B.TECH/ME/8TH SEM/HMTS 4202/2019

PROJECT MANAGEMENT
(HMTS 4202)

Time Allotted: 3 hrs   **Full Marks : 70**

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.

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

Group – A
(Multiple Choice Type Questions)

1. Choose the correct alternative for the following: **10 × 1 = 10**

(i)   A manufacturing unit procures the company producing the raw materials. This is an example of
(a) forward integration   (b) backward integration
(c) joint venture   (d) demerger.

(ii) Algorithm followed in "Critical Path Method" for scheduling project activities is
(a) probabilistic   (b) deterministic
(c) stochastic   (d) none of these.

(iii) Direct costs of a project _____ with reduction in time.
(a) decreases   (b) remains constant
(c) fluctuates   (d) increases.

(iv) PERT is _____
(a) deterministic   (b) probabilistic
(c) optimistic   (d) rationalistic.

(v)   In addition to Initiation and Closure, phases of Project Life Cycle comprises of
(a) Determining Scope and Monitoring   (b) Coordination and Control
(c) Budgeting and Reporting   (d) Planning and Execution.

(vi) In the SMART criteria used in determining the objective of a project 'S' stands for
(a) simple   (b) systematic
(c) scientific   (d) specific.

(vii) Total float refers to _____
(a) difference between latest finish time and earliest start time
(b) delaying an activity without disrupting the predecessor
(c) difference between earliest finish time and earliest start time
(d) activities which require maximum resources.

(viii) Building construction is _____ project
(a) business implementation   (b) routine
(c) investigative   (d) reengineering.

(ix) _____ verifies that the product meets the quality requirements
(a) Quality assurance   (b) Quality control
(c) Quality plan   (d) Quality planning.

(x)   Project Crashing involves analysis of _____ trade-offs
(a) cost and schedule   (b) quality and time
(c) time and scope   (d) all of these.

Group – B

2. (a) Define project. What the difference between project and program?
   (b) What are the triple constraints of a project and how are they related?
   (c) What are the skills required of a project manager?   **4 + 4 + 4 = 12**

3. (a) Highlight the differences between PERT and CPM.
   (b) (i) Draw the Network diagram.
       (ii) Determine the critical path.
       (iii) Find project completion time.
       (iv) Identify burst, merge, burst and merge events.
   For a project having following activity details

Activity	Start Node	End Node	Completion Time (weeks)
1	1	2	4
2	1	3	6
3	3	4	4
4	2	7	6
5	3	4	6
6	4	6	10
7	7	8	8
8	6	8	18
9	8	9	6

Note that activity 7 can not start until activity 5 is completed.

                                                    3 + 9 = 12

Group – C

4. (a) Enumerate the significance of resource levelling in the context of Project Management.

   (b) What is the meaning of project evaluation? What is its purpose?

   6 + 6 = 12

5. (a) What is the purpose of project scheduling? Discuss any 2 techniques of project scheduling.

   (b) A project schedule has the following relationships and duration (days). You are required to:
   (i) Construct a activity-on-arrow network diagram.
   (ii) Compute the earliest start and finish time for each activity.
   (iii) Compute the latest start and finish time for each activity.
   (iv) Determine the critical path and the project duration.
   (v) Calculate the total float for each activity.

Activity	1-2	1-3	2-4	3-4	3-5	4-9	5-6	5-7	6-8	7-8	8-10	9-10
Time	4	1	1	1	6	5	4	8	1	2	5	7

   4 + (3 + 1.5 +1.5 + 1 + 1) = 12

Group – D

6. (a) Explain time-cost trade off in relation to project? How do you arrive at the optimum project duration?

   (b) What is resource levelling?

   (c) What are the stages of project life cycle?

   4 + 4 + 4 = 12

7. (a) Explain PDCA cycle in relation to Total Quality Management.

   (b) Elaborate the contents of a typical project audit report.

   4 + 8 = 12

Group – E

8. (a) State the features of project management softwares. Explain its application in resource management.

   (b) Calculate the NPV of Project "X" which initially costs Rs. 300 lakhs and generates annual cash flow of Rs.100, 90, 80, 70 and 60 lakhs in a course of 5 year period. The discount rate is assumed to be 10%. Also calculate the IRR of the project.

   6 + 6 = 12

9. Write short notes *(any 3)*:   **(4 × 3) = 12**
   (i) Quality assurance and quality control.
   (ii) Contents of Detailed Project Report.
   (iii) Outsourcing as means of controlling project cost and time.
   (iv) Common features available in MS Project.