

**T.Y.B.Sc. (I.T.) {SEM -V}**  
**Network Security (Paper - I)**  
**{May - 2016}**

**QP Code : 26813**

(3 Hours)

[Total Marks: 100]

- 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.

- 1 Answer any two of the following: 10**  
a. Describe ESP packet format.  
b. Write a short note on substitution cipher.  
c. What are the functions provided by S/MIME?  
d. Explain briefly three classes of intruders.
- 2 Answer any three of the following: 15**  
a. How does DES work?  
b. Discuss any two attacks on RSA Cryptosystem.  
c. What is the concept of Vignere cipher? Explain with the help of an example.  
d. What are the modes of operations in DES? Explain.  
e. Write a short note on public key cryptography.  
f. What are different types of cryptanalysis attacks? Explain.
- 3 Answer any three of the following: 15**  
a. Explain the concept of message digest.  
b. What is hash function?  
c. What is the concept of Birthday attack?  
d. Write a short note on station to station protocol.  
e. What is the key agreement?  
f. Explain DSS algorithm.
- 4 Answer any three of the following: 15**  
a. Explain the various security attacks.  
b. Explain security service "Data Integrity" in detail.  
c. Explain briefly any two security mechanisms.  
d. Write a short note on Data Confidentiality and Privacy.  
e. Explain the OSI security architecture in detail.  
f. Describe CIA Triad of computer security.
- 5 Answer any three of the following: 15**  
a. Explain the concept and working of Kerberos realm.  
b. What is the purpose of X.509 certificates? What is a chain of certificates?  
c. What is RFC 5322?  
d. List the five principle services provided by PGP and explain confidentiality in detail.  
e. What are the steps of authentication process? What are the means of authentication of user's identity?  
f. How do PGP messages support E-mail compatibility?

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**6 Answer any three of the following:**

**15**

- a. What is the role of IPSec in routing application?
- b. What are the benefits of IPSec?
- c. Explain very briefly SSL protocol stack.
- d. What is the difference between SSL connection and SSL session?
- e. What are the attributes of Security Association database?
- f. What is the concept of IKE? What are its features?

**7 Answer any three of the following:**

**15**

- a. How does worm propagate in network?
- b. What are the services of firewall?
- c. What are the contents of audit records?
- d. List and explain the classification of viruses.
- e. Explain the three different firewall configurations.
- f. List four techniques used by firewalls to control access and enforce a security policy.

**T.Y.B.Sc. (I.T.) {SEM -V}**  
**ASP.NET with C# (Paper – II)**  
**{May – 2016}**

**QP Code : 26817**

**(3 Hours)**

**[Total Marks: 100]**

- 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 two of the following:** 10  
a. Explain the working of session state in ASP.NET.  
b. List and explain the advantages of CSS over HTML.  
c. Explain framework base class library.  
d. Write short note on JQuery event functions.
2. **Attempt any three of the following:** 15  
a. What is namespace? Explain System namespace.  
b. What is garbage collection? How it works?  
c. Explain compiling and execution of a C# program.  
d. What is the difference between Read() and ReadLine()? Explain with an example.  
e. Write a short note on switch statement. What is fallthrough in switch?  
f. Distinguish between operator polymorphism and inclusive polymorphism.
3. **Attempt any three of the following:** 15  
a. Write a short note on the Systems.Collections namespace.  
b. List and explain the steps to create a delegate.  
c. Write a short note on GUI. State its advantages.  
d. Differentiate between ListBox and ComboBox controls  
e. What are the advantages of using Common Dialog Box?  
f. Explain at least five properties of TextBox Control.
4. **Attempt any three of the following:** 15  
a. Write a short note on web.cong file.  
b. Explain the various directive supported by ASP.NET page  
c. Differentiate between inline code and code behind.  
d. Explain procedure of creating and using named theme in a website.  
e. What is state management? Explain the code render block with suitable example.  
f. Explain ASP.NET page life cycle.
5. **Attempt any three of the following:** 15  
a. Describe the process of creating a user control with an example.  
b. Explain CustomValidator control.  
c. Define caching in ASP.NET. List the advantages of caching  
d. What is difference between Server.Redirect and Server.Transfer? Explain with suitable example.  
e. Explain the relation content page and master page with example.  
f. What is regular expression? Explain regex patterns.

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6. Attempt any three of the following: 15
- a. Explain command object in ADO.NET
  - b. Differentiate between DataSet and DataReader.
  - c. What is an authentication? Explain passport authentication in ASP.NET.
  - d. Explain ADO .NET object model with help of suitable diagram.
  - e. Write a short note on the GridView control.
  - f. Explain the Provider Model of ASP .NET.
7. Attempt any three of the following: 15
- a. Write and explain LINQ query syntax in brief.
  - b. What is LINQ? List the advantages of using LINQ.
  - c. List and explain jQuery selectors.
  - d. Explain DOM manipulation methods in jQuery.
  - e. List the advantages and disadvantage of AJAX.
  - f. Explain UpdatePanel control with example and properties.
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**T.Y.B.Sc. (I.T.) {SEM -V}**  
**Software Testing (Paper – III)**  
**{May – 2016}**

**QP Code : 26820**

(3 Hours)

[Total Marks: 100

- 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 two of the following:** 10
- a. What are the roles and responsibilities of a test manager?
  - b. Explain the important features of testing process.
  - c. Define Object Oriented Testing and explain four levels.
  - d. Explain equivalence class testing with example.
2. **Attempt any three of the following:** 15
- a. What is the importance of validation in software testing?
  - b. What is total quality management? Explain principles of total quality management.
  - c. With the help of a neat diagram explain Quality Management System structure. Compare mistake, error and defect.
  - d. Explain TQN in cost perspective.
  - e. State and explain different quality factors.
  - f. Discuss the process of achieving the quality.
3. **Attempt any three of the following:** 15
- a. What are the limitations of Boundary value analysis?
  - b. What is the importance of requirement testing in performing functional testing?
  - c. A rectangle program accepts four integers as lengths for four sides of length from 1 to 100, inclusively. The output of the program is to determine whether the inputted numbers can form a rectangle, square or neither of these.
    - i. Identify the valid equivalence classes for Weak Normal Equivalence Class Testing and provide two different test cases for the same.
    - ii. Identify the output based valid and invalid equivalence classes for Strong Robust Equivalence Class Testing and provide two different test cases for the same
  - d. What are decision tables? Explain with example.
  - e. What is equivalence partitioning? Explain with example.
  - f. Explain the limitations of functional testing.
4. **Attempt any three of the following:** 15
- a. Write a note on Metric Based Testing.
  - b. Explain the significance of data flow testing.
  - c. What is basic path Testing? Explain Mc'cabe cyclomatic complexity
  - d. Write a note on Data Flow Testing.
  - e. What are the advantages of structural testing?
  - f. Explain DD path and DD path graphs.

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- 5 Attempt any three of the following: 15**
- a Explain the advantages and disadvantages of Bottom Up Approach.
  - b "Integration testing is a crucial phase of testing process". Discuss,
  - c Write a short note on system testing.
  - d Write a note on Big Bang Approach of Integration Testing.
  - e What are different levels of testing? Explain.
  - f Explain the significance of Integration Testing.
- 6 Attempt any three of the following: 15**
- a Write the significance of Reliability Testing with reference to Object Oriented System Testing.
  - b Compare Conventional and Object Oriented Testing.
  - c Describe the feature of Object Oriented Software Testing.
  - d What is class testing? Explain the process.
  - e How is data flow testing done for object oriented system? Explain with an example.
  - f Differentiate between traditional software testing and object oriented software testing.
- 7 Attempt any three of the following: 15**
- a Define the term 'Efforts' and explain the different types of Efforts.
  - b Explain cause-effect diagram with an example.
  - c Why it is necessary to have test improvement model?
  - d Describe function/test matrix report. What are advantages and limitations of this report?
  - e Explain various stages in the test process improvement model.
  - f State and explain the factors affecting the effectiveness of testing.
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**T.Y.B.Sc. (I.T.) {SEM -V}**  
**Advanced Java (Paper - IV)**  
**{ May - 2016}**

**QP Code : 26823**

[Total Marks: 100

- 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 two of the following:** 10  
a) Write a short note on JOptionPane.  
b) Write a short note on JSAPI.  
c) Explain "Interceptors" in detail.  
d) Explain the MVC Pattern associated with JSF.
- 2) **Attempt any three of the following:** 15  
a. Explain "JFileChooser" component with suitable illustration.  
b. Explain the usage of JTable class of Swing.  
c. Create a GUI that splits frame window vertically. Left frame should display the list of images you assumed. Right frame should display the the image icon of the selected image.  
d. What is "progress bar" in swing? Explain the importance of it with code specification.  
e. "Swing Components are lightweight components"-Explain this statement.  
f. Write a short note on Class hierarchy of swing architecture.
- 3) **Attempt any three of the following:** 15  
a. Explain Generic servlet and HTTP servlet.  
b. Explain the importance of RequestDispatcher of servlet in inter servlet communication.  
c. Write a servlet to evaluate the expression  $base^{index}$  without using in-built function. Accept base and index values through HTML.  
d. Write an exhaustive note on "HTTPServletResponse".  
e. Explain the modus-operandi (Working methodology) behind servlet container.  
f. What is CGI? What are the issues that it has? Explain.
- 4) **Attempt any three of the following:** 15  
a. Explain the concept of "Prepared Statement" of JDBC.  
b. How does JDBC achieve disconnected-access? Explain.  
c. Explain the steps of Database connectivity through JDBC API.  
d. Explain the page directive with all its attributes. Add suitable illustration to support your answer.  
e. Explain the <jsp:action> tag in detail.

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- f. Create a JSP page that prints the cube root of the given number.
- 5) **Attempt *any three* of the following:** 15
- a. Write a model (bean) and view file (index.xhtml) to find the square value of a given number.
  - b. Explain API and Tag Libraries of JSF and their significance in detail.
  - c. Enlist the life-cycle phases of JSF and explain Restore View, Process Validation and Invoke application phases in detail.
  - d. What is EJB? Explain the significance of EJB?
  - e. How do you classify EJB? Explain.
  - f. Write a java bean that calculates LCD of two numbers. Also add servlet to call the business logic.
- 6) **Attempt *any three* of the following:** 15
- a. What are the features of Struts2? Explain briefly.
  - b. Explain the "Filter Dispatcher" component of struts.
  - c. What are the components of hibernate? Explain.
  - d. Depict the architecture of hibernate. Explain the same.
  - e. Create a simple struts application that creates an action to return "Welcome " (user name) as its execution result.
  - f. Give index.jsp in such a way that it creates UI that accepts customer details such as customer-name and feedback and submit button that sends the request to customer\_action.jsp page.
- 7) **Attempt *any three* of the following:** 15
- a. Write a session bean java source code to send the mail to the given recipient.
  - b. Explain the usage of JNDI.
  - c. What are web services? State the importance of the same.
  - d. Explain the architecture of web services.
  - e. Enlist and explain the components of java mail API that helps in sending the mail to particular recipient.
  - f. Write a short note on Naming Service and Directory Service.
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**T.Y.B.Sc. (I.T.) {SEM -V}**  
**Linux Administration (Paper – V)**  
**{ May – 2016 }**

**QP Code : 26826**

(3 Hours)

[Total Marks: 100

- 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 two of the following: 10  
a. What is GNU? Explain in detail.  
b. Explain the common rpm installation options.  
c. What are the advantages of shadow passwords over traditional password system?  
d. What is mail queue? How is it managed?
2. Attempt any three of the following: 15  
a. Enumerate the features of Linux operating system.  
b. What are rc scripts? Explain in detail.  
c. Explain the duty of the Linux system administrator in installing and configuring servers.  
d. What are the different runlevels in Linux? Explain. How can the runlevel be changed?  
e. Explain the IBM's journaling file system and SGI's extended file system.  
f. What are meta devices? What is logical volume manager? Explain.
3. Attempt any three of the following: 15  
a. Explain the /etc/profile file.  
b. Explain the different directories in /etc/sysconfig directory.  
c. Explain the network configuration tool available in Linux.  
d. What is subnetting? Explain with example.  
e. Explain the different options of NFS export.  
f. How are NFSv4 client and server configured? Explain.
4. Attempt any three of the following: 15  
a. Explain the smb.conf file.  
b. How can windows PC be connected to Samba server? What are the advantages of using Samba over NFS?  
c. How are reference clocks configured? Explain.  
d. What is a caching proxy? What are the uses of a caching proxy server?  
e. What are the different less secured Internet services? Explain each in brief.  
f. What are the services that can be started using xinetd? Explain.
5. Attempt any three of the following: 15  
a. What is domain name system? What are the different top-level domains? Explain.  
b. Explain the Host and the dig programs.  
c. What is sendmail? How is it configured?  
d. Explain the configuration process of Postfix mail server.  
e. How is vsftpd configured? Explain the important configuration files of vsftpd.  
f. How is vsftpd run over SSL? What are the SSL-related configuration directives for vsftpd over SSL? Explain.

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6. **Attempt *any three* of the following:** 15
- a. What is content negotiation? Explain with example.
  - b. What is PHP? How is it enabled in Apache web server?
  - c. What are the two principles on which digital certificates work? What information is contained in a digital certificate?
  - d. What are the virtual server configuration directives in httpd.conf? How are virtual servers configured?
  - e. How is feed file created? Explain.
  - f. Write a short note on mailing lists.
7. **Attempt *any three* of the following:** 15
- a. How are LDAP services optimized? Explain.
  - b. Explain the userdel and usermod command with options and arguments.
  - c. Explain the quota command with options and arguments.
  - d. What are the salient features of user private groups scheme?
  - e. What is Redhat packet manager? What are its components? Explain.
  - f. How can we use rpms with source tarballs? Explain.
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