



Name: ..... Roll No.: .....

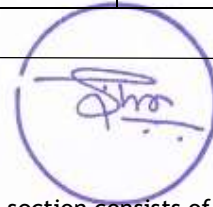
Branch: ..... Signature of Invigilator: .....

Semester: IVth / VIth Date: 01/05/2022 (MORNING)

Subject with Code: PE309 PROJECT MANAGEMENT

Marks Obtained	Section A (30)	Section B (20)	Total Marks (50)

INSTRUCTION TO CANDIDATE



1. The booklet (question paper cum answer sheet) consists of two sections. First section consists of MCQs of 30 marks. Candidates may mark the correct answer in the space provided / may also write answers in the answer sheet provided. The Second section of question paper consists of subjective questions of 20 marks. The candidates may write the answers for these questions in the answer sheets provided with the question booklet.
2. The booklet will be distributed to the candidates before 05 minutes of the examination. Candidates should write their roll no. in each page of the booklet.
3. Place the Student ID card, Registration Slip and No Dues Clearance (if applicable) on your desk. All the entries on the cover page must be filled at the specified space.
4. Carrying or using of mobile phone / any electronic gadgets (except regular scientific calculator)/chits are strictly prohibited inside the examination hall as it comes under the category of unfair means.
5. No candidate should be allowed to enter the examination hall later than 10 minutes after the commencement of examination. Candidates are not allowed to go out of the examination hall/room during the first 30 minutes and last 10 minutes of the examination.
6. Write on both side of the leaf and use pens with same ink.
7. The medium of examination is English. Answer book written in language other than English is liable to be rejected.
8. All attached sheets such as graph papers, drawing sheets etc. should be properly folded to the size of the answer book and tagged with the answer book by the candidate at least 05 minutes before the end of examination.
9. The door of examination hall will be closed 10 minutes before the end of examination. Do not leave the examination hall until the invigilators instruct you to do so.
10. Always maintain the highest level of integrity. Remember you are a BITian.
11. Candidates need to submit the question paper cum answer sheets before leaving the examination hall.

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA**  
**END SEMESTER EXAMINATION**  
**Subject: PE 309 - Project Management**

Class: B. Tech

Session: SP/22

Branch: ALL

Time: 2:00 Hours

Full Marks: 50

Instructions: Attempt ALL from Section A and ANY FOUR from Section B

**Section A**

**(30X1)**

1. During crashing of a project, activities with \_\_\_\_\_ cost slope are preferred for crashing purpose.
  - (a) Zero
  - (b) Low
  - (c) High
  - (d) Negative low
2. Which of the following is NOT a characteristic of project?
  - (a) Uniqueness
  - (b) Fixed time limit
  - (c) Challenging
  - (d) Temporary task
3. In which phase(s) of project life cycle, work subcontracting & appraisal take place?
  - (a) Planning & Execution
  - (b) Execution & Execution
  - (c) Planning & Planning
  - (d) Execution & Planning
4. The probability of completing the activities & project can be estimated based upon the \_\_\_\_\_ & \_\_\_\_\_ distribution.
  - (a) Uniform & Normal
  - (b) Gaussian & Beta
  - (c) Beta & Gaussian
  - (d) Normal & Beta
5. What are the triple constraints in project management?
  - (a) Social, economical and technical
  - (b) Cost, time and scope
  - (c) Scope, customer satisfaction and quality
  - (d) Risk, budget and quality
6. Demand forecasting is attribute of which of the following appraisal
  - (a) Technical appraisal
  - (b) Financial appraisal
  - (c) Market appraisal
  - (d) Economic appraisal
7. Technical appraisal of a project includes all the following except
  - (a) Availability and transport of raw material
  - (b) Layout of the plant including employee safety
  - (c) Survey of potential customers

- (d) Use of the latest technology on the project
8. In Project crashing, rent and overheads are treated as
- (a) Significant Cost
  - (b) Insignificant costs
  - (c) Direct Costs
  - (d) Indirect Costs
9. For an activity in a CPM analysis, the early finish time is 11 and the late finish time is 11. Duration of activity is 4. Which of the following statements is true?
- (a) The early start is 15
  - (b) The duration of the activity is 11
  - (c) The activity is on the critical path
  - (d) The float of this activity is 7
10. Which of the following is NOT a social cost during a project evaluation?
- (a) Air pollution
  - (b) Health hazards
  - (c) Employment opportunity
  - (d) Rehabilitation of people
11. Identify the characteristic of 'Tall Organization' structure
- (a) Better opportunities for employee promotion
  - (b) Improves communication speed and quality
  - (c) Wide span of control
  - (d) Encourages delegation
12. Disadvantage of Functional Organization is
- (a) Unhealthy competition may exist among internal units
  - (b) Accounting work and taxes may increase considerably
  - (c) All the units may not be considered as equal
  - (d) Measuring employee performance might become difficult
13. In the functioning of an organization, 'Silos' means
- (a) Lack of cross-functional problem solving
  - (b) Lack of business innovation
  - (c) Lack of cooperation from suppliers
  - (d) Lack of motivation from top management
14. A company is going for the replacement of old plant machinery with new one. Which type of organization structure suitable for this project?
- (a) Pure Project
  - (b) Departmental Project
  - (c) Matrix
  - (d) Modified Matrix
15. Conglomerates with diversified business entities adopt either \_\_\_\_\_ or \_\_\_\_\_ organization structures.
- (a) Functional or Product
  - (b) Product or Matrix
  - (c) Matrix or Project
  - (d) Project or Product
16. Which of the following is NOT a type of error in construction of network diagram?
- (a) Dangling Error
  - (b) Sequencing Error

- (c) Looping Error
  - (d) Cyclic Error
17. Select the correct order among Total float (TF), Free float (FF) and Independent float (IF).
- (a)  $TF < FF < IF$
  - (b)  $IF < FF < TF$
  - (c)  $IF \leq FF \leq TF$
  - (d)  $TF \leq FF \leq IF$
18. Break -even analysis (BEA) can be used in
- (a) choosing the best product
  - (b) selection among alternatives
  - (c) choosing the critical method
  - (d) selecting the best equipment
19. The time beyond which the direct cost will not be reduced with the increase in time is
- (a) Normal time
  - (b) Crash time
  - (c) Optimistic time
  - (d) Optimum time
20. Which is the first document of the project and authorises the project manager
- (a) Risk register
  - (b) Programme registers
  - (c) Project charter
  - (d) Logbook
21. Opportunity cost of a project is calculated in which of the following project appraisal?
- (a) Technical
  - (b) Management
  - (c) Economical
  - (d) Financial
22. A dummy activity is used in network diagram of a project primarily because
- (a) it is like any other activity in the project
  - (b) it establishes the precedence amongst the activities
  - (c) it consumes no time and other resources
  - (d) it consumes infinite time and resources
23. Uncertainty that presents opportunities to deliver a project ahead of time is known as
- (a) Risk threshold
  - (b) Positive risk
  - (c) Risk analysis
  - (d) Negative risk
24. When a project is such that its scope is changing many times and it becomes never ending. Then this type of project closure is called
- (a) Normal closure
  - (b) Premature closure
  - (c) Perpetual closure
  - (d) Failed project
25. All projects are officially initiated with a \_\_\_\_\_ and officially completed with a \_\_\_\_\_.
- (a) Project charter, certificate of acceptance
  - (b) Detailed project report and certificate of acceptance
  - (c) Project charter and closure report

- (d) Detailed project report and closure report
26. The document containing information about identified project risks, security and solution is
- Project charter
  - Statement of work
  - Log register
  - Risk register
27. Which type of network diagram construction approach is used by most of the project scheduling software?
- AoN (Activity on Node)
  - AoA (Activity on Arc)
  - None
  - A hybrid of AoN and AoA
28. A Project has 6 activities (A to F) with respective activity durations 7, 5, 6, 5, 8, 4 days. The network has three paths A-B, C-D and E-F. The minimum number of activities that need to be crashed to reduce the project duration by 1 day is
- 3
  - 2
  - 1
  - 4
29. A Project has 6 activities (A to F) with respective activity durations 7, 5, 6, 5, 8, 4 days. The network has three paths A-B, C-D and E-F. The non-critical activities are
- A and C
  - B and D
  - C and D
  - E and D
30. In a Gantt Chart
- Simultaneous activities cannot be represented
  - Project completion time can be found
  - Any changes in activity sequence can be represented
  - Large projects can be represented

**Section B (Answer Any FOUR)**

Q1. Construct the network diagram for the given Table 1 and answer the following: (5)

Activity	Predecessor	Time (Days)
A	-	4
B	-	5
C	A	5
D	A	3
E	B	4
F	D,E	5
G	C,F	3
H	D,E	3
I	G	3
J	H	7

Table 1. Activity Precedence

- (i) What is the project completion time?
- (ii) Number of critical paths?
- (iii) Number of critical activities?
- (iv) Identify the activity (if any) with non-zero independent float
- (v) Calculate free float for activity 'D'

Q2. What is the difference between project feasibility study and project appraisal? Differentiate among economic, financial and commercial appraisal of a project. (2+3)

Q3. A project when crashed to various durations the associated costs are tabulated as in Table 2. Using the data and a graphical representation, explain the concept of time-cost trade-off in project scheduling. Why it is not often advisable to complete the project in normal duration? (4+1)

Project duration (Days)	Total Direct Cost (INR)	Total Indirect cost (INR)
140	96600	28000
130	97800	26000
120	100200	24000
115	103200	23000
110	113200	22000

Table 2. Duration and costs

Q4. The time estimate (in weeks) for the activities of a PERT network is given in Table 3: (5)

Activity	$t_o$ (Optimistic)	$t_m$ (Most likely)	$t_p$ (Pessimistic)
1-2	1	1	7
1-3	1	4	7
1-4	2	2	8
2-5	1	1	1
3-5	2	5	14
4-6	2	5	8
5-6	3	6	15

Table 3. PERT problem

- (i) Draw the project network
- (ii) Identify the longest path through it.
- (iii) Calculate the standard deviation of the project.
- (iv) What is the probability that the project will be completed in 9.5 weeks?
- (v) Which critical activity is with maximum variance?

Q5. Explain the effects of 'span of control' and 'chain of command' on functioning of an organization. What are the demerits of product and matrix organization? (2.5+2.5)

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