Subject: Overview of Computers Workshop
Date: 28ᵗʰ Jan. 2023

Duration: 90 Mins.
Max. Marks: 30

Answer all questions:

Question 1:

Write a shell script program to display the summation of all prime numbers between 1 to 20. (Hint: use loop and conditional statements). [7 Marks]

Question 2:

(i)   What is protocol? [1 Marks]

(ii) Explain the functionalities of different layers of internet protocol stack?, [4 Marks]

(iii) explain the encapsulation process with a neat diagram. [3 Marks]

Question 3: There are 5 hosts along with the link descriptions (data rate and distance) are presented in Fig. 1. Assume that data travels from A to B and C to D at a speed of 1.2 time speed of light, and the data travels from B to C and B to E at a speed of 0.6 times speed of light.

a. What is the transmission delay if A sends a packet of 1000 bytes to B. [1 Mark]

b. What is the propagation delay between A to D, if A sends a packet of 500 bytes size. [2 Marks]

c. What is the total delay for a packet of size 800 bits to be transmitted from A to D. [2 Marks]

d. What would be the queuing delay for a packet (400 bits) in B, assuming that the packet is intended to host E. [2 Marks]
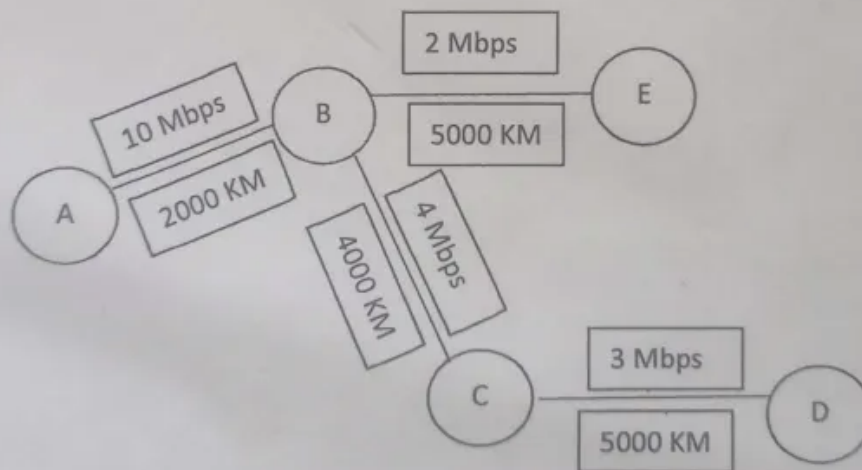

Fig. 1

Question 3:

a) With a clean schematic diagram explain the architecture of a mobile communication network. [4 Marks]

b) With clear illustrations explain how a mobile call is set up and maintained? [4 Marks]