TBCA(3.1)

2019

Time : 3 hours

Full Marks : 80

Answer **all** questions

All questions carry equal marks

Candidates are required to answer in their own words as far as practicable

(OPERATION RESEARCH)

1. A paper mill produce two grades of papers namely 'X' and 'Y' Owing to raw materials restriction, it cannot produce more than 400 tons of grade X and 300 tons of grade Y paper in a week. There are 160 production hours in a week. It required 0·2 and 0·4 hours to produce a ton of product X and Y respectively. The profit from product X and Y is Rs. 200 and Rs. 500 per ton. Formulate the problem as LPP and solve by graphical method.

Or

Write short notes on the following :

(*i*) Basic Feasible solution

(*ii*) Advantages of LPP

(*iii*) Duality in LPP

(*iv*) Assumptions in LPP.

2. Give the mathematical formulation of Assignment problem. Explain the Hungarian method to solve it.

Or

Find the sequence that minimizes the total time elapsed (in hours) required to complete the following task in two machines. Assume the job has to be processed first in machine-I and then in machine-II.

Task	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*
Machine-I	2	5	4	9	6	8	7	5	4
Machine-II	6	8	7	4	3	9	3	8	11

(*Continued*)

3. Solve the following transportation problem, whose cost matrix is given below :

Destination

		A	*B*	*C*	*D*	Capacity
Origin	I	1	5	3	3	34
	II	3	3	1	2	15
	III	0	2	2	3	12
	IV	2	7	2	4	19
Demand		21	25	17	17	80

Or

Explain the following in context of game theory :

(*i*) Strategy

(*ii*) Zero sum game

(*iii*) Pay off matrix

(*iv*) Dominance property.

4. A tourist car operator finds that during past few months, the car's use has varied so much that the

cost of maintaining the car varied considerably. During the past 200 days the demand for the car fluctuated as below :

Trips/week	0	1	2	3	4	5
Frequency	16	24	30	60	40	30

Use random number–82, 96, 18, 96, 20, 84, 56, 11, 52, 03 to simulate the demand for 10 week period.

Or

What is a project ? Give two examples. List the four important distinct features that are common to all projects.

TBCA(3.2)

2019

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(DATA COMMUNICATION AND COMPUTER NETWORK)

1. (*a*) Write and explain the different classification of communication protocols.

   (*b*) What is Bandwidth ? Explain how frequency spectrum is used to spread the bandwidth.

   Or

   (*c*) Explain the data communication in a point-to-point and multi network.

   (*d*) What is multiplexing ? Differentiate between TDMA and TDM.

2. (*a*) Explain the functionality of the upper four layers of the OSI model.

(*b*) Explain the following :

(*i*) HDLC control field

(*ii*) LLC and MAC protocol.

Or

(*c*) Explain the role of each layer of the OSI model.

(*d*) Explain the following (any *two*) :

(*i*) Switching and Routing

(*ii*) Token bus and IEEE 802·4

(*iii*) HDLC subsets.

3. (*a*) Distinguish between message switching and packet switching.

(*b*) Distinguish between Broadband LAN and Baseband LAN.

Or

(*c*) What is meant by LAN topology ? Discuss the various LAN topologies and protocols.

(*d*) Explain the following :

(*i*) LLC and MAC protocols
(*ii*) IEEE 802·3.

4. (*a*) Explain the file transfer mechanism in local area networks.

(*b*) Distinguish between TCP and UDP.

Or

(*c*) What is route discovery protocol ? Explain its working.

(*d*) Explain the following :

(*i*) Application layer protocol
(*ii*) IP datagram.

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(SOFTWARE ENGINEERING)

1. (*a*) Write and explain the different phases of SDLC.

   (*b*) Make a comparison of different life cycle models.

   Or

   (*c*) Why software engineering principles are needed for software development ?

   (*d*) Differentiate between prototype model and spiral model.

2. (*a*) What is heuristic technique ? Write COCOMO details.

(*b*) What are the job responsibilities of a project manager ?

Or

(*c*) Write short notes on software risk management and configuration management.

(*d*) What is scheduling ? How the schduling can be done during project management ?

3. (*a*) What is requirement analysis and specification phase ? What is SRS and how it is helpful in SDLC ?

(*b*) What is cohesion ? Describe the classification of cohesion.

Or

(*c*) What are the characteristics of a good software design ?

(*Continued*)

(*d*) Write short notes on the following :

(*i*) Function oriented design

(*ii*) Object oriented design.

4. (*a*) What is testing ? What are the different testing approaches ?

(*b*) What do you mean by quality management in S/W development ? Explain ISO 9000.

Or

(*c*) What is user interface design ?

(*d*) Write short notes on :

(*i*) CMM

(*ii*) Integration testing.

TBCA(3.4)

2019

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Answer all questions

The questions are of equal value

Candidates are required to answer in their own words as far as practicable

(COMPUTER ORIENTED ACCOUNTING SYSTEM)

1. What is depreciation ? Explain various types of depreciation methods.

Or

Accounting as an Information system for different stake holders – Justify.

2. What is NPV method of capital budgeting ? How does it differ from Pay Back Method ?

Or

What is Financial Management ? How does it help the management to take business decision ?

3. What is Retain Earnings ? What are the different types of Retaintion of earning ? Explain its impact On business.

Or

What is debenture capital ? How does it different from preferential share capital ?

4. What is the importance of Inventory Management in Project Maximisation of a firm ? Explain ABC system of Inventory Management and its merits.

Or

Mukesh, Jains and Company's estimates for the next year's operations are furnished here under

			Rs.
(*i*)	Average Amount backed up for Stock material etc.		10,000
	Stock of Finished product		8,000
(*ii*)	Average credit given		
	Export sales 3 weeks credit		80,000
	Inland sales 8 weeks credit		4,00,000
(*iii*)	Time lag in payment of wages and other outgoings		
	Manager's salary	1 month	5,000
	Clarical staff	2 months	70,000
	Rent & Royalities	8 months	20,000
	Stocks & Materials	$1\frac{1}{2}$ months	50,000
	Wages	$1\frac{1}{2}$ months	3,15,000
	Miscellaneous expenses	1 month	40,000
(*iv*)	Payment in advance :		
	undrawn profit on the average throughout the year		15,000
	Sundry Expenses (paid quarterly in advance)		12,000

From the above calculate the networking capital. Show the calculation for the average amount of working capital requirement.