VUG (6)–BCA (C-6001)–
Opt. Tech.

2017-20

Full Marks : 70

Time : 3 hours

Answer from **all** the Sections as directed.

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

SECTION–A

Answer any *four* questions : 10×4

1. What are the essential characteristics of Operation Research ? Mention different phases in Operation Research.

2. Explain General Mathematical Model of Linear Programming Model.

3. Use the graphical method to solve the following LP problem :

   Min $Z = -x_1 + 2x_2$

(2)

subject to constraints

$$-x_1 + 3x_2 \leq 10$$
$$x_1 + x_2 \leq 6$$
$$x_1 - x_2 \leq 2$$
$$\text{and } x_1, x_2 \geq 0$$

4. Use penalty (Big-M) method to solve the following LP problems :

Min $Z = x_1 - 3x_2 + 2x_3$

subject to constraints

$$3x_1 - x_2 + 2x_3 \leq 7$$
$$-2x_1 + 4x_2 \leq 12$$
$$-4x_1 + 3x_2 + 8x_3 \leq 10$$
$$\text{and } x_1, x_2, x_3 \geq 0$$

5. Determine an initial basic feasible solution to the following transportation problem using Vogel's Approximation method.

Destination

		D₁	D₂	D₃	D₄	Supply
	S₁	21	16	15	3	11
Source	S₂	17	18	14	23	13
	S₃	32	27	18	41	19
Demand		6	10	12	15	

6. A department has five employees with five jobs to be performed. The time (in hours) each man will take to perform each job is given in the effectiveness matrix.

Employees

	I	II	III	IV	V
A	10	5	13	15	16
B	3	9	18	13	6
C	10	7	2	2	2
D	7	11	9	7	12
E	7	9	10	4	12

How should the jobs be allocated one per employee, so as to minimize the total man hours ?

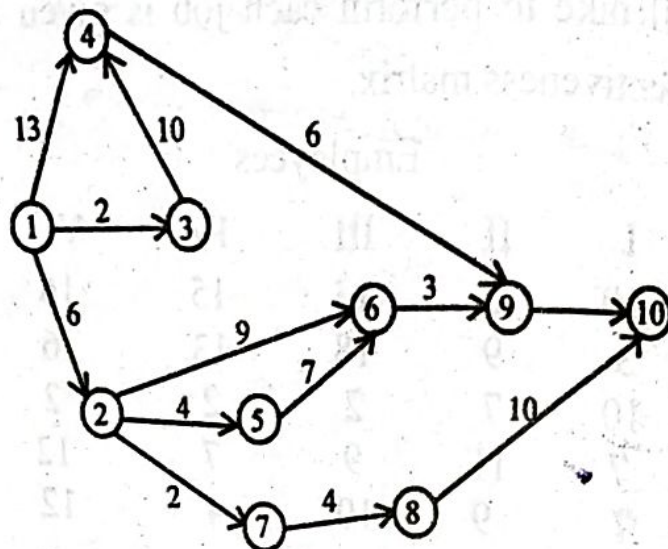7. Explain the following terms in PERT/CPM :

(*i*) Earliest time

(*ii*) Latest time

(*iii*) Total activity time

(*iv*) Event slack

(*v*) Critical path

8. Determine the critical path and critical path time.

(Compulsory)

Answer *all* questions :

3×10

9. (*a*) Explain CPM.

(5)

(b) Write down different applications of OR.

(c) Explain unbounded and Infeasible solution.

(d) Explain slack, surplus and artificial variables.

(e) Explain the Mathematical model of Assignment problem.

(f) What are the different phase of Project Management ?

(g) Explain different phases of two phase method for solving LP problem.

(h) What are the different application areas of Operation Research ?

(i) Explain dummy activities.

(j) Write down the steps for LP model formulation.

VUG (6)–BCA (C-6002)

2017-20

Full Marks : 70

Time : 3 hours

Answer from **all** the Sections as directed.

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

SECTION–A

Answer any *four* questions :   10 × 4

1. Write and explain the functions of management.

2. (a) Write about the contribution of F. W. Taylor to the management thought.

   (b) Write the contribution of Chester Barnard to the management thought.

3. Discuss :

   (a) Tools of Ethics

   (b) Level of management

(2)

4. What is organizing ? Write and explain the types of organization.

5. What is leadership ? Write about the function of leader.

6. What is strategic management ? Write the class of decisions.

7. What is staffing ? Write about the importance of staffing.

8. Write short notes on :

   (a) Stress management

   (b) Role of different strategies

SECTION-B

Answer *all* questions :   3 × 10

9. Define management skills.

10. Need of forecasting in management.

11. Write about the direction.

(3)

12. What is total quality management ?

13. What is the role of different strategies ?

14. Write about the co-ordination.

15. What is Delegation ?

16. What is Business Ethics ?

17. What is the purpose of management ?

18. What is Motivation ?

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Full Marks : 70

Time : 3 hours

Answer from all the Sections as directed.

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

SECTION–A

Answer any *four* questions : 10 × 4

1. What is the meaning of Accounting ? What are its branches ? Explain briefly limitations of Financial Accounting.

2. What are the different classification of accounts ? Explain the rules of debit and credit.

3. Which parties are interested in accounting information and why ?

4. What is a trial balance ? What are the different columns of a trial balance ? Explain the different methods of preparing trial balance.

5. What do you mean by Ledger posting ? Explain the procedure for preparing Ledger Accounts.

6. What are cash flow statement and fund flow statement ? Explain the major differences of the two.

7. What do you mean by final accounts ? Explain the importance and purpose of final accounts.

8. Journalize the following transactions :

		Rs.
Jan. 1, 2020	Business started with cash	50,000
Jan. 2, 2020	Machinery purchased from Ram	10,000 .
Jan. 3, 2020	Goods purchased from Mohan for cash	10,000
Jan. 5, 2020	Salary paid to Shyam	2,000
Jan. 6, 2020	Furniture purchased for cash	15,000
Jan. 7, 2020	Amount deposited in Bank	10,000
Jan. 9, 2020	Cash withdrawal from Bank	1,000
Jan. 10, 2020	Withdrawal from bank for personal use	210
Jan. 11, 2020	Sold goods to Shambhu on credit	2,315
Jan. 12, 2020	Fees of children paid	500

(Continued)

(3)

Answer *all* questions :

3 × 10

9. Why is Journal sub-divided in a large business house ?

10. Define Assets. Explain various types of assets.

11. What is a voucher ? How it is different from a Journal ?

12. What is the major difference between IFRS accounting standard and GAAP accounting standard.

13. Explain the various characteristics of accounting.

14. Explain the meaning and characteristics of Financial Management.

15. What are the different functions of Financial Manager ?

16. Explain the organisation of Finance Function.

17. What is a balance sheet ? Why is it prepared ?

18. What is the difference between Trading Account and Profit and Loss Account ?

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2017-20

Full Marks : 70

Time : 3 hours

Answer from all the Sections as directed.

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

SECTION–A
(Long Type Questions)

Answer any *four* questions :   10 × 4

1. What is Computer Network attack ? What are the types of computer network attacks ?

2. Write about 'Model for Internet work security' in detail.

3. Write about Directory authentication service and pretty good privacy.

4. What is S/MIME ? How does it work ? Do we need S/MIME ?

(*Turn Over*)

5. Write about IP Security Architecture in detail.

6. What is web security ? What is secure sockets layer (SSL) and what are the importance of SSL ?

7. What is SNMP ? What are the basic SNMP components/architecture with their functionalities ?

8. What is computer virus ? What are the different types of viruses and explain all.

SECTION–B
(Short Type Questions)
Answer *all* questions :   3 × 10

9. What is cryptography ?

10. Write about digital signature.

11. What is key management ?

12. Write about 3 services of computer network security.

(3)

13. What is SNMPV3 ?

14. What do you mean by Intruders in system security ?

15. What is integrity in network security ?

16. What is authentication header ?

17. Write about Secure Electronic Transactions.

18. What is IP address spoofing ?

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2018-20

Full Marks : 70

Time : 3 hours

Answer any five questions. Q. No. 1 is compulsory.

The questions are of equal value.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer the following in brief:

   (*i*) State the objectives of research.

   (*ii*) Define the term Research Problem.

   (*iii*) State the functions of a Research Design.

   (*iv*) What is exploratory research ?

   (*v*) What do you mean by a sample survey ?

   (*vi*) When should you use z-test ?

   (*vii*) What is the difference between Type-I &

(Turn Over)

Type-II errors in hypothesis testing ?

2. Define Research and discuss the important types of research with their respective characteristics and suitable examples.

3. With the help of a suitable example explain the concept of a research problem and explain the steps involved in its formulation.

4. Define a Research Design and explain its importance in context of a given study and also explain the components of a research design.

5. Discuss clearly the steps involved in testing of hypothesis in Research.

6. Differentiate between Questionnaire and Schedules. Explain any TWO methods of primary data collection with examples.

7. Define a sample and explain the various types of probability sampling techniques with suitable examples.

8. Explain the concepts of Tabulation and Classification with suitable examples.

9. Discuss the various types of research reports with suitable examples.

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