

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2079 Jestha

Exam.	Back		
Level	BE	Full Marks	80
Programme	BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Internet and Intranet (CT 754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Discuss the need of Domain Name System (DNS) in an Internet / Intranet environment. Also explain the services provided by DNS. [4+6]
2. Consider sending a 6000 bytes datagram into a link. How many fragments are generated and how the packets are transferred from source to destination in case of IPV6? Assume MTU between link by yourself and explain your answer appropriate figure. [10]
3. Explain what conditional GET is and also explain the role of conditional GET in web browsing? What are the essential components of 3-tier client/server architecture? [4+4]
4. Explain different type of virtual hosting with an example. Write down the major steps while configuring named based virtual hosting. [3+5]
5. Describe how content distribution network reduces the delay in receiving a requested object. Will content distribution reduces the delay for all objects requested by a user? Explain your answer with appropriate figure. [8+2]
6. Design the redundant network for XYZ Company with 5 departments including ISP which are around 400 m apart from each other. Four departments have 2 labs each with 24 computers in each room. ISP contains server farm with server like DNS, DHCP, Email, FTP, NMS and webserver and the main internet routers which will be connected to upstream provider. Propose appropriate equipment (L1, L2, L3 and L5), physical wires, IPs needed and security devices needed for the network design. [10]
7. Define the terms internet, intranet extranet and explain the role each plays in e-business. [8]
8. How internet should evolve to support better multimedia? Explain different classes of multimedia application with suitable example. [4+6]
9. Write short notes on: [2×3]
 - a. Cookies
 - b. AJAX

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2079 Shrawan

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Year / Part	IV / II	Time	3 hrs.

Subject: - Internet and Intranet (CT 754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
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1. Explain with internet hierarchy about how our country possible to access the internet? Provide your clarification that satellite link can be used as Internet backbone? Is it possible that Ethernet cable can be used as internet backbone and why? [3+3+2]
2. List the advanced features of IPV6. How differently IP datagram fragmentation is carried out in IPV4 and IPV6. [2+8]
3. What is n-tier architecture? Explain. Describe about the different headers used in E-mail Message protocol.
4. If you were a system administrator than how do you maintain security in the system? Is the persistent connection reduced the congestion and how? [3+3]
5. Explain the concept of Proxy load balancing. Firewalls and Virtual Private Network in detail along with illustrative diagrams. [4+3+3]
6. Suppose, you are hiring for network consultant by IOE network management in Chitwan Engineering Campus, Rampur. IOE purchased a IP 240:4206::/32 from APNIC for college. Design the redundant/loop free intranet logical and physical network for Chitwan College which has proposed for six programs in bachelor level three head of departments (DoEC, DoCA and DoEM) block and a server room. Server room contains DNS, Email, WEB, and Database servers and each department has 40 computers with wireless devices. Propose appropriate tools (L1,L2,L3, Firewalls, WAF), physical links for intranet network and also make the BOQ. [12]
7. What is VPN and tunneling? How do tunneling works? List out different tunneling protocols and discuss their merits and demerits. [2+4+4]
8. What is VoLP? How has VoLP changed the mechanism of communication in today's context? Discuss. Describe the different types of cloud services with example. [5+5]
9. Write short notes on: (Any Two) [2×2]
 - a) WYSIWYG
 - b) Cookies
 - c) N-Tired client/server architecture

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2078 Chaitra

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Internet and Intranet (CT 754)

Candidates are required to give their answers in their own words as far as practicable.

Attempt All questions.

The figures in the margin indicate Full Marks.

Assume suitable data if necessary.

How is internet governed? Discuss the role of IANA in regulation of the internet. Explain the IPV6 Address distribution plan of IANA. [5+5]

If "We Have Enough Addresses Today". Then, why should we bother implementing IPv6? Differentiate the fragmentation process among the IPv4 and IPv6 address. Suppose a data packet has 4000 bytes and MTU of 1500 bytes, find the no of fragments and packet size of each fragment for IPv4. [3+3+4]

What is PGP? Explain the operation of PGP for authentication and confidentiality with necessary diagrams. [2+8]

What is web server? How is web server different to web site? Discuss in brief. What does different HTTP status codes signify? Explain with few common codes. [5+5]

To manager server for load balancing, which technique will you use and how? Write down the steps to configure the IP based and Name based virtual hosting in apache server. [4+4]

Provide IT infrastructure details for a government school with 4 departments including ISP department which are around 500 meters apart from each other. Three departments have 5 labs each with around 24 computers in each room. ISP contains server farm with server like DNS, DHCP, E-mail, FTP and webserver and the main internet router which will be connected to upstream provider. Propose appropriate equipment (L1, L2 and L3) and physical wires for the network design. [12]

What is VoIP and IP interconnection? Explain the features of STP. [2+4+4]

How does RFC help in the development and distribution of internet? What are the CDNs based approach on the content cached and refreshed? Explain with clean diagram. [3+3]

Write short notes on: (Any Two) [2×2]

- AJAX
- Digital Business vs Internet Commerce
- Group communication

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2078 Kartik

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Year / Part	IV / II	Time	3 hrs.

Subject: - Internet and Intranet (CT 754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
 - ✓ Attempt All questions.
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- With proper diagram, explain the hierarchy by which IANA manages the internet number resources to ensure global interoperability. [3+7]
 - What are the differences between IPv4 and IPv6 addressing? Write in brief with header structure of both. [4+6]
 - With necessary diagrams, explain in detail how PGP ensures the security of email messages. [10]
 - Explain what conditional GET is and also explain the role of conditional GET in web browsing? What are the essential components of 3-tier client/server architecture? [4+4]
 - Suggest a suitable proxy array load balancing mechanism for the large ISP. With appropriate diagram, describe the functionalities that RADIUS server provides to organizations and ISPs. [4+6]
 - What are the guidelines to design proper network system? Considering these factors, propose a redundant network design architecture in hierarchical form with a proper intranet design for a college having four departments namely Civil (20 PCs), Electronics (20 PCs), Computer (45 PCs) and IT (30 PCs). Each department has managed own DHCP server. IT department has managed FTP server, HTTP server and DNS server as well. Use suitable L1, L2 and L3 devices, physical wires, patch cords, patch panels and wireless access points. Also prepare proper specification sheet. [2+6+2]
 - Explain different type of virtual hosting with example. Write down the major steps while configuring the name based virtual hosting. [4+6]
 - Write short notes on: (Any three) [3×4]
 - Cookies
 - PHP
 - IP interconnection
 - xDSL

TRIBHUVAN UNIVERSITY
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Examination Control Division
2077 Chaitra

Exam.	Regular		
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Year / Part	IV / II	Time	3 hrs.

Subject: - Internet and Intranet (CT 754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
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- ✓ Assume suitable data if necessary.

1. Explain ISPs and how they are interconnected and also explain distinguishing feature of a tier 1, tier 2 and tier 3 ISPs. [4+6]
2. Describe the IPV6 header to justify the statement "IPV6 have better header format to support real time applications like: video conferencing". Describe IP datagram fragmentation process in IPV6. [5+5]
3. What do you think are the features that a web browser needs to incorporate? Compare and contrast among HTTP, SMTP and PGP. [8]
4. Explain different type of virtual hosting with an example. Write down the major steps while configuring named based virtual hosting. [3+5]
5. Describe how content distribution network reduces the delay in receiving a requested object. Will content distribution reduces the delay for all objects requested by a user? Explain your answer with appropriate figure. [8+2]
6. Design the redundant network for IOE Pulchowk campus with 4 departments including ISP which are around 300m apart from each other. Three departments have 4 labs each with 24 computers in each room. ISP contains server farm with server like DNS, DHCP, Email, FTP, NMS and webserver and the main internet router which will be connected to upstream provider. Propose appropriate equipment (L1, L2 and L3) and physical wires for the network design. [10]
7. Define the terms internet, intranet and extranet and explain the role each plays in e-business. [8]
8. What is an electronic payment system? What are the advantages of having e-commerce over extranets? What are its types and advantages? [2+2+6]
9. Write short notes on: (Any Two) [2×3]
 - a) WYSIWYG
 - b) DHCP
 - c) AJAX

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Internet and Intranet (CT754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Discuss the roles of IANA. Explain ISP and how do they interconnect? Show the interconnection of tier1, tier2 and tier3 ISP. [3+2+3]
2. Describe IPv4 header structure with suitable diagram. Describe internet RFC along with its streams. [6+4]
3. With regards to HTTP protocol, write the difference between persistent and Non Persistent connection. Why HTTPS is not used for all web traffic? [5+3]
4. Why do you need AJAX programming? Explain DOM tree and Rendering tree used for the rendering of a web page. [2+8]
5. What is RADIUS server used for? Explain configuration of RADIUS server along with proper network architecture. How CARP works? [5+3]
6. Design the redundant/loop free intranet for a Bank having 5 branches in different locations with a central internet department. Internet department contain DNS, DHCP, Email, FTP, Webserver and Database server. The internet department has been implemented the security mechanisms like firewall and IDS and VPN. Each branches have 50 computers, each is provided internet facility. The Bank has purchased a network of 240A0:4206::/32 from APNIC. Propose appropriate equipment (L1, L2 and L3) and physical links for the intranet design with proper IP addresses allocation. [10]
7. Compare internet, intranet and extranet in terms of their benefits and drawbacks. Briefly explain IPSec components and its features. [6+4]
8. Write short notes on: [2×4]
 - a) Universal Internet Browsing
 - b) Virtual Web Hosting
9. What is VOIP? Describe briefly SaaS, PaaS and IaaS as service models of cloud. [2+6]

Exam.	Regular		
Level	BE	Full Marks	80
Programme	BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Internet / Intranet Technology (CT754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Explain ISPs and how they are interconnected and also explain distinguishing feature of a tier-1, tier 2 and tier 3 ISPs. [4+6]
2. List the advanced features of IPv6. Describe IPv6 header format with suitable diagram. Describe internet RFC along with its streams. [10]
3. What is PGP? Explain the operation of PGP for authentication and confidentiality with necessary diagrams. [10]
4. Explain different types of web virtual hosting mechanism with an example. Write down the major steps while configuring named based virtual hosting. [5+5]
5. Explain RADIUS server with its functions. What is cookie? What are the types of cookie? Explain. [5+5]
6. Design the redundant/loop free network for 3 stories XYZ insurance company having 5 departments including Internet department. Internet department contain serve farm with server links DNS, DHCP, Email, FTP, insurance application server and webserver. The main internet routers which will be connected to multiple upstream provider. Beside Internet department, other 4 departments have 20 computers each. Propose appropriate equipment (L1, L2 and L3) and physical wires for the network design. [12]
7. How internet should evolve to support better multimedia? Explain different classes of multimedia application with suitable example? [4+6]
8. Write short notes on: (any two) [4+4]
 - i) WYSIWYG authoring tool
 - ii) HTTP
 - iii) FTP
 - iv) Proxy land balancing

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	80
Programme	BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: - Internet and Intranet (CT754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. Define and compare Internet and Intranet. Discuss the need and use of Domain Name system (DNS) over the internet. [4+4]
2. Compare the IP datagram fragmentation process in IPv4 and IPv6 with an example. [10]
3. Explain the role of conditional GET in web browsing? What are the essential components of 3-tier client/server architecture? [4+4]
4. How HTTP works? Explain different methods of HTTP. Write the concept of virtual hosting. [3+3+4]
5. What is intranet implementation? Explain the procedure to follow for intranet implementation. Write the concept of Virtual Private Network (VPN). [2+4+4]
6. Design the redundant network for IOE Pulchowk campus with 4 departments including ISP department which are around 400m apart from each other. Three departments have 5 labs each with around 24 computers in each room. ISP contains server farm with server like DNS, DHCP, Email, FTP and webserver and the main internet router which will be connected to upstream provider. Propose appropriate equipment (L1, L2 and L3) and physical wires for the network design. [12]
7. Explain the Inter-relationship of e-commerce with internet. Explain the concept of cloud and grid computing in brief. [5+5]
8. Write short notes on: (Any three) [3×4]
 - a) Proxy load balancing
 - b) xDSL
 - c) Internet ecosystem
 - d) E-mail agents and third functions

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Level	BE	Full Marks	80
Programme	BCT	Pass Marks	32
Year / Part	IV / II	Time	3 hrs.

Subject: -Internet and Intranet (CT754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Assume suitable data if necessary.

1. What is the application of TCP/IP? Compare IPv4 and IPv6 on the basis of routing. [4+4]
2. Define client/server architecture with its benefits and drawbacks. Discuss the FTP client/server operation with its types. [4+6]
3. What are the guidelines to design proper network system? You are asked to design a Network System for the organization which has 2 different buildings at less than 500 meter distance. The main building is 5-storey building which has Network/Server room in third floor. There are 3 computer training labs in 1st, 2nd and 3rd floor consisting of 20 computers at each lab. You need to provide internet to all lab computers as well as office computers for staffs. Connect two buildings from Fiber network. You can suggest multiple numbers of Wireless AP and/or Wired Network systems for your requirement. Prepare the required technical documents and suggest a network for the organization. [2+10]
4. How are the ISPs interconnected? Explain distinguishing feature of a tier-1, tier 2 and tier 3 ISPs. [4+6]
5. Explain different type of virtual hosting with an example. Write down the major steps while configuring named based virtual hosting. [4+6]
6. Describe how content distribution network reduces the delay in receiving a requested object. Will content distribution reduce the delay for all objects requested by a user? Explain your answer with appropriate figure. [8+2]
7. What is VOIP and IP Interconnection? Discuss basic operation of VOIP. [8]
8. Write short notes on: (any three) [3×4]
 - a) Content Filtering
 - b) AJAX
 - c) HTTP
 - d) Cookies

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Subject: - Internet and Intranet (CT754)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt **All** questions.
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- ✓ Assume suitable data if necessary.

1. What is internet backbone network? Explain the major components/organization of internet ecosystem. [2+8]
2. Define internet RFC. How differently IP datagram fragmentation is carried out in IPv4 and IPv6? Explain each with example. [2+8]
3. What do you mean by SMTP? Explain the types of FTP and its working principle. [2+8]
4. How are XML and JAVA SCRIPTS used together to develop client-side web applications? [2+8]
5. NITC building had 4 research labs each having 24 computers. All labs are located at the 1st floor. Each computer is to be connected in the network from NCR located at 2nd floor. Prepare a bill of quality (BoQ) with necessary network resources required for complete networking. The BoQ must include estimation of all network resources required. [12]
6. Compare intranet and internet in terms of benefits and drawbacks. Discuss in detail about firewall and content filtering. [4+6]
7. What do you mean by IRC and FoIP? Discuss in detail about the building blocks of e-commerce. [4+6]
8. Write short notes on: [4+4]
 - a) AJAX –
 - b) Virtual web hosting
