



ELIZADE UNIVERSITY, ILARA-MOKIN

FACULTY OF ENGINEERING

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

FIRST SEMESTER 2020/2021 SESSION

Course Title: Civil Engineering Practice Course Code: CVE 401 UNITS: 3

INSTRUCTION: ATTEMPT ANY FOUR QUESTIONS. ALL QUESTIONS CARRY EQUAL MARKS EXAMINATION TIME: 2¹/₂hrs

QUESTION ONE (20 MARKS)

HOD'S SIGNATURE

This Table shows a list of activities for a construction work

Activity	Activity Description	Immediate Predecessors	Estimated Duration
A	Excavate	—	2 weeks
B	Lay the foundation	A	4 weeks
C	Put up the rough wall	B	10 weeks
D	Put up the roof	C	6 weeks
E	Install the exterior plumbing	C	4 weeks
F	Install the interior plumbing	E	5 weeks
G	Put up the exterior siding	D	7 weeks
H	Do the exterior painting	E, G	9 weeks
I	Do the electrical work	C	7 weeks
J	Put up the wallboard	F, I	8 weeks
K	Install the flooring	J	4 weeks
L	Do the interior painting	J	5 weeks
M	Install the exterior fixtures	H	2 weeks
N	Install the interior fixtures	K, L	6 weeks

- 1a. Use the activity relationship table above to draw the PDM (4 Marks)
- 1b. Calculate the ES, EF, LS, LF duration for the project (7 Marks)
- 1c. Write out all the paths of the PDM diagram (3 Marks)
- 1d. Determine the critical path of the network diagram calculating the total float for all the activities of the project. (6 Marks)

QUESTION TWO (20 MARKS)

- 2a. Differentiate Between Lump sum contract and turnkey contract (5 Marks)
- 2b. Show a schematic Diagram of a contracting process with all the elements of the three different phases well spelt out. (5 Marks)
- 2c. Explain the two divisions of a contracting process (2 Marks)
- 2d. Breaking down the site preparation and concrete slab foundation construction work into nine different activities: (8 Marks)

QUESTION THREE (20 MARKS)

- 3a. Using the construction schedule bar chart, give a tabular interpretation showing the activities and duration of the project. (5 Marks)

Construction Schedule Bar Chart

		Week 1					Week 2					Week 3					Week 4					Week 5				
		Days																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1																										
2	SITE PREPARATION																									
3	FOOTINGS																									
4	FOUNDATIONS																									
5	TEMPORARY ELECTRIC SERVICE																									
6	WATER AND SEWER TAP																									
7	SOIL TREATMENT																									
8	FRAMING																									
9	MASONRY WALLS																									
10	ROOF																									
11	WINDOWS																									
12	EXTERIOR DOORS																									
13	CORNICE, VENEER, & EXT TRIM																									

3b. Explain the following terms

- i. Scheduling
- ii. Bar chart
- iii. Gantt chart
- iv. Controlling

(8 Marks)

3c. Give a brief explanation of these three points under tendering requirements

Advertising, Procedure and Publicity.

(7 Marks)

QUESTION FOUR (20 MARKS)

4a. Who are the participants of a construction contract? State their roles

(2 Marks)

4b. Explain the various ways in which tenders can be explained

(3 Marks)

- 4c. Prepare BOQ for the construction activities listed in the table below including 15% contingency cost and 5% Value Added Tax (VAT)

ACTIVITY	COST (₦)
Put up the roof	10,000
Put up the rough wall	6,500
Exterior painting	11,200
Do the electrical work	23,450
Install the interior plumbing	21,000
Install the exterior plumbing	2,300
Put up the wallboard	18,800
Install the flooring	25,700
Do the interior painting	32,000
Trench Excavation	1,450
Lay the foundation	4,500
Put up the exterior sliding	3,500
Install the exterior fixtures	56,000
Install the interior fixtures	11,400

(15 Marks)

QUESTION FIVE (20 MARKS)

5a. Differentiate between Activity on Arrow (AOA) and Activity on Node (AON) methods of drawing network diagram. (5 Marks)

5b. Construct an AOA and AON networks for the activities listed in Table below

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

(5 Marks)

5c. Consider the activity relationship table below

Activity	Description	Immediate Predecessor	Duration (weeks)
A	Develop product specifications	None	4
B	Design manufacturing process	A	6
C	Source & purchase materials	A	3
D	Source & purchase tooling & equipment	B	6
E	Receive & install tooling & equipment	D	14
F	Receive materials	C	5
G	Pilot production run	E & F	2
H	Evaluate product design	G	2
I	Evaluate process performance	G	3
J	Write documentation report	H & I	4
K	Transition to manufacturing	J	2

- Construct PDM diagram for activities list.
- Determine EARLIEST start time for each event (working forward from project start).

- Determine LATEST start time for each event (working backwards from project end).
- Identify all the PATHS.
- Which is the CRITICAL PATH

(10 Marks)

QUESTION SIX (20 MARKS)

- 6a.** What are the most common contract relationships created by modern construction projects?
(4 Marks)
- 6b.** Give four advantages and four disadvantages of a lump sum contract
(4 Marks)
- 6c.** Is a Contractor different from a Sub-contractor? If yes, give the major differences between them
(4 Marks)
- 6cii.** Differentiate between a tender document and a contract document
(4 Marks)
- 6d.** What are the requirements a financial institution require to issue a performance bond?
(4 Marks)