V

(20516)

BBA-IV Sem.

Roll No. ....

18060

B. B. A. Examination, May 2016

Operation Research

(BBA-406)

(New)

Time : Three Hours]   *[Maximum Marks : 75*

Note : Attempt questions from all Sections as per instructions. Calculator may be used.

Section-A

(Very Short Answer Questions)

Attempt all the *five* questions. Each question carries 3 marks.   3×5=15

1. What do you understand by model building ?   3

2. Define Tree diagram in short.   3

3. Give three advantages of linear programming.   3

4. Define uncertainty criteria.   3

5. Define time estimates in Network analysis.   3

Section-B.

(Short Answer Questions)

Attempt any *two* questions out of the following three questions. Each question carries 7½ marks. 7½×2=15

6. What are the different types of models used in Operation Research ?   7½

7. What do you understand by Operation Research ? Discuss its importance.   7½

8. A plant manufactures washing machines and dryers. The major manufacturing departments are the stamping deptt., motor and transmission deptt. and assembly deptt. The first two departments produce parts for both the products while the assembly lines are different for the two products.

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The monthly deptt. capacities are–Stamping deptt.–

1,000 washers or 1,000 dryers

Motor and transmission deptt.–1,600 washers or

7,000 dryers

Washer assembly line–9,000 washers only

Dryer assembly line–5,000 dryers only.

Profits per piece of washers and dryers are Rs. 2,700

and Rs. 3,000 respectively. Formulate the LP model. 7½

Section-C

(Detailed Answer Questions)

Attempt any *three* questions out of the following five

questions. Each question carries 15 marks. 15×3=45

9. Find the minimum value of :

$$Z = 5x_1 - 2x_2$$

Subject to $2x_1 + 3x_2 \geq 1$, where $x_1 \geq 0$ and $x_2 \geq 0$. 15

10. Give three variations in transportation problems. How

are these resolved ? 15

11. Determine an initial basic feasible solution to the

following transportation problem using column

minima method : 15

	To			Available
	10	13	6	10
From	16	7	13	12
	8	22	2	8
Requirement	6	11	13	30 (Total)

12. Explain the minimax and maximin principles. 15

13. A small project consists of six activities. The duration

(in days) of each activity and their immediate

predecessors are shown below :

Activity	Immediate Predecessors	Duration (days)
A	–	5
B	–	3
C	–	7
D	A,B	8
E	B	4
F	B,C	5

(i) Draw the network.

(ii) Find the critical path. ·15