



# PIONEER INTERNATIONAL UNIVERSITY

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## UNIVERSITY EXAMINATIONS

ACADEMIC YEAR: 2021/2022

SEMESTER: JAN – APRIL 2022

CODE: BSIT 2230

UNIT: SOFTWARE ENGINEERING

DATE: APRIL 2022

TIME: 2 HOURS

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### INSTRUCTIONS

Answer **Question one** and **any other two** questions.

1. a. Since there are many methodologies, the first challenge faced by analysts is to select which methodology to use. Discuss any four key factors that must be considered in selecting a methodology.

**8 Marks**

- b. If you were developing a security-critical system, how would you integrate the security requirements engineering and assurance processes into the model?

**4 Marks**

- c. Using Tuckman's model of team development, explain the different phases of team development.

**6 Marks**

- d. Describe the process to be followed in designing real-time systems. **8 Marks**

- e. State the major categories of the set of “cost driver attributes by which the intermediate COCOMO model extends the basic COCOMO model. **4 Marks**

2. You are advising the new Secretary of State for Work and Pensions following the 2017 election and the failure of the previous government’s Universal Credit scheme for modernising welfare payments. The government’s policy is to move away from a “big project” approach to system change and instead have a platform on which benefits can be rolled out, or old benefits modified, as needed. The new Secretary of State wants to develop a concept of how such a system will operate that will find favour with Cabinet colleagues. Suppose as an example a minister decides to award a pension supplement to disabled people over 80 and their carers.

(a) Describe the processes and issues likely to be involved in:

- (i) Establishing a business requirement and likely cost.

**4 Marks**

- (ii) Determining what changes are needed to platform applications or other systems.

(iii) Discuss any four alternative approaches to managing conflict in software projects.

**4 Marks**

(iv) Explain the types of maintenance that can be carried out on such a system.

**4 Marks**

(b) Using real world examples, discuss the lessons we might draw from the failures of other public-sector systems in the past.

**4 Marks**

3 a. Describe any six approaches to software reuse.

**6 Marks**

b. Describe the general rules for evaluating the technical risks associated with a systems development project

**4 Marks**

c. Explain briefly the Four different types of software review.

**4 Marks**

d. The present scenario of CASE tools and environments is richer than a few years ago but is still unsatisfactory. The popular term CASE is the statement of a vision rather than the reality. Describe any six features of an ideal scenario for CASE.

**6 Marks**

4. a. Describe any five Configuration Management activities that are monitored by Software Quality Assurance.

**5 Marks**

b. Discuss any six application assessment factors to consider in relation to software evolution.

**6 Marks**

c. Discuss the V process model and give two advantages and disadvantages.

**6 Marks**

d. State any three difficulties of Software Cost Estimation.

**3 Marks**

5. a. Explain briefly the contents of a software test plan.

**7 Marks**

b. Network Analysis involves the breaking down of a project into its consistent activities and the presentation of these activities in a diagrammatic form. Explain briefly the steps that are followed in the Critical Path Method.

**7 Marks**

c. Regardless of its specifics, every software design method that has been introduced is based to some extent on the same proven concepts. Explain briefly any six of these concepts.

**6 Marks**