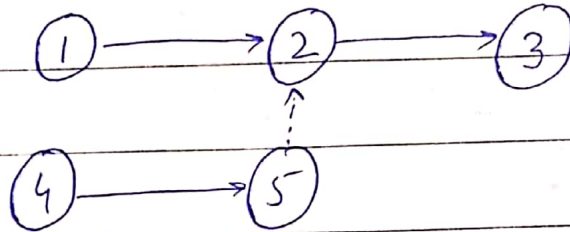


Mth-601

Q.1

Write the relationship b/w the activities

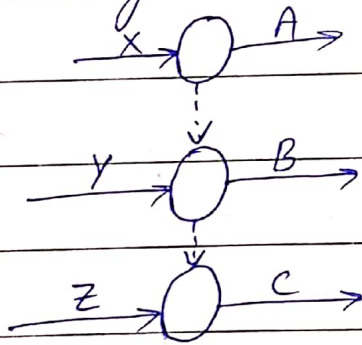


Ans:-

Activity A and C are predecessors of activity B.

Q.2

Write the relationship b/w the activities for the following network diagram.

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Ans:-

X is predecessor of A, B and C.

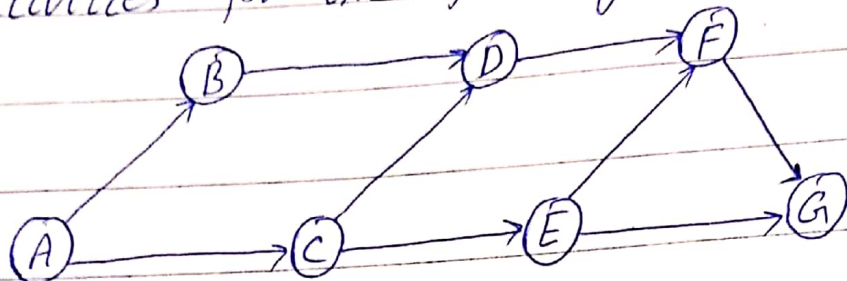
Y is predecessor of B and C.

Z is predecessor of C.

Mth-601

Q.3

Construct a table that shows the predecessor activities for the following network.



Ans:-

Event	Predecessor
A	-
B	A
C	A
D	B, C
E	C
F	D, E
G	E, F

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Q.4

How many types of floats? Also mention their formulas?

Ans:-

Floats has three types.

i) Independent float $I = j_E - i_L - D$

ii) Free float $F = j_E - i_E - D$

iii) Total float $I = j_L - i_E - D$

Mth-601

Q.5

Define Critical path?

Ans:-

The path of project in which the total float is zero is called critical path.

Q.6

Calculate the time estimate (t_e) if ~~the~~ we have 9, 11 and 12 hours as the optimistic (t_o), most likely (t_m) and pessimistic (t_p)?

Ans:-

We know that

$$\text{Estimate time} = t_e = \frac{t_o + 4t_m + t_p}{6}$$

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$$= \frac{9 + 4(11) + 12}{6}$$

$$= \frac{9 + 44 + 12}{6}$$

$$= \frac{65}{6} = 10.83 \text{ hour.}$$

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Q.7

How many major elements of inventory costs?

Ans:-

There are four major elements of inventory costs.

- i) Item cost
- ii) ordering cost
- iii) Holding cost
- iv) ~~sc~~ shortage cost

Q.8

Write the assumptions of Wilson's model for economic order quantity?

Ans:-

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The following assumptions are made in deriving the formula for economic order quantity.

- i) Demand (D) is at a constant rate.
- ii) Replacement of items is instantaneous.
- iii) The cost coefficients C_1 , C_2 and C_3 are constant.
- iv) $C_4 = 0$

Mth 601

Q.9

Write the formula of economic order quantity in a higher cost?

Ans: -

$$Q^* = \sqrt{\frac{2C_2D}{C_3}}$$

Q.10

Write a formula of optimum manufacture quantity?

Ans: -

$$Q^* = \sqrt{\frac{2C_2D}{C_3}} \cdot \sqrt{\frac{R}{R-D}} \quad \underline{\underline{M.M}}$$

Q.11

Define ABC Analysis?

Ans: -

The ABC analysis is the analysis that attracts management on those items where the greatest savings can be expected.

This is a simple but powerful tool of statistical sampling in the area of inventory control.

MTH-601

Q-11

After obtaining the random sample which of the following steps are carried out for the ABC analysis?

Ans: -

- i) Compute the annual usage value for every items in the sample by multiplying the annual requirements by the cost per unit.
- ii) Arrange the items in descending order.
- iii) Make a cumulative total of the number of items and the usage value.
- iv) Convert the cumulative total of the number of items and usage value into percentage.
- v) Draw a graph by connecting cumulative % item and usage value of %.

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Q-12

Define Lead-Time?

Ans: -

The time interval b/w the placing of the order and the actual receipt of goods.

Mth-601

Q.13

Define Lead-time Demand?

Ans:-

This is a Lead-time multiplied by the demand rate. $M \cdot L$
i.e. the lead time is 3 weeks and demand is at the rate of 50 items per week. then lead-time demand is $3 \times 50 = 150$ items.

Q.14

Define safety stock or Buffer stock?

Ans:-

If management would like to limit the disservice to the customer down to 5% or 10% at the cost of extra stocking. This extra stock in excess of the lead-time demand is called safety stock.

Q.15

Define Reorder level?

The level of the inventory at which the order is placed. It has two components. i) Lead time Demand and ii) safety stock.

Reorder level = Lead time demand + Safety stock.

Q.16

What is difference b/w Feasible solution and optimal solution?

Ans:-

Feasible solution:-

A feasible solution is the value of all points for which all constraints are satisfied.

An optimal solution:-

It is a feasible solution which maximizes or minimizes the objective function.

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Q.17

Write the basic fundamental properties of simplex method?

Ans:-

(i) The collection of feasible solutions constitutes a convex set. (ii) If feasible solution exists then a basic feasible solution exists.

(iii) There exist only a finite number of basic feasible solutions. (iv) If the objective function

possesses a finite maximum or minimum, then at least one optimal solution is a basic feasible

Mth-601

Q.18

Write the variants of simplex method?

Ans:-

- ① Minimization
- ② Degeneracy
- ③ Inequality in the wrong direction
- ④ Unbounded solution
- ⑤ Multiple solution
- ⑥ Non-existing feasible solution
- ⑦ Unrestricted variables

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Date: _____

Mth-601

Long - Page#

i) Page 50, 51, 52, 53, 54 (Handout)

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