SEAT No. :

**P400**

## B.E./Insem./APR-55

## B.E. (Electronics & Telecommunication) (Semester - II)

# MOBILE COMMUNICATION

## (2012 Pattern)

*Time : 1 Hour]*             *[Max. Marks : 30*

*Instructions to the candidates:*

1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Use of electronic pocket calculator is allowed.*
5) *Assume suitable data, if necessary.*

**Q1)** a) State and explain switching functions of switching system. **[6]**

b) During the busy hour a group of trunks is offered 100 calls having an average duration of 3 minutes. One of the calls fails to find a disengaged trunk. Find, **[4]**

     i) Traffic offered.

     ii) Traffic carried.

     iii) Traffic lost.

     iv) Grade of service.

OR

**Q2)** a) Explain in detail, message switching and circuit switching. **[6]**

b) Define the following terms : **[4]**

     i) Grade of Service.

     ii) Holding Time.

     iii) Call completion rate.

     iv) Congestion.

***Q3)*** a) What is mean by grading? Explain in detail progressive grading and homogeneous grading. **[5]**

   b) Design a two stage switching network for connecting 100 incoming trunks to 100 outgoing trunks. **[5]**

OR

***Q4)*** a) What is mean by common channel signaling? Explain the advantages of common channel signaling. **[6]**

   b) Calculate the unavailability of single and dual processor system with MTBF = 2200 HRS. and MTTR = 6 HRS. in 20 years. **[4]**

***Q5)*** a) Explain the different channel assignment strategies used in cellular networks. **[6]**

   b) For given path loss exponent n = 4 and frequency reuse factor of N = 7 calculate S/I ratio in a cellular system. **[4]**

OR

***Q6)*** a) Compare TDMA, FDMA and CDMA access techniques. **[6]**

   b) A spectrum of 30 MHz is allocated to a wireless FDD cellular system which uses two 25KHz simplex channels to provide full duplex voice and control channels compute the number of channels available per cell if a system. **[4]**

   i) Uses for cell reuse and

   ii) Seven cell reuse

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