



FACULTY OF ENGINEERING
END OF SEMESTER EXAMINATIONS - APRIL 2025

PROGRAMME: BACHELOR OF CIVIL ENGINEERING

YEAR/SEM: YEAR 4/SEMESTER 2

COURSE CODE: BCE4204

NAME: PROJECT MANAGEMENT

DATE: 2025-04-15

TIME: 9:00AM-12:00PM

INSTRUCTIONS TO CANDIDATES:

1. Read the instructions very carefully
2. The time allowed for this examination is STRICTLY three hours
3. Read each question carefully before you attempt and allocate your time equally between all the Sections
4. Write clearly and legibly. Illegible handwriting cannot be marked
5. Number the questions you have attempted
6. Use of appropriate workplace examples to illustrate your answers will earn you bonus marks
7. Any examination malpractice detected will lead to automatic disqualification.

DO NOT WRITE ANYTHING ON THE QUESTION PAPER

Section A Answer only ONE question

Question 1:

You have been hired by a Structural Engineering design firm to head a new design project that has just been won by the firm. Your key role is to be the project manager on the project. The project title is Proposed 3 storied hotel at Mbarara University.

Your immediate tasks is to plan all the activities to be done on this project up to presentation and approval of the designs by the client. (last activity).

Using a table, mention 10 activities you intend to carryout, the duration of each, preceding activities of each and a code for each activity you intend to carry out during this design phase.

Using a Network diagram, answer the following questions:

- i. How long will the project take?
- ii. Which activities are on the critical path?
- iii. Which activities have a float?
- iv. If 6th activity on you project delayed by 50% of the time planned for it, how long would the entire project take?
- v. Mention 4 assumptions or considerations used during this planning process?

(4

0 Marks)

Question 2:

Below is a Construction project table showing activities with their respective precedencies and durations. Using both a Bar chart and Network analysis, draw schedule diagrams for this project and answer the following questions.

ACTIVITY	ACTIVITY CODE	ACTIVITY DURATION IN WEEKS	PRECEDING ACTIVITY
Surveying the area where the road is to pass	A	7	-
Valuation of properties of the affected people	B	8	A

Preparation of bid documents & Invitation of bidders	C	12	A
Compensating the affected people	D	8	B
Bid evaluation and awards	E	10	C
Project Handover to contractor	F	1	E & D
Setup and mobilization by contractor	G	4	E & D
Clearing of the road constructio area of building etc	H	6	G
Road construction	I	30	H
Inspection of works	J	4	I
Handover of the road to govt	K	1	J

- i. How many weeks are needed to complete this project?
- ii. Which activities are on the critical path?
- iii. What is the float for each of the activities?
- iv. Assuming activity D took an extra 3 weeks to be completed, how long would it take for the project to be completed and what would be the new float of each activity?

(40 Marks)

Question 3:

Below is a table developed by a Project manager for a design consultancy firm for a proposed nurse school in Kansanga. It shows the various major activities with their respective preceding activities and duration to be carried out on the project. Draw both a gnat graph and a Network diagram to represent this project and give us the following information.

Activity	Description	Predecessor	Duration (days)
A	Project Briefing by client to designer	?	1
B	Site visit	?	1
C	Site Analysis	B	4
D	Research	2 days after C starts	5
E	Design brief	B	1
F	Concept Development	D	4

G	Schematic designs	F	5
H	Modelling	G	5
I	Artistic impressions and Detailed drawings	G	10
J	Printing and presentation to client	H & I	2
K	Preparation and submission to city council for approval	J	4

- i. How many days are needed to complete this project?
- ii. What is the float for each of the activities?
- iii. Find the earliest start, late start and late finish for each of the activities?
- iv. What activities are on the critical path?
- v. How many critical paths are there?
- vi. How long will the project take if activity **E** took 3 days?
- vii. Can activity **F** be delayed without affecting completion date? If so by how many days?
- viii. What would be the project duration if activity **H** was completed in 3 days instead of 5 days as planned?
- ix. Mention 4 considerations made in scheduling timelines?

(40 Marks)

Question 4:

Below is a table developed by a Construction project manager of a residential house first phase to be built in Juba city. It shows the various major activities with their respective preceding activities and duration to be carried out on the project. Draw either a Gantt chart and a Network diagram to represent this project and give us the following information.

- i. How many days are needed to complete this project?
- ii. What is the float for each of the activities?
- iii. Find the earliest start, late start and late finish for each of the activities?
- iv. What activities are on the critical path?
- v. How many critical paths are there?

- vi. How long will the project take if activity **E** took 15 days?
- vii. Can activity **F** be delayed without affecting completion date? If so by how many days?
- viii. What would be the project duration if activity **H** was completed in 3 days instead of 5 days as planned?
- ix. Can activity **G** and **F** happen at the same time?
- x. Mention 2 considerations made in scheduling timelines?

Activity	Description	Predecessor	Duration (days)
A	General Site clearing	None	4
B	Removal of trees	None	2
C	General excavation	A	7
D	Grading general area	2 days after A	4
E	Excavation for trenches	B, C	11
F	Placing formwork & reinforcement for concrete	B, C	10
G	Installing Sewer lines	D, E	2
H	Installing other utilities	D, E	5
I	Pouring concrete	F, G	3

**(40
Marks)**

Section B Answer any TWO questions

Question 1:

- a) Describe the meaning of project management and its importance in the world today?

- b) Mention and describe the 10 project management areas of knowledge and the steps taken to successfully achieve each of them on a construction project?

**(30
Marks)**

Question 2:

Procurement is a major part of construction projects.

- a) In your own words briefly describe the meaning of procurement with help of a diagram/illustration?
- b) Mention and explain the 7 major objectives of any procurement process in the construction industry?

**(30
Marks)**

Question 3:

Projects are made up of teams. What is a team? Mention at least 7 team members of a Building construction project, describe their roles, their expected outputs for a project, who they report to and work closely with to achieve their role goals?

**(30
Marks)**

Question 4:

A construction project like any other project has a life cycle composed of 5 process groups.

- a) Sketch a diagram showing the flow of these process groups?
- b) Mention and write short notes on each of the 5 process groups?

**(30
Marks)**