

T.Y. Diploma : Sem. VI  
[EJ/ET/EN/EX]  
**Mobile Communication**  
Prelim Question Paper



Time: 3 Hrs.]

[Marks : 100

- Instructions :** (1) All questions are compulsory.  
(2) Answer each next main question on a new page.  
(3) Illustrate your answers with neat sketches wherever necessary.  
(4) Figures to the right indicate full marks.  
(5) Assume suitable data, if necessary.  
(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
1. (a) Attempt any **THREE** questions. [12]  
(i) Compare different major mobile radio systems around the world.  
(ii) Explain the Near – Far Effect in CDMA.  
(iii) What are the different services offered by GSM?  
(iv) Explain the applications of MANET.
1. (b) Attempt any **ONE** questions. [6]  
(i) Explain the operational units of a mobile cellular system with neat block diagram.  
(ii) Explain the authentication process in GSM with neat block diagram.
2. Attempt any **FOUR** questions. [16]  
(a) Describe Universal Mobile Telecommunication System (UMTS) with neat diagram.  
(b) Explain paging systems as an example of wireless communication system.  
(c) Explain soft hand-off in CDMA with neat block diagram.  
(d) Explain location updating in GSM with neat block diagram.  
(e) Describe the evolution for 2.5 GTDMA standards.
3. Attempt any **FOUR** questions. [16]  
(a) Describe the concept of frequency reuse. What are its advantages?  
(b) What are the sources & effects of interference in mobile cellular system?  
(c) Write short note on HSCSD for 2.5 G GSM.  
(d) For a mobile cluster with  $N = 21$  cells and with each cell of 3 km radius, calculate the frequency reuse distance, the co-channel reuse ratio and frequency reuses factor.  
(e) Explain local multipoint distribution system (LMDS) architecture with block diagram.
4. (a) Attempt any **THREE** questions. [12]  
(i) Explain the architecture of GSM system with neat block diagram.  
(ii) Describe how in mobile cellular system, calls are made from the landline (PSTN) to mobile with neat timing diagram.  
(iii) Explain call termination in GSM with neat block diagram.  
(iv) In detail explain application of Bluetooth?
- (b) Attempt any **ONE** questions. [6]  
(i) Compare AMPS, GSM & IS-95 (CDMA) mobile cellular systems in detail.  
(ii) Explain advantages and disadvantages of CDMA over GSM.
5. Attempt any **TWO** questions. [16]  
(a) In detail, explain the protocol structure architecture of SS-71.  
(b) Explain the Bluetooth Network operating topologies with neat sketch in detail.  
(c) Describe the GPRS network architecture in detail with neat sketch.

6. Attempt any **TWO** questions.

[16]

- (a) What are different techniques of increasing capacity in cellular systems? Explain cell splitting and sectoring in detail with neat sketch.
- (b) List the advantages of CDMA compared to FDMA and TDMA.
- (c) In detail, with neat sketch explain the control unit section of mobile phone unit.

**Paper Discussion Schedule for T.Y. Diploma Sem.VI**

Date	Day	Timing	Centre
9 April 2017	Sunday	9 a.m. to 11 a.m.	Dadar, Nerul
9 April 2017	Sunday	12 p.m. to 2 p.m.	Thane

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