

CENTRAL INSTITUTE OF TECHNOLOGY, KOKRAJHAR
(Deemed to be University)
KOKRAJHAR:: B.T.A.D. :: ASSAM :: 783370

END – SEMESTER EXAMINATION
DEGREE

Session: **Jan-Jun, 2025** Semester: **8th** Time: **3Hrs** Full Marks: **100**

Course Code: **UCE 801** Course Title: **Construction Engineering and Project Management**

ANSWER any 5 questions:

- Q1. a)** Classify the construction equipment based on nature of job. List down the various aspect required for the selection of construction equipment (8)
- b)** Define the term underpinning. Under which conditions underpinning is considered. Explain with a neat sketch pit and pile methods of underpinning (12)
- Q2. a)** Define an activity in project management and explain different types of activity (7)
- b)** Define network diagram and explain the common errors in network diagram. Compare CPM and PERT (8)
- c)** For a given job, draw a network diagram, determine the critical path, total project duration and also compute earliest and latest event time (use dummy if required) (5)

Activity	Duration	predecessor
A	5	None
B	4	None
C	3	None
D	4	A, B
E	6	A, B
F	4	D
G	5	D, E
H	6	B, C
I	6	B, C
J	4	F, G, H

- Q3. a)** Explain in brief the common building construction methods (8)
- b)** Define foundation. Compare shallow foundation and deep foundation. Explain various types of shallow footings (12)
- Q4. a)** Define the term contract. What are the types of contracts, explain any two of them in brief. list down the items included in contract documents (12)
- b)** Define shoring. Explain different types of shoring with a neat sketch (08)

Q5. a) For a given characteristics of project schedule

(14)

- a) Construct network diagram
- b) Determine the critical path and project duration,
- c) Compute earliest and latest occurrence of each
- d) Compute the total float, free float and independent float for each activity

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

- b) Define work breakdown structure. Explain in brief levels of work breakdown

(6)

Q6. a) The following table shows the jobs of a network along with their time estimates

(14)

Activity	T_o	T_m	T_p
1-2	3	6	9
1-6	2	5	8
2-3	6	12	18
2-4	4	5	6
3-5	8	11	14
4-5	3	7	11
6-7	3	9	15
5-8	2	4	6
7-8	8	16	18

Construct a network diagram, calculate the earliest and latest occurrence of each event, identify the critical path and project length, calculate the standard deviation and variance of each activity, find the probability of project completing in 36 weeks

- b) Briefly discuss different modes of grouting

(6)