This is a sample exam paper.
As required and requested, provided by Prof Geroimenko on 25 September 2016

BUE The British University In Egypt الجامعة البريطانية في مصر	**CSCI08I** **Final Examination,**
Module Title **Software Project Management**	
Module Leader	Semester **One**
Equipment allowed (for example calculator)	None

Instructions to Students

- You should answer all 3 questions
- The exam paper is 4 pages long
- The approximate allocation of marks is shown in brackets by the questions.

This examination is **Two** hours long.

Q 1 Answer the following:

a) Project objectives should be SMART. Explain briefly what is meant by the mnemonic, then illustrate whether the following objective for a project is SMART or not: “to implement the software such that it meets the required level of security”.

b) Which software development model will be most suitable to develop: **project 1**: A database of school students’ personal information, and **project 2**: a console game. Explain whether the same SDM can be used or not and why.

c) Estimates for a project’s size/effort and cost are usually done at the strategic planning, feasibility study, and project planning stages. Describe the purpose of the estimate at 2 of these stages.

d) Compare the work breakdown structure (WBS) and product breakdown structure (PBS) in terms of their definition.

e) What is mean by virtual teams, why are they sometime needed?

f) Decision making within a team depends on the style of leadership, and can vary between the democratic and the more autocrat. In both cases, some mental obstacles can hinder making a good decision. Discuss 2 of these mental obstacles.

[Q1 Total: 48 marks, 8 marks each]

Q 2 A software company is building a software for a client to keep records of attendance/ absence of its various types of employees. The employees fall into 3 categories (A, B, C) each with their own attendance rules. All employees sign-in and sing-out, but their data is saved in one of 3 files based on their category. At the end of each month, the files are accessed by employee ID, their salary is calculated, and a report of their attendance record and calculated salary is sent to employee and to the finance department.

a) Identify the number of function points for this task by:

1) Specifying the number of input data elements, output data elements, and entity types referenced in files, and then,
2) using the MarkII method:

w_i x (number of input data elements) + w_e x (number of entity types referenced) + w_o x (number of output data elements.

, where w_i = 0.58, w_e = 1.66, w_o =0.26

[8 marks]

b) The coding will be in Java, for which 60 lines of code correspond to one function point. Estimate the expected code size?

[5 marks]

c) The COCOMOII method for effort estimation is given by:

EFFORT(PM) = 2.94 (size)^{sf} x (product of effort multipliers)

Where**: sf = 0.91 + 0.01 x ∑{exponent driver ratings)**

Given a product of effort multipliers of 17, and the table below for the exponent driver ratings, calculate an estimation of the effort.

Driver	Very low	Low	Nominal	High
PREC	6.2	4.95	3.72	2.48
FLEX	5.07	4.05	3.04	2.03
RESL	7.07	5.65	4.24	2.83
TEAM	5.48	4.38	3.29	2.19
PMAT	7.80	6.24	4.68	3.12

The project team members have implemented similar types of projects numerous times, and have been working together as a team for a long time. The project development flexibility is high, but the software house is highly informal on its procedures. Also, the project interface and some details in requirement are still a bit vague, the team hopes it will be clarified completely after a prototype is produced.

[12 marks]

[Q2 Total: 25 marks]

Q 3 The following table represents the list of project activities, their durations, and dependencies. All tasks can start as soon as possible.

Task	Duration (Working weeks)	Depends on
A	2	
B	1	A
C	3	B
D	5	B
E	5	C
F	3	D, E
G	2	C, F
H	1	G

a. Create the precedence activity network. For each activity node, specify earliest start and finish dates, latest start and finish dates, the total float, and the activity span.

[17 marks]

b. Determine the critical path of the project. What is the project's earliest possible finish date?

[5 marks]

c. The client for this project has asked for the deadline to be 2 weeks before the earliest possible finish date. The project manager is looking into how this can be achieved. Which tasks does he/she needs to consider shortening? Discuss 2 approaches that the manager can consider to shorten these tasks and hence deliver the project earlier.

[5 marks]

[Q3 Total: 27 Marks]