

**Uva Wellassa University of Sri Lanka**  
**Faculty of Science and Technology**  
**Department of Computer Science and Technology**  
**100 level 2<sup>nd</sup> Semester Examination - Dec.-2107/Jan.- 2018**  
**CST105-2 Fundamentals of Computer Networks**



**Part B**

**Number of questions: Four (04)**  
**Answer three (03) questions only.**  
**Mark allocation: 60 mark**

1.
  - a. Explain Forward Error Correction (FEC) and Backward Error Correction (BEC) using diagrams. (8 mark)
  - b. Briefly explain sliding window mechanism using suitable examples. (4 mark)
  - c. What is meant by 'Clock Recovery' in data transmission? (2 mark)
  - d. List advantages and disadvantages of virtual circuit and datagram approach in packet switching. (6 mark)
  
2.
  - a. Cyclic Redundancy Check (CRC) is one of the error detection mechanisms. If the data to be transmitted is 100100 and the divisor is 1101.
    - i. Show the Frame Check Sequence (FCS) is 001. (4 mark)
    - ii. What is the bit stream to be transmitted? (3 mark)
    - iii. If the received bit stream is 100100001, show that there are no errors in the received bit pattern. (5 mark)
  - b. What is the use of 'time out value' in stop-and-wait (idle ARQ) method? (3 mark)
  - c. Briefly explain two (02) unguided media types by giving one (01) characteristics for each type. (5 mark)

3.

- a. Briefly describe the necessity of the ISO - OSI reference model. (3 mark)
- b. What are the major functionalities of the Transport Layer of the ISO – OSI model? (2 mark)
- c. What is the major function of the Physical Layer of the ISO - OSI model? (2 mark)
- d. Briefly explain the sub layers of the Data Link Layer. (5 mark)
- e. List any three (03) types of information, which are added to the packet header. (3 mark)
- f. Give any three (03) protocols that defined in the Presentation Layer and briefly describe their functionalities. (5 mark)

4.

- a. 192.248.48.9 / 25 IP address is assigned to a device in a network.
  - i. What is the network address? (2 mark)
  - ii. Write the subnet mask (net mask) of the above IP address. (2 mark)
  - iii. How many subnets can be built in the above network? (3 mark)
  - iv. How many hosts (maximum number) could be connected to the above network? (3 mark)
- b. What is Reverse Address Resolution Protocol (RARP)? (5 mark)
- c. Describe 'Circuit Switching' in data transmission. (5 mark)

