

Code No: 5155M

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech II Semester Examinations, April-2015

EMBEDDED NETWORKING

(Embedded Systems)

Time: 3 Hours

Max. Marks: 60

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit.
Each question carries 8 marks and may have a, b, c as sub questions.

PART - A

5 × 4 marks = 20

- 1.a) What are the different types of serial Interfaces used in automotive embedded applications?
- b) What is the difference between "COM", "USB", "Serial Port"?
- c) Explain Header Bytes in Ethernet Frames.
- d) Differentiate exchanging messages using UDP and TCP.
- e) Explain SMAC.

PART - B

5 × 8 marks = 40

- 2.a) Explain SDA and SCL functionality for I²C.
- b) What are parts of 10-bits device addressing in I²C? [6+2]

OR

- 3.a) Differentiate between I²C and SPI.
- b) What is the need RS232 in embedded systems.
- c) Explain commonly used RS-232 signals. [2+2+4]
- 4.a) Explain Control Transfer Packet Size Constraints.
- b) Explain Control Transfer Bus Access Constraints. [4+4]

OR

- 5.a) Explain Interrupt Transfers in USB.
- b) Explain Bulk Transfers in USB. [4+4]
- 6.a) What are the four basic elements of Ethernet?
- b) Explain effects of Full-Duplex Operation in Ethernet. [4+4]

OR

- 7.a) Explain IEEE Logical Link Control for Ethernet.
- b) Explain Protocol Encapsulation for Ethernet. [4+4]
- 8.a) What are the advantages and disadvantages of using bridges over router in Ethernet?
- b) Explain properties of reliable network design. [4+4]

OR

- 9.a) Explain multilayer switches in Ethernet.
- b) How traffic flow monitoring is done in Ethernet?
- c) How performance of half-duplex Ethernet channels is measured? [4+2+2]

10. For the data given in the table below, draw the network. Crash the activities and determine the optimal cost of the project and the optimal duration. [8]

Activity	Normal		Crash	
	Duration	Cost(Rs.)	Duration	Cost(Rs.)
1-2	8	1000	6	2000
1-3	4	1500	2	3500
2-4	2	500	1	900
2-5	10	1000	5	4000
3-4	5	1000	1	2000
4-5	3	800	1	1000

Indirect cost is Rs.700 per day.

OR

11. A project has been defined to contain the following activities, along with their time estimates for completion.

Activity	Time Estimates(weeks)			Immediate Predecessor
	a	m	b	
A	1	4	7	-
B	2	6	7	A
C	3	4	6	A,D
D	6	12	14	A
E	3	6	12	D
F	6	8	16	B,C
G	1	5	6	E,F

- Calculate the expected time and the variance for each activity.
- Draw the critical path diagram.
- Show the early start, early finish times and late start, late finish times.
- What is the probability that the project can be completed in 34 weeks?

[2+2+2+2]

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