NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF APPLIED CHEMISTRY
BACHELOR OF SCIENCE HONOURS DEGREE
SUPPLEMENTARY EXAMINATIONS – AUGUST 2014
PROJECT DEVELOPMENT AND MANAGEMENT – SCH 4210
TIME: 3 HOURS

INSTRUCTIONS TO CANDIDATES
Answer *__any four (4)__* questions from the five provided. Start your answers
to different questions on new pages. Each question carries 25 marks.

1. With an original investment of $35,000 and the net returns given below, two projects,
   A and B are competing for the funds.

Discount rate Year	Project A 14%	Project B 14%
1	12 000	10 000
2	14 000	12 000
3	16 000	16 000
4	12 000	14 000
5	10 000	12 000
Total	64 000	64 000

Use the four financial models to identify which of the two projects is the most attractive
investment.   (25 marks)

2. A project has an original budget of $600 000 and after the first 4 months of a
   12 months planned project time, the Scheduled Costs, Actual Costs and Earned Values
   are as follows:

	Month 1	Month 2	Month 3	Month 4
Scheduled cost	32 000	60 000	150 000	240 000
Actual cost	35 000	70 000	160 000	250 000
Earned value	30 000	50 000	140 000	230 000

a) Draw the three curves, Scheduled, Actual & Earned Value.   (6 marks)
b) Calculate the Cost Variance for month 4.   (3 marks)
c) Calculate the Schedule Variance (cost based) for month 4.   (4 marks)
d) Find the Schedule Variance (time based) for month 4.   (4 marks)
e) Calculate the CPI for month 4.   (4 marks)
f) Calculate the SPI (cost based) for month 4.   (4 marks)
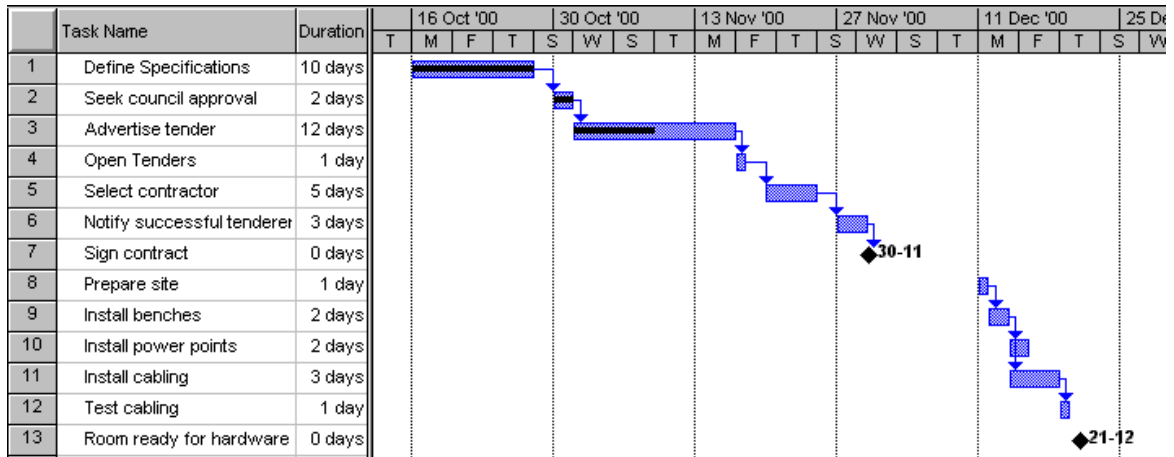
3. For project shown in Question 2;

a) Find the SPI (time based) for month 4. (4 marks)
b) Calculate the estimated final cost of the project. (4 marks)
c) Calculate the estimated final completion time of the project. (4 marks)
d) Comment on the status of this project. (6 marks)
e) Consider the following project

Activity	Preceding activity	Duration
A	-	2
B	-	3
C	A	4
D	B, A	3
E	D, C	8
F	C	3
G	E	2
H	F, G	3

Draw the A-O-A network and identify the critical path. (7 marks)


4.
   a) Being assigned as a project manager, you noticed during project execution that conflicts arise in the team on both technical and interpersonal levels. What is the best way of handling these conflicts? (5 marks)

   b) In a project, a *cost plus incentive fee contract has been awarded to a contractor with the following parameters:*
Target cost: $1,000,000
Target contractor fee: $100,000
Cost benefit sharing ratio: 80%/20%
Price ceiling: $1,200,000
Calculate the point of total assumption (PTA) of the project. (5 marks)

   c) During execution of a project, you observe that the performance of some of your team members is dropping, while others are doing a consistently good job. What should you try first to bring the team as a whole back to performance?
(5 marks)

   d) You are identifying key stakeholders for your small income generating project. Which people will you not include in any case? (4 marks)

e) Consider the project below:

	Task Name	Duration
1	Define Specifications	10 days
2	Seek council approval	2 days
3	Advertise tender	12 days
4	Open Tenders	1 day
5	Select contractor	5 days
6	Notify successful tenderer	3 days
7	Sign contract	0 days
8	Prepare site	1 day
9	Install benches	2 days
10	Install power points	2 days
11	Install cabling	3 days
12	Test cabling	1 day
13	Room ready for hardware	0 days

i)   Identify the project milestones.   (4 marks)

ii)   Define project milestone.   (2 marks)

5.
a) Consider the following A-O-A network
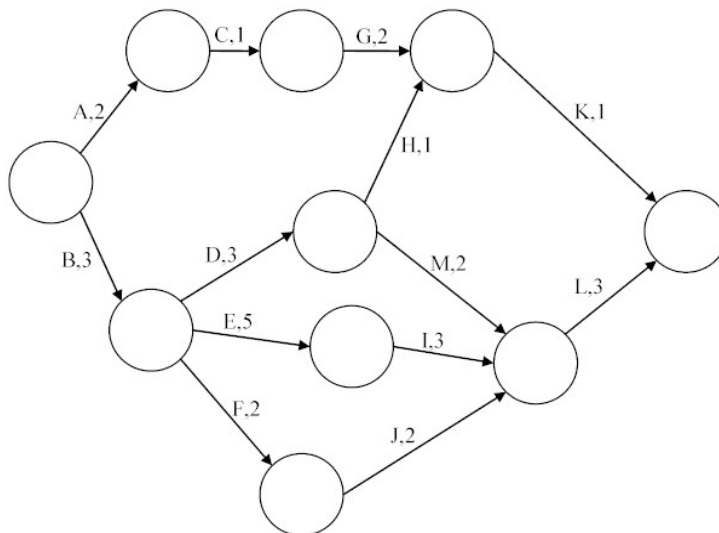
i)   Identify the critical path(s).   (5 marks)

ii)   The project manager wants to reduce the total length of the project by 4 days. By bringing in extra workers, she manages to reduce the durations of tasks B and L by 2 days each. What will be the effect of this intervention?
(6 marks)

b) Consider the following PERT network:

Activity	t_o	t_m	t_p
1, 2	1	4	7
1, 3	1	2	3
2, 3	2	4	6
2, 4	1	1	1
3, 4	2	5	7

i)   Draw the network and calculate the project duration.   (5 marks)

ii)   Calculate the probability of completing the project in 9 days.
                                                                (5 marks)

iii)   PERT is more suitable for projects in research and development. Explain.
                                                                (4 marks)

End of question Paper!!!