B.Sc (HONS.) IN CSE PART-III, FIFTH SEMESTER EXAMINATION, 2021

DATA TELECOMMUNICATIONS

(According to the New Syllabus)

Subject Code : 530203

Time—3 hours

Full marks—80

[N.B. The figures in the right margin indicate full marks. Answer any four questions.]

Marks

1. (a) Define data communication. Write down the fundamental purposes of data communication.   1+4=5

    (b) What is protocol? What are the basic characteristics of protocol?   1+3=4

    (c) Describe OSI reference model.   6

    (d) Draw and explain data communication model.   5

2. (a) Define analog and digital signal. Construct a relation between data rate and bandwidth.   6

    (b) Briefly describe between Nyquist bandwidth and Shannon capacity formula.   4

    (c) Describe NRZ-I, Bipolar AMI and Manchester for the following data: 01001101011.   6

    (d) Differentiate between guided and unguided media.   4

3. (a) Define multiplexing. Describe how does synchronous TDM work.   6

    (b) What are differences in between FDM and TDM?   4

    (c) "The start and stop bits can be eliminated when character interleaving is used in synchronous TDM."—Justify your answer.   4

    (d) An analog signal has a bit rate of 8000 bps and a band rate of 1000 band. How many data elements are carried by each signal element? How many signal elements do we need?   4

    (e) What are the reasons of breaking down a large data block into smaller blocks for transmission?   2

[Please turn over

4. (a) What is packet switching network? Mention the advantages of packet switching over circuit switching network. 5

   (b) Explain about X·25 protocol standard. 5

   (c) What is router and routing table? Explain the important characteristics of routing function. 5

   (d) What is ISDN? Discuss different types of channels used in ISDN. 5

5. (a) Write down the basic characteristics of HDLC. Also explain its frame format. 2+4=6

   (b) What is ATM? Describe ATM protocol architecture. 5

   (c) What do you understand by QoS of ATM? Brief about ATM service categories. 5

   (d) Write short notes on SONET. 4

6. Write short notes (any four) : 5×4=20

   (a) Satellite Communication

   (b) Virtual Circuit

   (c) Go-Back-N ARQ

   (d) CRC Technique

   (e) Digital Switch

   (f) CDMA.

**B. Sc (HONS.) IN CSE THIRD YEAR, FIFTH SEMESTER
EXAMINATION, 2021**

ECONOMICS

[According to the New Syllabus]

Subject Code : 530207

Time—3 hours

Full marks—80

*[N.B. The figures in the right margin indicate full marks. Answer any four
questions.]*

Marks

1. (a) Distinguish between positive economics and normative economics. 5
   (b) What are the fundamental economics problems? How these problems can solved? 5
   (c) What is opportunity cost? 4
   (d) How the shape of Production Possibility Frontier (PPF) is affected by opportunity cost? 6

2. (a) What do you mean by movement and shift in demand? Explain graphically. 6
   (b) What are the determining factors of demand? Explain. 4
   (c) What do you mean by elasticity of demand? Graphically explain cross elasticity of demand. 4
   (d) How is market equilibrium achieved with the help of demand and supply? Explain with proper diagram. 6

3. (a) At the equilibrium point, Demand = Supply.—Explain. 4
   (b) What are the factors responsible to change in the quantity of supply of a product? 4
   (c) Define indifference curve? Write down the properties of indifference curve? 4
   (d) Draw a budget line from the equation $500 = 100x + 5y$. What is the slope of the equation? 8

[Please turn over

4. (a) Describe the law of diminishing marginal return? 4

(b) Distinguish between fixed cost and variable cost. 4

(c) "Marginal revenue curve of a firm cannot be above its average revenue curve."—Explain. 6

(d) Explain the law of returns to scale in the long run production. Why do we get decreasing returns to scale? 6

5. (a) How does a consumer achieve maximum satisfaction by minimum expenditure? Illustrate with the help of indifference curve. 7

(b) Describe two measurement methods of utility. 4

(c) Draw an Engel curve from ICC. 4

(d) Explain the relationship between TFC, TVC and TC. 5

6. (a) What does the firm reach in equilibrium position in a competitive market in short run? 8

(b) What do you mean by factor pricing? 4

(c) Write short note (any **four**) : 8

(i) Wants

(ii) Utility

(iii) Commodity

(iv) Capitalism

(v) Inferior Goods

(vi) Oligopoly Market.