

## B4.5-R4: INTERNET TECHNOLOGY AND WEB SERVICES

### NOTE:

1. Answer question 1 and any FOUR from questions 2 to 7.
2. Parts of the same question should be answered together and in the same sequence.

Time: 3 Hours

Total Marks: 100

1.
  - a) What is Apache? Does Apache act as a Proxy server? Why does not Apache include SSL?
  - b) What is FTP (File Transfer Protocol)? List some security concerns of original FTP?
  - c) What is CGI? What is the difference between CGI and JAVA?
  - d) What is Perl and why do we use it? How can you set environment variables in Perl programs?
  - e) What are the types of ActiveX Components in Visual Basic? Discuss their advantages and disadvantages.
  - f) What are the most important features of Java? What is byte code? How does Java achieve platform independence?
  - g) 'XML is a simplified subset of SGML and HTML.' Is the statement true or false? Justify your answer.  
(7x4)
  
2.
  - a) What is the difference between unicast, broadcast and multicast traffic? Give an example of a unicast and a broadcast protocol. Explain how the broadcast method is used on the Internet.
  - b) Describe the format of IP datagram clearly explaining meaning of all the fields.
  - c) Look at the 40 byte dump of an IP packet containing a TCP segment below:  
45 20 03 c5 78 06 00 00 34 06 ca 1f d1 55 ad 71 c0 a8 01 7e  
00 50 9a 03 3e 64 e5 58 df d0 08 b3 80 18 00 de 00 02 00 00  
Identify all the fields of the IP and TCP header.
  - d) Describe in brief the digital audio encoding format: MP3.  
(6+6+4+2)
  
3.
  - a) What are the different layers in the 3-Tier Architecture used for Web applications? What are the advantages of using layers (give three advantages) and how the work is divided among these layers.
  - b) What is Java Server Pages (JSP) technology? What is the advantage of JSP with respect to:
    - i) Active Server Pages (ASP)
    - ii) Pure Servlet
    - iii) JavaScript
    - iv) Static HTML
  - c) What is UDDI? What are its benefits? How UDDI is related to SOAP and WSDL?  
(6+6+6)

4.

- a) What is Real Time Transport Protocol (RTP)? Why RTP is usually used in conjunction with the Real-Time Transport Control Protocol (RTCP)? RTP runs on top of another transport layer protocol – most often the unreliable underlying protocol rather than reliable one. Why?
- b) Explain the image file format: JPG and GIF. If an image is 3000x2000 pixels, how many bytes will be needed to store this image in RGB color? (Hint: RGB color requires 3 bytes per pixel.)
- c) Why is it necessary to compress files? What are major steps for JPEG compression?
- d) What do you understand by the term animation?

(6+4+4+4)

5.

- a) What are the reasons for selecting LAMP software stack instead of combination of other software programs, servers and operating systems? What are the reasons that make MySQL a popular database?
- b) How to combine XML document with a signature? How does XML signature provide for non-repudiation?
- c) What is Encryption and Decryption? Explain using an example how asymmetric-key-pair consisting of a public-key and private-key is used by Public-key encryption for encryption and decryption.

(6+6+6)

6.

- a) Is cookie an executable file? How do cookies work? How cookies can be created?
- b)
  - i) What is Applet? How is it different from servlet?
  - ii) What are Java components? Name three component subclasses that support painting.
  - iii) What is a package? Which package is imported by default? Is package statement mandatory in a Java source file?
  - iv) Name the eight data types which are available in Java? Explain Polymorphism?
  - v) Does Java support multiple inheritance? Why?
  - vi) What is JVM? How is it different from JDK? Is JVM a compiler or an interpreter?

(6+12)

7. Write short notes on **any three** of the following:

- a) TCP/IP protocol stack
- b) Internet Group Management Protocol (IGMP)
- c) Virtual Private Network (VPN)
- d) Java and the World Wide Web
- e) Streamed data transfer

(6+6+6)