h) IS-95 was not compatible with existing AMPS frequency band. 1
a) True b) False

i) _____ are used to resolve and combine multipath components. 1
a) Equalizer b) Registers c) RAKE receiver d) Frequency divider

j) Quantization is a _____ process. 1
a) Linear b) Direct c) Non-linear d) Indirect

k) The speech coding technique that is dependent on the prior knowledge of the signal is _____ 1
a) Waveform coders b) Vocoders
c) Sub band coding d) Block transform

l) What does ATC stands for in speech coders? 1

a) Automatic transform code b) Air traffic controller
c) Active thermal convection d) Adaptive transform coding

m) The time over which a call can be maintained within a cell without handoff is called _____ 1

a) Run time b) Peak time c) Dwell time d) Cell time

n) MAHO stands for _____ 1

a) MSC assisted handoff b) Mobile assisted handoff
c) Machine assisted handoff d) Man assisted handoff

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

A) Draw and explain the GSM system architecture. **7**

B) Explain Cell splitting and Microcell Zone concept to improve coverage and capacity of a system. **7**

Q-3 **Attempt all questions** **(14)**

A) For a regular hexagonal geometry show that co-channel reuse ratio is $Q = \sqrt{3N}$, where $N= i^2+ij+j^2$. **7**

B) A Cellular system has 32 cells; each cell has 1.6 km radius and the system reuse factor of 7. The system is to support 336 traffic channels in total. Determine the total geographical area covered, the number of traffic channels per cell and total number of simultaneous calls supported by this system. **7**

Q-4 **Attempt all questions** **(14)**

A) Briefly describe Hand-off strategies in cellular system. **3**

B) Briefly explain different channel assignment strategies. **4**

C) Derive the equation of two-ray reflection point to point mobile communication propagation model. **7**

Q-5 **Attempt all questions** **(14)**

A) Write a note on Code Division Multiple Access (CDMA). **7**

B) Explain Code Division Multiple Access (CDMA) in wireless communication with suitable diagram. **7**

Q-6 **Attempt all questions** **(14)**

A) Give complete classification of types of small scale fading. **7**

B) Explain in detail Wi-Max Technology. **7**

Q-7 **Attempt all questions** **(14)**

A) Write a note on OFDM. **7**

B) Explain free space propagation model with necessary equations. **7**

Q-8 **Attempt all questions** **(14)**

A) Explain: I-persistent CSMA, non-persistent CSMA, p-persistent CSMA. **3**

B) Describe the features of FDMA technique. **4**

C) Give Comparisons between GSM, IS-136 and IS-95 **7**