Time: 2 ½ Hrs **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 labelled diagrams** wherever **necessary**.
6. Use of **Non-programmable** calculators is **allowed**.

Q1. Attempt three of the following. **15 Marks**

a. What is fault tolerance? What are Different levels of fault tolerance in Cloud computing?
b. What is Web Application Security?
c. Explain the term Ad hoc network?
d. Write a short note on Security Requirements in Wireless Sensor Networks.
e. How to protect IoT systems and devices?

Q2. Attempt three of the following. **15 Marks**

a. Write a note on Social Engineering.
b. Write short note on Gantt charts for risk management plans.
c. What are the types of disaster recovery?
d. Write short note on: a. Crisis management b. Business continuity
e. With the help of suitable example explain Vulnerability in detail.

Q3. Attempt three of the following. **15 Marks**

a. What is penetration testing what is its needs.
b. List & explain various tools used for Metasploit.
c. Define: Nessus, NMAP
d. Explain the following term: a. Auxiliaries b. Exploits
e. List down the steps for Installing Metasploit on Linux.

Q4. Attempt three of the following. **15 Marks**

a. What is password sniffing?
b. Explain following protocols: a. FTP b. TCP
c. Explain following terms: a. DNS b. UDP
d. What is NMAP elaborate?
e. What are client-side attacks give suitable example?

Q5. Attempt three of the following. **15 Marks**

a. Explain the phases of penetration Testing.
b. What are system command of meterpreter?
c. What is a modelling threat?
d. Explain the process of pivoting target network
e. Explain the process for exploiting stack based buffer overflow.

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1	**Attempt three of the following.**		**15**
a	What is the API Gateway pattern? Write down the Drawbacks of the API Gateway pattern.		
b.	What is a microservice? What are the features of Microservices?		
c.	How can Azure service fabric clusters be monitored? Explain.		
d.	Explain the different programming models supported by service fabric.		
e.	What is service fabric cluster? What are the different system services offered by service fabric cluster?		
Q. 2	**Attempt three of the following.**		**15**
a.	What are the services available on Azure stack in context of microservices application?		
b.	What is Azure Kubernetes Service? What are its capabilities? What are different tools available for development of AKS?		
c.	How is Azure Kubernetes Service monitored? Explain.		
d.	What is Azure Stack? What are the Benefits of Azure Stack?		
e.	What are the major challenges in microservices application? How does Azure help to overcome these challenges?		
Q. 3	**Attempt three of the following.**		**15**
a.	What is GIT? Explain the advantages of GIT.		
b.	Explain Software Development Lifecycle in Microsoft Azureplatform development.		
c.	What are the different components of DevOps. Explain each in brief.		
d.	What is DevOps? Explain Life Cycle of DevOps.		
e.	State and explain the DevOps services provided by Azure.		
Q. 4	**Attempt three of the following.**		**15**
a.	Explain the structure of the builds.		
b.	Explain The Strategy for defect detection.		
c.	Explain Azure Artifacts Workflow for Release Candidates.		
d..	How to define the bounds of a package?		
e.	What is observability? Write its principles.		
Q. 5	**Attempt three of the following.**		**15**
a.	Write a short note on Authentication and authorization?		
b.	Write a short note on API Keys?		
c.	State and explain the most common ways to strengthen API security.		
d.	State and explain the attributes of API architecture?		
e.	What is API value chain? Explain.		

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