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Question Paper Code : X 85964

M.E./M.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Elective

Communication Systems

NE 5071 – NETWORK MANAGEMENT

(Common to M.E. Communication and Networking/M.E. Computer Science
and Engineering (with Specialization in Networks))
(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Mention the topologies which are associated with LANs. Which topology acts as Pseudo topology ?
2. Why we need communication model in OSI network management ?
3. Calculate the efficiency of transmission to transmit :
An Ethernet packet of 1,500 bytes (including the overhead with 6-byte addresses)
4. State the role of ILMI in ATM management.
5. Define SNMP v2. Write about SNMP entities.
6. Write the OBJECT DESCRIPTOR and syntax of the IP address 125.52.66.24 of SNMP managed entities.
7. Give the features of load sensitive polling algorithm.
8. Why system management in commercial network is essential ?



9. Identify the process involved in web interface to SNMP management.
10. State the role of WBEM in web based management.

PART – B

(5×13=65 Marks)

11. a) Explain the OSI network management organizational model and information model with neat diagram. **(13)**

(OR)

b) A high school class consists of four boys and four girls. The names of the boys with their heights are Adam (6.5), Chang (6.3), Eduardo (7.2) and Gopal (6.2). The names of the girls are Beth (6.8), Dipa (5.9), Faye (6.1) and Ho (6.4). For each of the following cases, write an ASN. 1 description for record values by selecting appropriate data types. Start with data type studentinfo, listing information on each student.

- i) A random list of the students . **(2)**
- ii) A list of students in alphabetical order. **(2)**
- iii) Sorted line up of students with increasing height. **(3)**
- iv) Any one student to be a class representative to the faculty meeting. **(3)**
- v) Two groups, one for boys and other for girls. **(3)**

12. a) i) Enumerate the features of Virtual LAN in detail. **(5)**
- ii) When communication between the ATM switches is broken, what type of Mx interface to be used ? Explain. **(4)**
- iii) Write a note on ATM network reference model. **(4)**

(OR)

b) State the role of ATM digital exchange interface management and explain with its interfaces. **(13)**

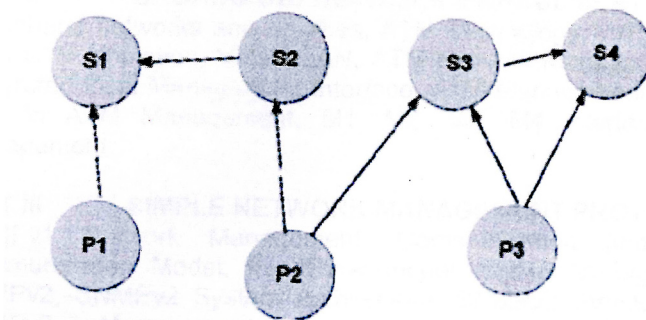


13. a) i) Explain the principle of SNMP proxy server with a neat sketch. (8)
ii) Construct a technical note on SNMP functional model. (5)
(OR)
- b) i) Explain about event correlation techniques network management tools. (6)
ii) In a mono alphabetic cipher encryption scheme, both alphabet and digits (0-9) can be used interchangeably. Suppose an intruder tries to decipher it knowing the algorithm, but not the key. How many attempts would it take on the average to decipher the message? (3)
iii) Find out the need for secure communication network? (4)
14. a) Explain about network statistics measurement systems in detail. (13)
(OR)
- b) Give some common solutions to enterprise and home network problems. (13)
15. a) Draw the architecture of web based enterprise management and explain. (13)
(OR)
- b) i) Explain simplified WBEM CIM core model with neat sketch. (6)
ii) Describe WIMA agent architecture with its neat diagram. (7)

PART – C

(1×15=15 Marks)

16. a) Consider the following causality graph :



- i) Derive a codebook matrix for the causality graph. (5)
ii) Derive the correlation matrix, which is a minimal codebook. (5)
iii) Derive the correlation matrix with a hamming distance of 2. (5)

(OR)



b) An NMS connected to a 10 Mbps Ethernet LAN is monitoring a network comprising routers, hubs and work stations. There are 10,000 nodes in the network to monitor. It sends an SNMP query to each station once a minute and receives a response when the stations are up. Assume that average frame size is 1,000 bytes long for get-request and response messages.

- i) What is the maximum traffic load on the LAN that has the NMS ? **(3)**
 - ii) Assume that the Ethernet LAN operates at a maximum efficiency of 40% throughout, what is the overhead due to network monitoring ? **(4)**
 - iii) Design a heart beat monitoring system using RMON that indicates failures to the NMS within a minute of a failure. **(4)**
 - iv) What is the monitoring load on each subnet ? **(4)**
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