Code No. : 3164

FACULTY OF INFORMATICS

B.E. 4/4 (IT) I Semester (Main) Examination, December 2010

WIRELESS AND MOBILE COMMUNICATIONS

Time : 3 Hours] [Max. Marks : 75

*Note : Answer **all** questions from Part–**A**. Answer **any five** questions from Part–**B**.*

PART – A **(Marks 25)**

1. What are the methods to improve the coverage and capacity in cellular systems ? **3**

2. Define Brewster angle. Calculate the Brewster angle for a wave impinging on ground having a permittivity of $E_r = 6$. **3**

3. Differentiate DS–SS and FH–SS. **2**

4. Briefly state the three basic propagation mechanisms. **3**

5. Define Encapsulation. **2**

6. What are the two basic groups of logical channels in GSM ? **2**

7. List the propagation models used for outdoor and indicate the specific situation for each model. **3**

8. List main features of 3rd generation. **2**

9. Differentiate between Intercell handoff and Intracell handoff. **2**

10. Briefly explain MSK. **3**

Code No. : 3164

PART – B (50 Marks)

11. Draw the block diagram of a cellular system and explain how a cellular telephone call is made between the landline and the mobile user. Draw suitable timing diagrams. 10

12. Derive and explain the free space propagation model to determine the received power at distance 'd' and relate this power to electric field. 10

13. With suitable block diagrams explain the operation of DPSK transmitter and receiver. 10

14. a) Draw and explain the architecture of GSM and its channel types in detail. 6

    b) Write a short note on various interfaces used and how a mobile call is originated in GSM. 4

15. Explain in detail the transmitter and receiver of DS–SS technique. 10

16. Briefly explain all indoor propagation models. 10

17. Write a short note on **any two** of the following : (2×5=10)

    a) Mobile TCP

    b) Snooping TCP

    c) Trunking and grade of service.