

BITS, Pilani-Dubai,Campus  
Knowledge Village,Dubai  
IVth Year Second Semester 2004-2005  
Degree:B.E.(Hons) Branch:C.S.E

COURSE NO. : EA UC451

COURSE TITLE : : Internetworking Technologies

Time :3 hrs  
(Weightage =40%)

Comprehensive exam  
Closed book

Date:31-5-2005  
Max Marks:70

*Answer all the questions in part A and part B*

Part -A (All questions carry equal marks 10 \*2=20 M)

- Q1. What is meant by reservation merging in RSVP protocol ?
- Q2. What is the need for digital certificate?
- Q3. Outline the relative merits and demerits of shortest seek time first disk scheduling compared to first come first serve disk scheduling.
- Q4. What sort of infrastructure is required to do the network management?
- Q5. What sort of issues that have to be handled for key and certificate management?
- Q6. Outline the relative merits of digital audio signals compared to analog audio?
- Q7. With relevant examples outline the networks that has different classes of performance.
- Q8. Briefly outline the protocols for multimedia traffic.
- Q9. What are the different models that should be possessed by an intelligent agent ?
- Q10. why SSL type of security is not suitable for web services ?

Part-B (All questions carry equal marks 5 \*10=50 M)

- Q1a). What are the advantages of messaging over RPC ?
- b) Outline with relevant diagrams the different techniques of messaging with relevant examples.
- c) Outline what is meant by JMS ?
- d) What are the types of messages supported by JMS ? (2.5+2.5+2.5+2.5)
  
- Q2. a) With relevant diagrams outline how a web service is located and consumed by a client ?
- b) With relevant examples outline the protocols that are used for invoking web service from a web client ?
- c) Outline the three views of UDDI data structure ? (3.3 +3.3 +3.4)

Q3a) Outline the differences when an application is invoked using RPC as well as LPC calls ?

b) Outline the steps involved in a RPC call from the client to server ?

c) Briefly outline the two techniques using which RPC mechanism can be implemented ?

d) Specify the type of RPC in Microsoft and java and OMG organizations. (2.5 +2.5 +2.5 +2.5)

Q4.a) Compare the relative merits and demerits of symmetric key encryption, asymmetric key encryption and hybrid encryption.

b) What is meant by applying digital signature using hashing?

c) How a person called Alice can send a signed and encrypted message to another person called Bob ?(List out the steps) (3.3 +3.3 +3.4)

Q5.a) What are the main differences between streaming multimedia information using HTTP and RTSP ?

b) Outline the steps involved in transferring a packet using RTSP protocol from a multimedia server to a web browser client ?

c) Outline the difference in congestion control and flow control in a network?(3.3 +3.3+3.4)

BITS, Pilani-Dubai, Campus  
Knowledge Village, Dubai  
IV th Year Second Semester 2004-2005  
Degree: B.E.(Hons) Branch: C.S.E

**COURSE NO. : EA UC451**

**COURSE TITLE :: Internetworking Technologies**

Time : 50 mts  
(Weightage = 20%)

TEST: 2  
Open book

Date: 24-4-2005  
Max Marks: 30

Answer all the questions (Books and class notes are permitted )

Q1. a) Explain the need for digital signing of messages. (2 Marks )

b) Using appropriate diagram *explain clearly the steps* involved in exchange of digitally signed message along with the certificates between Alice and BOB.  
( 4 Marks)

Q2a) In terms of mobility bring out the difference between applet and aglet. (3 Marks)

b) With the help of an example clearly specify how RPC-based client-server computing paradigm can be simplified using mobile agents. (3 marks)

Q3a). With relevant example outline clearly the Trade-off between

Seek & rotational delay vs Maximum response time in case of accessing Multi media information from hard disks. (3 marks)

b) With relevant diagrams outline the drawbacks of EDF algorithm and how the same can be overcome using scan-edf algorithm for reading multimedia information. (3 marks)

Q4. a) What is the difference between fragmentation header and the header needed for sending jumbo gram packets? ( 3 marks)

b) Specify the reasons which makes processing of IPV6 headers faster compared to IPV4 headers ? (3 Marks)

Q5. a) In the case of NMS using SNMP why there is a need for Trap message? In what way it differs from other commands of SNMP protocol? (3 marks)

b) Outline clearly the need for Inform-Request message in case of SNMP protocol? (3 marks)

BITS, Pilani-Dubai,Campus  
Knowledge Village,Dubai  
IV th Year Second Semester 2004-2005  
Degree:B.E.(Hons) Branch:C.S.E

COURSE NO. : EA UC451

COURSE TITLE :: **Internetworking Technologies**

Time :30 mts  
(Weightage =10%)

Marks: 14 QUIZ:1

Date:24-3-2005

All questions carry equal marks

Q1.What is the difference between IP broadcast and IP multicast ?

Q2..What are the two important fields in RTP packets that can be used for synchronization of audio and video ?

Q3.IN RSVP whether reservation message is sent periodically or one time only ?

Q4.Justify the answer for the question 3

Q5.What is the difference in bandwidth seen by TCP and RSVP protocol ?

Q6. In RSVP when failure of policy control and success of admission control can take place ?

Q7. For storing 10 secs of digital audio information how much max disk storage is needed ?

Q8. List out any two differences between HTTP and RTSP streaming

Q9. The routers are able to process the IPV6 headers faster compared to IPV4 headers because of a) \_\_\_\_\_ and b) \_\_\_\_\_

Q10. In the case of mobile IPV6 node the \_\_\_\_\_ address remains unchanged

Q11. In the case of IPV6 if a packet has to be processed at every router on the way to destination it can be achieved using the ----- type of header.

Q12. Jumbogram packets are transmitted using the ----- type of IPv6 header.

Q13. What is main advantage of public key encryption over private key encryption ?

Q14. What is the need for digital certificate ?

BITS, Pilani-Dubai,Campus  
Knowledge Village,Dubai  
IV th Year Second Semester 2004-2005  
Degree:B.E.(Hons) Branch:C.S.E

COURSE NO. : EA UC451

COURSE TITLE : : **Internetworking Technologies**

Time :30 mts  
(Weightage =10%)

Marks: 14 QUIZ:1

Date:24-3-2005

All questions carry equal marks Answering and evaluation scheme

Q1. What is the difference between IP broadcast and IP multicast?

Using IP broadcast we can send information to multiple receivers from a sender simultaneously (May be only few members of the group may be interested)

Using IP multicast we can send information to a group of selective receivers who are interested in the data using multicast address.

Q2. What are the two important fields in RTP packets that can be used for synchronization of audio and video ?

Time stamp and sequence number

Q3. IN RSVP whether reservation message is sent periodically or one time only ?  
Sent periodically

Q4. Justify the answer for the question 3

The reservation in RSVP is done using softstate.

Q5. What is the difference in bandwidth seen by TCP and RSVP protocol ?

TCP sees a fluctuating bandwidth whereas RSVP sees a constant bandwidth

Q6. In RSVP when failure of policy control and success of admission control can take place ?

The router has enough resource to admit the request but the request does not have the desired privileges for making request.

Q7. For storing 10 secs of digital audio information how much max disk storage is needed ?

8000\*8\*10 bits of data needed.

Q8. List out any two differences between HTTP and RTSP streaming

HTTP is a stateless whereas RTSP is a stateful  
HTTP is a non interactive protocol whereas RTSP is interactive

Q9. The routers are able to process the IPV6 headers faster compared to IPV4 headers because of a) Fixed length of headers and b) no header checksum

Q10. In the case of mobile IPV6 node the -----home----- address remains unchanged



Q11. In the case of IPV6 if a packet has to be processed at every router on the way to destination it can be achieved using the -----Hop by hop option----- type of header.

Q12. Jumbogram packets are transmitted using the -----hop by hop option----- type of IPv6 header.

Q13. What is the main advantage of public key encryption over private key encryption ?

Improved Security in distribution of private keys

Q14. What is the need for digital certificate ?

To authenticate that the public key is genuine and not a bogus one

**BITS, Pilani-Dubai, Campus, Knowledge Village, Dubai**

**IV th Year First Semester 2004-2005**

**Degree: B.E. (Hons) Branch: C.S.E Test: 1**

**Internetworking Technologies**

**All questions carry equal marks Time-50mts  
(Closed book) Max Marks:30 weightage:20 marks**

Q1. Outline the difference between using RSVP and RTP/ RTCP for achieving QOS in IP networks (6 marks)

Q2. Outline the difference between best effort, deterministic and statistical classes of networks with relevant examples. (6 marks)

Q3. Outline the difference between true streaming and HTTP steaming of multimedia information. (6 marks)

Q4. Consider a super VGA (1024 \* 768) screen at a refresh rate of 25Hz. The total horizontal lines are 768.

a) Find the required sampling rate.

b) Find the maximum frequency of the analog video signal that can be displayed in the above scenario. (3 + 3 marks)

Q5. Outline the steps involved in streaming multimedia information from a multimedia server to media player using RTSP protocol? (6 marks)