

**Babasaheb Bhimrao Ambedkar Bihar University, Muzaffarpur**  
**Directorate of Distance Education**  
**Professional / Technical 2<sup>nd</sup> Semester (Session 2014-16)**  
**Subject:- M.Sc.IT**  
**Paper – VI**  
**Model Paper (Full Marks – 70)**

**Switching & Transmission Fundamentals**

1. Define the term telecommunication. Why is the switching system needed in a telecommunication network?
2. What is simplex, half duplex and full duplex communication?
3. What is pulse dialing? Explain the function of pulse dialing in rotary dial telephone.
4. Explain the functioning of touch tone dial telephone.
5. Discuss and explain Digital Signal Transmission. List some of the advantages of Digital Signal Transmission.
6. Define Circuit Switching. Name some application software used in the switching systems.
7. What is traffic engineering? Explain the five step process of traffic engineering.
8. What is grade of service (GoS)?
9. What is hybrid? Explain the functioning of echo suppressors.
10. State some of the differences between In channel and Common channel signaling.
11. Explain data communication using PSTNs.
12. What is ASK? What is PSK/FSK?
13. Define ISTN. Name some services supported by ISTN.
14. Name some ISTN standards and their functionality.
15. Write short notes on any two of the following:
  - a) Forward Switching
  - b) Protocol Stack
  - c) Packet Switching

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**Broadband Communication**

1. Define and explain Free Space Propagation and Path Clearance.
2. Discuss and explain LOS propagation on Flat Earth.
3. What do you mean by effect of the nature of the Earth's Surface?
4. What is the role played by satellite in the wireless communication system?
5. Write Multiplexing and modulation techniques in detail.
6. What do you mean by Terminal Transmitters and Receivers?
7. What are the main aspects of satellite system design/
8. Why the down link & up link frequencies differ in case of satellite links?
9. Name the various subsystems of a space craft.
10. What are optical windows? Specify the optical wavelengths used for communication.
11. Classify the optical fiber based on structure and modes of propagation.
12. Explain the principle of LED.
13. What is lasing action in semiconductor p-n junction?
14. Indicate some of applications of optical fiber communications.
15. Write short notes on any two of the following:
  - b) Optical Fiber
  - b) Geosynchronous orbits
  - c) Transponder

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**Paper – VIII**

**Model Paper (Full Marks – 70)**

**Wireless Mobile Communication**

1. Discuss and explain concept of Cellular Communication.
2. What do you mean by Radio Propagation in Mobile Environment?
3. Write and explain Long Distance Propagation.
4. What do you mean by Global System for Mobile (GSM).
5. Discuss the Network and Switching Subsystem (NSS).
6. Discuss and explain Signaling Format.
7. Write in detail Personal Digital Cellular.
8. Discuss personal Communication network (PCN).
9. What do you mean by Mobile Integrated Radio System?
10. Write and explain Frequency Division Multiple Access (FDMA).
11. Write and explain Time Division Multiple Access (TDMA).
12. Write and explain Code Division Multiple Access (CDMA).
13. What do you mean by the description of intelligent microcell operation?
14. Define cell approach. Also explain Cellular Access Technologies.
15. Write short notes on any two of the following:
  - a) Network Management
  - b) Personal Communication Service (PCS)
  - c) Roaming

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**Paper – IX**  
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**Artificial Intelligence & Remote Communication**

1. What is AI (Artificial Intelligence)? Also explain the history of AI.
2. How is the search algorithms evaluated?
3. Discuss the heuristic search as applied to an AND/OR Graph.
4. State the steps involved in using the knowledge by AI systems. Explain in brief.
5. Name the knowledge representation schemes used in AI.
6. Show the way the famous Tower of Hanoi puzzle can be formalized in the predicate calculus.
7. Differentiate between guided media and unguided media.
8. What are the major advantages and disadvantages of microwave transmission?
9. What is multiplexing? Why is multiplexing so cost effective?
10. What function does the modem perform?
11. List three different ways of categorizing communications satellites.
12. Briefly discuss the principal elements of cellular system.
13. What are the important requirements of Wireless LANs?
14. Discuss the classic architecture of Expert systems.
15. Write short notes on any two of the following:
  - a) Cellular System Design
  - b) Geostationary Satellites
  - c) State space

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**Paper – X**  
**Model Paper (Full Marks – 70)**

**Visual basic with .NET Technology (2013-2014)**

1. Why .NET? Briefly discuss about .Net class library.
2. Discuss about types of .Net Namespace.
3. With an example illustrate arrays in VB.Net.
4. Describe in brief with examples about functions and procedures in VB.Net.
5. Create a function to find out biggest number in a array of size 10.
6. What do you mean by method overriding? Explain with example.
7. Create a simple interface using basic winforms controls.
8. List out all the basic and advanced controls in VB.Net.
9. In brief explain about SDI and MDI.
10. Discuss about Microsoft database access technologies.
11. Discuss the ODBC Architecture.
12. Describe ADO.Net Architecture.
13. Describe about database handling with XML schema.
14. What do you mean by custom control?
15. Write short notes on any two of the following:
  - b) Cellular System Design
  - b) Geostationary Satellites
  - c) State space

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**Paper – XI**

**Model Paper (Full Marks – 70)**

**Computer Architecture(2013-2014)**

1. Define Bus architecture. Also explain single Bus and two Bus organizations.
2. Discuss and explain addressing modes for implementing indirection and pointers.
3. Define addressing modes. Also explain relative addressing.
4. What are stacks and subroutines?
5. Explain the purpose of MFC signal when reading from or writing to the main memory.
6. Distinguish between Static and Dynamic RAMs.
7. Define virtual memory. Also explain memory management.
8. What is an interrupt? Also explain interrupt handler.
9. What is Booth's multiplication algorithm?
10. Explain IEEE floating point standard.
11. What is parallel vector processor?
12. What is pipelining? Explain the liner pipelining structure.
13. Explain cost performance ratio concept.
14. Explain the virtual memory concept.
15. Write short notes on any two of the following
  - a) Memory Hierarchy
  - b) Cache Memory
  - c) Indexing and Arrays.

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