**Section B**
**Answer Section B questions in Answer Book B**

**Introducing a Method**

**B4.**
  a)  If a new systems design method was adopted by an organisation, how could the effectiveness and the efficiency of the new systems design method be compared to the previous existing systems design method used by the organisation?
    **(10 marks)**

  b)  Compare and contrast **THREE** different approaches to training IT staff in the use of a new systems design method.
    **(15 marks)**

**Evaluation and Tuning of a Method**

**B5.**
  a)  Outline the types of software tools that **COULD** be used to support systems development activities, explaining the potential benefits that they **COULD** provide.
    **(12 marks)**

  b)  Give at least **TWO** reasons for comparing and evaluating systems design methods.
    **(5 marks)**

  c)  NIMSAD (Normative Information Model-based Systems Analysis and Design) is a well-known framework for comparing and evaluating systems design methods. NIMSAD recommends that evaluation of a method should involve evaluation of the Method Context (the problem situation), the Method User (the intended problem solver), and the Method itself (the problem-solving process).

  Why is the evaluation of all **THREE** aspects necessary?

  Give **THREE** criteria that may be used to evaluate the Method User (i.e. the intended problem solver).
    **(8 marks)**

**End of Examination**

**BCS THE CHARTERED INSTITUTE FOR IT**

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**SYSTEM DESIGN METHODS**

Tuesday 11th May 2021 – Afternoon

Answer **any** THREE questions out of FIVE. All questions carry equal marks.

Time: THREE hours

**Answer any Section A questions you attempt in Answer Book A**
**Answer any Section B questions you attempt in Answer Book B**

The marks given in brackets are **indicative** of the weight given to each part of the question.

Calculators are **NOT** allowed in this examination.

**Section A**
**Answer Section A questions in Answer Book A**

**Basic Elements of System Design Methods**

**A1.**
a) How does a class diagram support the design of the data structures required for a system?

**(5 marks)**

b) How does a use case diagram support the design of the functionality of a system?

**(5 marks)**

c) How does an activity diagram support the design of the detailed functionality of a system?

**(5 marks)**

d) Sequence diagrams model interactions and can be drawn at different levels of detail. Therefore, they serve different purposes.

    i) Identify at least **THREE** different purposes of sequence diagrams in systems development.
    ii) How does a sequence diagram support the design of the detailed functionality of a system?

**(10 marks)**

**Construction of a Method**

**A2.**
a) An organisation wishes to develop a Management Information System (MIS)that will store all the organisation's data in a data warehouse. This MIS will provide various reporting functions, that displays information in a highly visual manner via graphs and charts. Discuss which design techniques could be used for the following aspects of the management information system:

    i) The data to be stored in the data warehouse;
    ii) The reporting functions;
    iii) The user interface.

**(15 marks)**

b) Component Based Systems Development (CBSD) methods place a lot of emphasis on component reuse when developing a new system and on developing ('fabrication') of new reusable components. Identify the **MAIN** stages which should be provided by a typical CBSD method.

**(10 marks)**

**Selecting a Method**

**A3.**
a) Discuss the type of IT projects for which agile systems design methods would be appropriate.

**(10 marks)**

b) Discuss the type of IT projects for which agile systems design methods would be inappropriate.

**(5 marks)**

c) Provide a brief outline of DSDM (Dynamic Systems Development Method).

**(10 marks)**

**[Turn Over]**