(2½ hours) **[Total Marks: 75]**

N. B.: (1) **All** questions are **compulsory**.
(2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
(3) Answers to the **same question** must be **written together**.
(4) Numbers to the **right** indicate **marks**.
(5) Draw **neat labeled diagrams** wherever **necessary**.
(6) Use of **Non-programmable** calculators is **allowed**

1 **Attempt *any three* of the following:** **15**

a Explain three D's of security.
b Explain the statement that "Achieving 100 percent protection against all conceivable attacks is an impossible job"
c Write a note on Threat Vector.
d What are Application layer attacks? Explain following Application layer attacks:
  i) Buffer overflows
  ii) Password cracking
e Explain the Onion Model.
f List and explain the steps to create a Security Defense Plan.

2 **Attempt *any three* of the following:** **15**

a Explain certificate-based authentication in detail.
b Write a note on Role-based Authorization (RBAC).
c Write a note on symmetric key cryptography.
d Explain any two confidentiality risks.
e Write a note on object-level security.
f Explain different types of database backups.

3 **Attempt *any three* of the following:** **15**

a Write a note on outbound filtering.
b Explain the role of hubs and switches in network.
c Explain in detail Network Address Translation (NAT).
d Explain strengths and weaknesses of a firewall.
e Explain the importance of antenna choice and positioning.
f Explain any two types of wireless attacks.

4 **Attempt *any three* of the following:** **15**

a Explain network-based intrusion detection system in detail.
b List and explain steps to a successful IPS Deployment plan.
c Write a note on H.323 protocol that includes:
  i) Governing Standard
  ii) Purpose
  iii) Function
  iv) Known Compromises and Vulnerabilities
  v) Recommendations

[TURN OVER}

d What is Private Branch Exchange (PBX)? How will you secure PBX?
e Write a note on Access Control List (ACL).
f Explain the reference monitor concept and windows security reference monitor.

5 Attempt *any three* of the following: 15

a Explain how to protect the Guest OS, Virtual Storage and Virtual Networks in Virtual machines.
b State and explain types of cloud services.
c Explain various Application Security Practices.
d Write a note Custom Remote Administration.
e Explain the classification of Corporate physical Assets.
f Explain Locks and Entry Controls that should be considered while securing assets with physical security devices.
