**Part A**

1. **State any four of the characteristics of the human-centred design (HCD). (4 marks)**

* Human Centred Design is an iterative process which is meant to improve the quality of the final product
* Human Centred Design highly involves the final consumer during the entire process such as during the design phase.
* Human Centred Design requires the designers to have a high understand of user, the task at hand and the environment of the whole process.
* Human Centred Design considers the overall consumer experience by measuring, collecting and analysing the user experience.

1. **Highlight the main aims of prototyping. (2 marks)**

* Evaluation and Testing the design - Prototyping makes it possible to test and feel the design. This makes it possible to analyse a working model of the anticipated final product. Some design issues that are not noticeable during the design process. Therefore, prototyping allows you to test the design and identify all the weaknesses
* Evaluate the real cost of your product - Prototypes are a good way to understand what the product should and what should not be included. This helps to prevent unnecessary expenses that may arise during the development process.
* Feedback from potential users - With a model of the anticipated product, it is possible to get feedback from the targeted consumer. A group of beta users who will use your prototype and then give you feedback may be used therefore helping the designers to identify the drawbacks during the design phase. This makes it possible to make necessary changes at an early age.

1. ***TexIT Inc.* provides users with the possibility to use either a standard version of its website or a text-only version. Consider that an evaluator would like to set up an experiment to assess whether users perform tasks faster when using the text-only version than when using the standard version.**
   1. **Define the following terms: independent variable, dependent variable, and hypothesis. (3 marks)**

* Independent Variable - This is a variable that is changed or controlled in a scientific experiment to test the effects on the dependent variable. It represents the cause or reason for an outcome.
* Dependent Variable - This is the variable being tested and measured in a scientific experiment. The dependent variable is 'dependent' on the independent variable.
* Hypothesis - A statement of the predicted or expected relationship between two or more variables or a proposed explanation for some observed phenomenon.
  1. **From the above situation, determine: the independent variable(s), the level(s) of the independent variable(s), and the dependent variable(s). (4 marks)**
* Independent Variable:
  + Versions used
* Levels of independent variable
  + Standard Version
  + Text-only version
* Dependent Variable
  + Task completion time

1. **An adaptive or adaptable system should ideally consist of: a domain model, a user model, and an interaction model. Define the following terms as used in HCI:**
   1. **Adaptability (1 mark)**

This means that users can substantially customise the system through tailoring activities by themselves. When a system is adaptable, it means it can be easily adapted by someone, or something to accommodate a custom change

* 1. **Adaptivity (1 mark)**

This means that a system is consistently able to change itself to accommodate a change while at the same time maximizing the benefits of the change.

**Part B**

1. **Discuss any three advantages and any three disadvantages of Heuristic Evaluation. (Please be as specific as possible in your discussion.) (6 marks)**

**Advantages**

* It is a detailed, technically sound process that assesses the product against very clear criteria.
* Because it is done by several people there is a better chance of getting a range of views and picking up more potential problem areas.
* There are fewer practical and ethical issues attached to heuristic evaluation as testers are testing in a virtual space.
* Heuristic evaluation tends to focus on fewer, more relevant areas so the problems it identifies tend to be important ones.

**Disadvantages**

* A number of experts are required and this can be time consuming and expensive to research and set up.
* The evaluation is only as good as the people you get to do it. This means you have to spend a lot of time analysing and reviewing experts to make sure they are relevant and experienced in the issues you are concerned with.
* You are getting opinions and personal observation rather than hard, empirical data from the exercise and the experts’ own background, attitudes, preferences might colour the verdicts.

1. **Describe any four desirable characteristics or requirements of prototyping tools. (4 marks)**

* Capability to export the look and feel of components for eventual transition to the final product code. This should be made possible by the graphical user interface of the prototyping tool.
* It should fit in with the technical infrastructure. The prototyping tool should support interaction with external environments such as data sources (e.g. a Database Management Software)
* It should support component-based development. This means that the prototyping tool should permit definition and support for creating re-useable components.
* Capability to import text, graphics, and other media from other sources. This makes it possible to make use of already existing components without having to create them from scratch.

1. **The software developers at *BeIT Inc.* have come up with a prototype of the intended company’s website. The developers want to evaluate the prototype first before proceeding with the next version. They have decided to use the cognitive walkthrough type of evaluation. Who would be the participants in this type of evaluation? (1 mark)**

* Intended users of the system. This could be some employees from BeIT inc or some of their clients.

1. **Computer-Supported Cooperative Work (CSCW) refers to collaboration between individuals via computing technologies. CSCW systems are built to allow collaboration between humans via the computer. Two important features of CSCW systems are:**
2. **the mode of interaction they support and**
3. **the geographical distribution of the users.**

**Decompose the two features further and consequently describe the emanating four-category classification of CSCW systems. (4 marks)**

* **Same Place Same Time** - This is where the interacting people are present at the same place and time. Examples are meetings and classrooms. Groups usually hold frequent meetings in order to discuss, organize and evaluate topics.
* **Different Time Same Place -** This involves storage of information for a second person or group. Once the person arrives at the venue where the message was left, the can then access the message that was eft behind for them. Traditional examples are hieroglyphs and words. A modern example is people leaving messages behind at the workplace where they work in shifts
* **Same Time Different Place** - This is made possible by the intercommunication of networks, that is, the internet. People residing in geographically separate locations communicate amongst each other as well as work together by holding virtual meetings. Audio/Video teleconferencing makes this more efficient by allowing the participants to see or hear each other.
* **Different Time Different Place** - This is an asynchronous form where one person can receive the information and access it at any place and at whatever time is convenient for the recipient provided that the individual has the required tools of access. A classic example is the Email.