Seat No.

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MAR_APR 2025 SUMMER EXAMINATION

11731 Bachelor of Technology (NEP-2.0)

Sub. Name: Mobile Technology (ETC)

Sub. Code: 81651/81861/84928/84929

Day and Date: MAY ,26-05-2025 **Total Marks: 70**

Time: 02:30 PM To 05:00 PM

Instructions: **1. All questions are compulsory**
2. Draw neat labelled diagrams wherever necessary
3. Figures to the right indicate full marks

Q1) Solve following MCQs. **[14]**

i. Which of the following GSM services allows users to make and receive calls?
A. SMS (Short Message Service)
B. Circuit-switched voice communication
C. MMS (Multimedia Messaging Service)
D. Email services

ii. In the GSM system, what does the term "handover" refer to?
A. The process of switching between different base stations as a user moves
B. The process of assigning a mobile device a unique ID
C. The process of encrypting voice calls
D. The process of decoding received signals

iii. What is the responsibility of MSC in a cellular telephone system?
A. Connection of mobile to base stations
B. Connection of mobile to PSTN
C. Connection of base station to PSTN
D. Connection of base station to MSC

iv. Which of the following offers a data transfer service in packet mode over the cellular network?
A. GPRS
B. TCP
C. GSM
D. None of the above

v. Circuit-switched data services in cellular networks offer the following benefits:
A. Continuous data transmission over a fixed connection
B. Data transmission in small packets over shared channels
C. Connectionless communication with no pre-established path
D. Use of frequency bands for transmitting multiple data streams

simultaneously

vi. What does SDMA (Space Division Multiple Access) utilize to separate users?
A. Time slots
B. Frequency bands
C. Spatial separation
D. Unique codes

vii. In the two-ray propagation model, what are the two components that combine to form the received signal?
A. Line-of-sight path and the scattered path
B. Direct path and reflected path
C. Multiple scattered paths
D. Direct path and diffracted path

Q2) SOLVE ANY TWO.

a. Compare CDMA, TDMA, and FDMA. **[7]**

b. Discuss the objective of the personal communication network (PCN). **[7]**

c. Explain circuit-switched and packet-switched data services. **[7]**

Q3) SOLVE ANY TWO.

a. Analyze the types of small-scale fading. **[7]**

b. Discuss the cell splitting and sectoring for coverage and capacity enhancement in cellular systems. **[7]**

c. Discuss the characteristics of GSM. **[7]**

Q4) SOLVE ANY TWO.

a. Explain in detail the call setup procedure in GSM. **[7]**

b. Discuss HSCSD and EDGE technology. **[7]**

c. Differentiate between unicast and multicast routing. **[7]**

Q5) SOLVE ANY TWO.

a. Summarize the design constraints and issues in designing routing protocols. **[7]**

b. Compare 4G and 5G technology. **[7]**

c. Explain the architecture of the 4G LTE network. **[7]**

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (1154) B.Tech. CBCS (81651) Mobile Technology (ETC) Part 3 SEM 6
2] (101) Bachelor of Engineering (84929) Mobile Technology (ETC) Part 3 SEM 6
3] (1154) B.Tech. CBCS (84928) Mobile Technology (ETC) Part 3 SEM 6
4] (101) Bachelor of Engineering (81861) Mobile Technology (ETC) Part 3 SEM 6