

JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS
UNIVERSITY EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE
INFORMATION TECHNOLOGY
1ST YEAR 1ST SEMESTER 2016/2017 ACADEMIC YEAR
MAIN CAMPUS

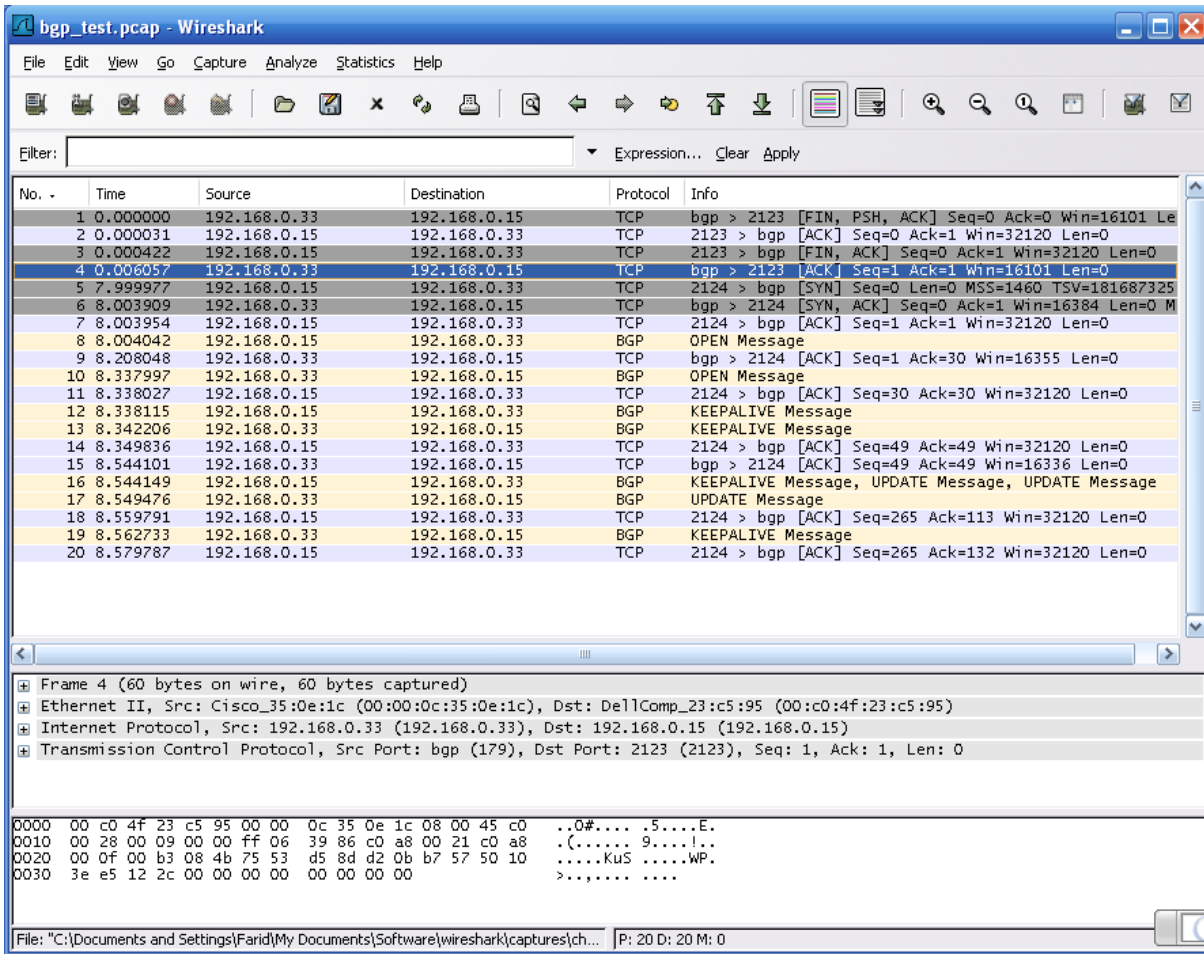
COURSE CODE : IIT 5113
COURSE TITLE : TCP/IP ARCHITECTURE AND ENTERPRISE NETWORK
EXAM VENUE : STREAM:
DATE : DEC 2016 EXAM SESSION :
TIME : 3 HOURS

INSTRUCTIONS:

- 1. Answer Question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE [30MKS]

- a. What are imperfections that must be considered by the transport layer? [2mks]
- b. CABS Solution is a consulting company. One of the activities is setting up of Internet services and troubleshooting. The director of CABS has contacted you as one of the key speaker on TCP configuration. What will you include of your talk concerning TCP information required to send and receive segments? [4mks]
- c. Explain how System administrator uses Networker analyzer to determine network intruders [4mks]
- d. The network number portion of the IP address is administered by Regional Internet Registries (RIR). Explain them. [1mks]
- e. These interactions between a user and a service provider are expressed in by using primitives. These primitives are an abstract representation of the interactions between a user and a service provider. State and explain these primitives [3mks].
- f. The figure below shows the Wireshark Window. Explain the Supports command-line and GUI interfaces it provides [6mks].



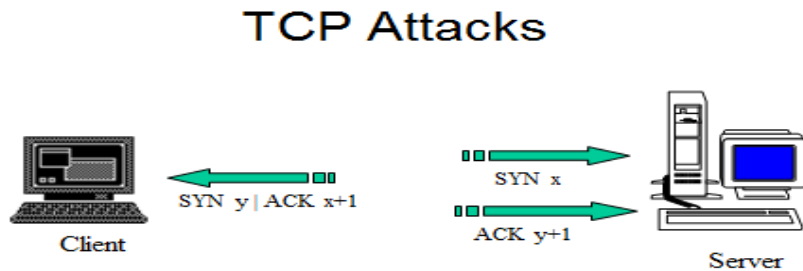
QUESTION TWO [20MKS]

- a. One of the Tools for Troubleshooting IP Problems is to use the debug ip packet command. Explain what needs to be done in order to use debug ip packet [10mks]
- b. Even though it may seem logical to first troubleshoot at the physical layer, problems can generally be found more quickly by first troubleshooting at Layer 3 and then working backward when a physical problem is found or suspected. What are these possible problems? [10mks]

QUESTION THREE [20MKS]

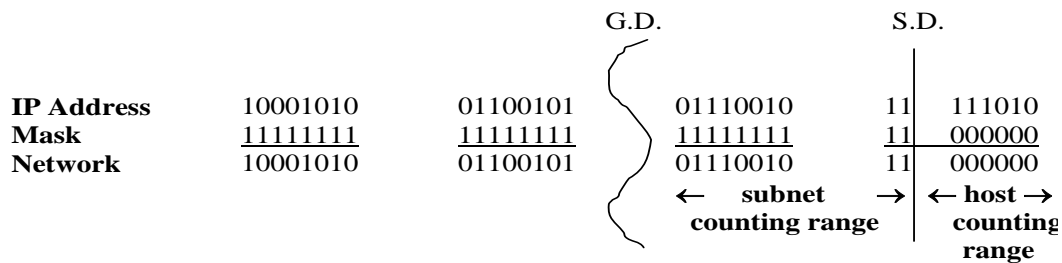
- a. Differentiate between TCP Session Hijack and TCP Session Poisoning [4mks]

- b. Explain the TCP SYN flooding [10mks]
- c. The diagram below shows TCP attacks. Explain the issues expressed in the diagram [6mks]



QUESTION FOUR [20MKS]

- a. Subnetting does not give you more hosts, it only allows you to divide your larger network into smaller networks. Explain what subnetting? [6mks]
- b. Given the Host IP Address, Network Mask and Subnet mask what information can be found? [6mks]
- c. Study the diagram below and identify the subnets giving example for each. [8mks]



QUESTION FIVE [20MKS]

- a.** Internet Protocol datagrams are transmitted by a physical network attached to the host.
Describe what is contained in IP datagrams [4mks]
- b.** Using multiple recipients, explain the methods of IP delivery [6mks]
- c.** Capturing the data is easy! The question is what to do with it. Explain the special hardware devices used for network analysis [5mks]
- d.** Balance the load on a set of identical servers, which are accessible from a single IP address. Explain the NAT solution to this scenario [5mks]