Atal Bihari Vajpayee Indian Institute of Information Technology & Management, Gwalior

IT012: Next Generation Networks

Major Examination (Session 2024–25)

Maximum Time: 3 Hours   Max Marks: 60

Note: Attempt all questions. Illustrations/diagrams carry due weightage.

1. (a) Explain the layered architecture of NGN with a neat diagram. (b) Discuss how NGN enables service convergence. (10 Marks)

2. (a) Describe IMS in detail. Explain the roles of CSCF, HSS, and Application Servers. (b) Discuss one case study where IMS is implemented for multimedia services. (10 Marks)

3. (a) Differentiate between IntServ and DiffServ models for QoS. (b) How does MPLS support QoS in NGN? (10 Marks)

4. (a) Explain softswitch architecture with its functional blocks. (b) Compare softswitches with traditional circuit switches. (8 Marks)

5. (a) What is Fixed–Mobile Convergence (FMC)? (b) Discuss its significance for 5G and beyond networks. (8 Marks)

6. Write short notes on any two: (i) Security challenges in NGN (ii) Role of IPv6 in NGN scalability (iii) Future trends in NGN evolution (6 Marks)

7. Case Study: A telecom operator wants to migrate its legacy PSTN network to NGN. Outline the major steps, challenges, and benefits of such migration. (8 Marks)