



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2020/2021

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN CONSTRUCTION MANAGEMENT
BCM 403: CONSTRUCTION PLANNING AND SCHEDULING

DATE: Monday, 29th March 2021

TIME: 11.00a.m-1.00p.m

INSTRUCTIONS: Answer Question ONE and any other TWO Questions

Question One 30 marks)

- i. Define the following terms (8 marks)
 - (a) Work breakdown structure
 - (b) Earned value
 - (c) Critical path
 - (d) Project time-cost trade off
- ii. State any five important of project time-cost trade off in project management(5 marks)
- iii. Illustrate briefly any four benefits of the Critical Path Method (4marks)
- iv. Describe briefly any four types of construction documents (4marks)
- v. State any four inclusions in the project scope statement (4marks)
- vi. Briefly describe the five stages of project management (5marks)

Question Two 20 marks

Tiffany and Tirus are construction managers who are working in a small project that runs for 52 weeks. The project is budgeted to cost Kshs. 10 million. At the 26th week of the project execution, they realized that the actual cost consumed through this period is Kshs. 4.5 million and the budgeted cost was Kshs. 5.5 million. Assuming that you are Tiffany and Tirus, calculate the project earned value and make deductions to the finding to be reported to the management.

Question Three 20 marks

- (i) Brian and Kiptoo are construction managers who are employed by Hilda Agency, a financial institution that finances the construction of Kenyatta university DCREM offices. They are tasked to monitor the progress of the work done on the site and report the progress every end month to Hilda Agency. Discuss any four inclusions they will have on their monthly report. (12 marks)
- (ii) Brian and Kiptoo were also tasked to report on any constraints the project could face. Assuming you are Brian and Kiptoo, describe any four types of construction project constraints they are likely to encounter. (8marks)

Question Four 20 marks

- (i) Immaculate is construction cost expert employed by Waigumo Construction Co. to monitor the project cost and advise the project manager as appropriate. Discuss any three importance of construction cost management. (6marks)
- (ii) Assume that you are working with Immaculate and she asked you to handle the project resources for the company in order to help apply control and monitoring of the project cost. Briefly describe the steps of creating the resource plan for the project. (14marks)

Question Five 20 marks

1. Mercja and Anindo wanted to construct an office for their department. Their concern was to know the most probable duration the project would take for planning and budgeting allocation. You were therefore approached to guide them on the construction scheduling process since they are targeting to start using the laboratory after 15 weeks. Consider the following table summarizing the details of their activities.

Activity	Predecessor	Duration in weeks			
		O	M	P	
A.	----	5	6	7	
B.	----	1	3	5	
C.	----	1	4	7	
D.	A	1	2	3	
E.	B	1	2	9	
F.	C	1	5	9	
G.	C	2	2	8	
H.	E,F	4	4	10	
I.	D	2	5	8	
J.	H,G	2	2	8	

Using the following data obtained from different project foreman concerning the activities to be carried out:

- (i) Construct the project network (6marks)
- (ii) Find the expected duration and variance of each activity of the project (6marks)
- (iii) Find the critical path and the expected project completion time (1marks)
- (iv) Find the probability of completing the project between 14 and 22 weeks (4marks)
- (v) Find the probability of meeting the deadline of 15 weeks (3marks)