TBCA—(3.3)

2018

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

(SOFTWARE ENGINEERING)

1. (*a*) What is the emergence of software engineering ? Explain why we require software engineering ?

   (*b*) Describe the importance of the evolutionary model.

   Or

   (*c*) What is prototype model ? Explain in detail.

(*d*) Write the significance of spiral model in SDLC.

2. (*a*) Explain briefly the different activities of project management.

(*b*) What is risk ? What is risk management ? How to avoid risk ?

Or

(*c*) What is configuration management ? Why do we need configuration management ?

(*d*) What is software estimation ? What are estimated ? What are the different techniques of software cost estimation ?

3. (*a*) What is SRS ? Write the organisation of SRS.

(*b*) What are the different approaches for software design ? Explain each briefly.

Or

(*c*) What is object oriented design ? How is it different from function oriented design ?

(*d*) What is UML in software design ? Draw the Use-case diagram of Library Information System.

4. (*a*) What are the different levels of Software testing ? Explain each.

(*b*) What is CMM ? Write different levels of CMM in s/w organisation.

Or

(*c*) What is an Unit ? Why we require unit testing ? Differentiate between unit testing and class testing.

(*d*) What is Reliability ? What are the different metrics for reliability ?

TBCA—(3.2)

2018

Time : 3 hours

Full Marks : 80

Answer **all** questions

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(DATA COMMUNICATION AND COMPUTER NETWORK)

1. (*a*) Explain the Various Network Topology and design goal with diagram.

   (*b*) Explain data communication in a point-to-point network.

   Or

   (*c*) What is a asynchronous communication ? How is it different from synchronous communication ?

(*d*) Explain the following :

(*i*) TDMA/TDM

(*ii*) Token Passing.

2. (*a*) Discuss and illustrate flow control mechanisms in Data Link Layer and Transport Layer.

(*b*) What is HDLC ? Explain the various transfer model and frames for the transmission of message.

Or

(*c*) Explain different layers in OSI model.

(*d*) What is multiplexing ? Explain different types of multiplexing.

3. (*a*) Why is CSMA/CD used in wireless LAN ? What can be the problem if CSMA/CD is used in the above ?

(*b*) Explain the following :

(*i*) LAN topology and protocol

(*ii*) Collisions.

Or

(*c*) Explain the IEEE LAN standard with its important features.

(*d*) Explain the following :

(*i*) Switching and Routing

(*ii*) Broadband and baseband LAN.

4. (*a*) Explain the use of TCP/IP in internetworking.

(*b*) What is UDP ? How does it work ?

Or

(*c*) What is classful addressing ? Discuss class A, class B, class C, class D and class E addresses with its ranges in decimal dotted notation and example.

(*d*) Explain the following :

(*i*) Routs discovery protocol and Application layer protocol

(*ii*) Transmission Control Blocks (TCB).

TBCA—(3.4)

2018

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Answer **all** questions

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(COMPUTER ORIENTED ACCOUNTING SYSTEM)

1. What are the Basic Accounting Assumptions. Explain their implication for a business entity.

Or

What is Accounting Equation ? Explain the merits and demerits of a double entry system.

2. What are the scope of Financial Management ? What are its objectives ? How does it relate to the financial accounting ?

Or

What do you mean by Capital Budgeting ? Why are capital budgeting decision is important ? Explain capital budgeting various processes.

3. Define Long Term Financing. How does the Financial Manager takes suitable decision by following different forms of financing to maximize the firm's value.

Or

What is Right Issue ? What are the legal rules of accounting to issue the right issue ?

4. Define Working Capital. What are the determinants of working capital ?

Or

Paul & Sons Company is considering two mutually exclusive projects. Both requires on initial outlay of Rs. 1,20,000 each and have a life of 8 years. The company's rate of return is 10% and

tax rate is 55%. Both the projects will be depreciated on straight line basis. The net expected cash flows before taxes are presented as under .

Year	Project-X (Rs.)	Project-Y (Rs.)
1	30,000	45,000
2	30,000	22,000
3	30,000	15,000
4	30,000	40,000
5	30,000	35,000
6	30,000	20,000
7	30,000	25,000
8	30,000	20,000

Calculate :

(*i*) The Pay Back for each project

(*ii*) Accounting Rate of Return

(*iii*) The Net Project value for each project.

TBCA—(3.1)

2018

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. Use simplex method to solve the following LPP :

Maximize $Z = 3x_1 + 2x_2 + 5x_3$

subject to :

$$x_1 + 2x_2 + x_3 \leq 430$$
$$3x_1 + 2x_3 \leq 260$$
$$x_1 + 4x_2 \leq 420$$
$$x_1 \geq 0, x_2 \geq 0, x_3 \geq 0$$

Or

Use dual simplex method to solve the following LPP :

Maximize $Z = 3x_1 - x_2$

subject to : $x_1 + x_2 \geq 1$

$2x_1 + 3x_2 \geq 2$

$x_1 \geq 0, x_2 \geq 0$

2. Explain Johnson's algorithm for processing '*n*' jobs in '2' machines. Give two different examples of sequencing problem from your daily life.

Or

Find an optimum integer solution to the following LPP :

Max $Z = x_1 + 2x_2$

subject to : $2x_2 \leq 7$

$x_1 + x_2 \leq 7$

$2x_1 \leq 11$

$x_1 \geq 0, x_2 \geq 0$ and x_1, x_2 are integers.

3. Solve the following game problem graphically :

Player-A

$$\text{Player-B} \begin{bmatrix} 1 & -3 \\ 3 & 5 \\ -1 & 6 \\ 4 & 1 \\ 2 & 2 \\ -5 & 0 \end{bmatrix}$$

Or

Explain the step-wise description of the computational procedure for solving the transportation problem.

4. Explain the Monte-Carlo method of simulation pointing out its uses in operations research.

Or

Consider the following schedule of activities and related information for construction of a new plant.

Activity	Expected time		Expected cost (Rs. 00,000's)
	Month	Variance	
1-2	4	1	5
2-3	2	1	3
3-6	3	1	4
2-4	6	2	9
1-5	2	1	2
5-6	5	1	12
4-6	9	5	20
5-7	7	8	7
7-8	10	16	14
6-8	1	1	4

Assume that the cost and time required for one activity does not depend on the cost and time of other activity and variance is following the normal distribution.

Calculate :

(*i*) Critical path

(*ii*) Expected cost of construction of the plant

(*iii*) Expected time required for construction of the plant

(*iv*) The standard deviation of the expected time.
