Mth601_Operations Research

Midterm

Solved Papers....!!

By_Rana_Abubakar_Khan

1. _____ employs a different modeling and solution logic than linear programming
(a). Transportation Model
(b). Inventory Control Model
(c). Dynamic Programming
(d). None of the above

2. To identify and maintain the proper precedence relationship between activities those are not connected by event, we introduce
(a). Parallel Activity
(b). Dummy Activity
(c). Sequential Activity
(d). None of the above

3. EST and EFT of activities are calculated in
(a). Forward pass
(b). Backward pass

4. Critical path is obtained by connecting the jobs having
(a). Activities having same EST and LST
(b). Activities having same EFT and LFT
(c). Activities having zero slack
(d). All of the above

5. The Variance Vt of expected time is calculated as

(a). $V_t = (\frac{t_m - t_0}{6})^2$

(b). $V_t = (\frac{t_0 - t_p}{6})^2$

(c). $V_t = (\frac{t_p - t_m}{6})^2$

(d). None of the above

6. In LP problems Additivity means that

(a). The effect of two different programs of production is the same as that of a joint program

(b). The doubling (or tripling) the product will exactly double (or triple) the profit and the required
resource

(c). Both (a)& (b)

(d). None of the above

7. Two of the first steps of OR process encompass the actual use of OR techniques. These steps are

(a). Model Construction and Model Solution

(b). Observation and Implementation

(c). Definition of the problem and Model Solution

(d). Model Solution and Implementation of results

8. Let FS = Free Slack, TS = Total Slack, INDS = Independent Slack, then which relation is true

(a). TS $\leq$ FS

(b). INDS $\leq$ FS

(c). FS $\leq$ TS

(d). Both (b) & (c)

9. Best possible time estimate that a given activity would take under normal conditions which often exist, is called

(a). Most Likely time estimate

(b). Pessimistic time estimate

(c). Smallest time estimate

(d). None of the above

10. Standard Deviation S.D is

(a). One sixth of the difference between pessimistic time estimates and optimistic time estimates

(b). One sixth of the difference between pessimistic time estimates and most likely time estimates

(c). One sixth of the difference between optimistic time estimates and most likely time estimates (d). One sixth of the difference between most likely time estimates and optimistic time estimates

Which one is best describe Sectoral planning

? Inventory Planning in agriculture

? Improving the layout of a workshop in a company

? Simulation Modeling of the Economy of the country

? None of these.

_____ is the most appropriate to situations where we maintain a relative stable employment levels and utilize the resource at a more constant rate

? (a). Resource Leveling Program

? (b). Resource Allocation Program

? (c). Both a & b

? (d). None of these.

If the slack time is zero, it means that the project will be

? Delayed

? Completed on schedule

The amount of an activity can be delayed without affecting the early start time of any other job, is called

? Free Slack

? Independent Slack

? Total Slack

? None of these.

Question No: 1 (Marks: 1) - Please choose one

EST and EFT of activities are calculated in

► **Forward pass**

► Backward pass

► Path does not effected

Question No: 2 (Marks: 1) - Please choose one

_____ may be less than most likely time estimate

► **Pessimistic time estimate**

► Smallest time estimate

► Optimistic Time estimate

Question No: 3 (Marks: 1) - Please choose one

The dummy activities consume

► **No time, no resources**

► No time but some resources

► Some resources in minimum time

► None of these

Question No: 4 (Marks: 1) - Please choose one

If an activity consumes no time and no resources then this activity is called _____.

► **dummy activity**

► sequential activity

- critical activity
- cyclic activity

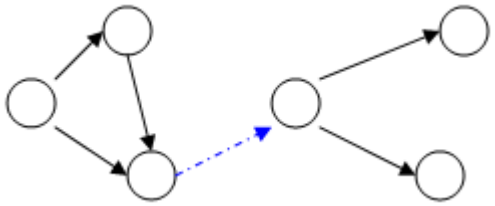
Question No: 5 (Marks: 1) - Please choose one

Cost period = ------- × (No of ordered items)

- Holding cost
- Set up cost
- Stock out cost
- **Item cost**

Question No: 6 (Marks: 1) - Please choose one

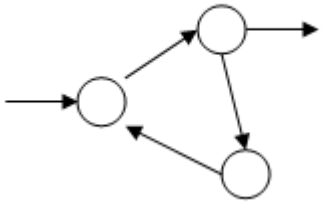
The following network is an example of



- Redundancy
- Cycling
- Looping
- **Merging**

Question No: 7 (Marks: 1) - Please choose one

The following network is an example of



- **Redundancy**
- Dangling
- Cycling
- Dummy

Question No: 8 (Marks: 1) - Please choose one

Which one is best describe Micro Economic Planning?

- Distribution of fertilizer
- **Improving the layout of a workshop in a company**
- Investment planning of the country
- PERT

Question No: 9 (Marks: 1) - Please choose one

If $t_0 = 6$, $t_m = 12$ and $t_p = 18$, then V_t= _____

- 12
- 2
- **4**

► 144

Question No: 10 (Marks: 1) - Please choose one

Which inventory model also known as a saw tooth model?

► **Purchasing Model with no shortages**

► Purchasing Model with shortages

► Manufacturing Model with no shortages

► Manufacturing Model with shortages

Question No: 11 (Marks: 1) - Please choose one

For backward pass computations

► Earliest start time $\geq$ Latest start time

► Earliest start time $\leq$ Latest start time

► Earliest start time $+$ Latest start time = 0

► Earliest start time $=$ Latest start time

Question No: 12 (Marks: 1) - Please choose one

For an activity if optimistic time, most likely time estimate and pessimistic time estimate are **3, 6** and **15** respectively then expected time is

► 4

► 3

► **7**

► 20

Question No: 13 (Marks: 1) - Please choose one

In a quadratic programming problem unlike linear programming problem

► Only objective function is quadratic

► Both objective function and constraints are quadratic

► Only constraints are quadratic

► At least one of objective function or constraint must be quadratic

Question No: 14 (Marks: 1) - Please choose one

Solution region of the constraint $x \geq 0$ is

► Half plane to the right of straight line $x = 0$

► Half plane to the right of y-axis

► Half plane to the region where abscissas are non-negative

► All are equivalent

Question No: 15 (Marks: 1) - Please choose one

A dummy activity is a simulated activity of sorts, one that is of _____duration and is created for the sole purpose of demonstrating a specific relationship and path of action on the arrow diagramming method.

► Zero

► Minimum

► Maximum

► Average

Question No: 16 (Marks: 1) - Please choose one

Activity definition refers to the process of parsing a project into a number of individual tasks which must be completed _____ the deliverables can be considered completed. Activity definitions rely on a number of specific input processes.

► **before**

► both before and after

► after

Question No: 17 (Marks: 1) - Please choose one

A forward pass is used to determine and calculate the _____ dates, through utilization of a previously specified start date.

► **early start and early finish**

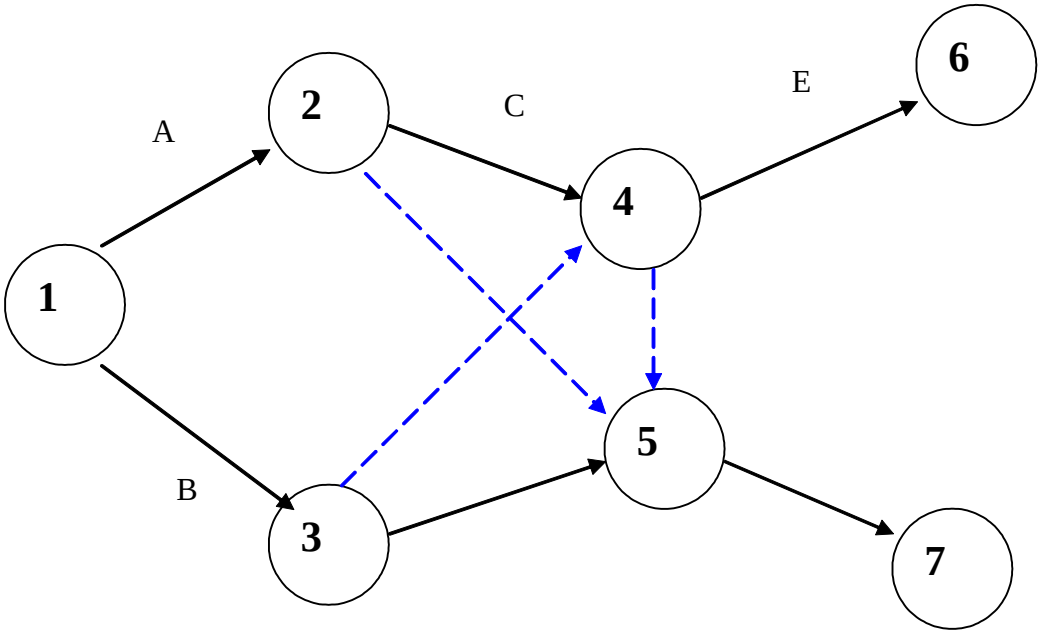
► late start and early finish

► early start and late finish

► late start and late finish

Question No: 18 (Marks: 1) - Please choose one

Is this Network legal?



- Yes.
- **No.**

Question No: 19 (Marks: 1) - Please choose one

Total cost per period = Item cost + Order cost + Holding cost + _____.

- Shortage cost
- Optimum Shortage (S*)
- Economic Oreder Quantity. (Q*)
- Maximum Inventory. ($I_{max.}$)

Question No: 20 (Marks: 1) - Please choose one

$K = Z \times (----)$

Where K is called service factor.

- $\sqrt{\pi/2}$
- $\sqrt{2/\pi}$
- $\sqrt{2\pi/3}$
- $\sqrt{3\pi/2}$