

University of Eswatini

Department of Computer Science

Final Examination

2018/19

Title of Paper: Software Engineering II

Course Number: CS452/CSC491

Time Allowed: Three (3) hours

*Instructions: Answer **ALL** questions*

You are not allowed to open this paper until you have been told to do so by the invigilator.

Question 1

- a) Discuss user profiling. [5]
- b) Discuss the disadvantages of three (3) interaction styles you have been exposed to. [9]
- c) Name the three (3) main objectives of testing. [3]
- d) How is non-functional testing different from functional testing? Discuss any two (2) forms of non-functional testing. [8]

Question 2

Draw an OOA diagram for the story below. [25]

MATSAPHA SURGERY

A doctors' surgery consists of five doctors a receptionist and a manager. They need an information system to help them to run the facility.

A patient may ring the surgery to make an appointment with a doctor. Each patient nominally has a doctor associated with him or her but they may often opt to see any doctor in the surgery that is available. The receptionist sees which doctors are on duty on which days and offers appointment alternatives from which the patient may choose. If an appointment is not available within a short time and the patient must be seen quickly they are asked to attend an emergency surgery that takes place every evening between 5 and 6 p.m. The appointment can be 5, 10 or 20 minutes long, dependent on the reported reason for seeing the doctor. This reason is recorded on the system. Sometimes patients ring to cancel appointments. Appointments may be made for up to six weeks in advance. Appointments that are more than 3 weeks old are automatically deleted from the system. Some appointments are for a doctor to go and visit a patient at home when the patient cannot come to the surgery. Every day one of the doctors is available for home visits in the afternoon.

A record is kept of each patient and the treatments they have received for any ailments they may have had. Here are recorded many details such as allergies, details of which drugs patients have been administered in which quantities and when. Also relevant personal details of each patient are recorded. Typically the doctor who sees a patient will want access to this information before deciding on the relevant treatment to give. When the doctor prescribes treatment, details will be recorded in the patient's record.

Repeat prescriptions are automatically produced by the system and are available for collection at the surgery by the patient. At any time a doctor may suspend or cancel the prescriptions.

Patients may register with the surgery providing the number registered to each doctor is not above a certain maximum. Sometimes patients die or leave the area. In this case the patient is removed from the system and their details are archived. The manager is responsible for dealing with this aspect.

Question 3

- a) Discuss forms of coupling and cohesion whose desirability is high. [10]
- b) Define coupling and why loose coupling is said to be desirable. [5]
- c) Discuss cohesion and why it is more desirable than coupling. [5]
- d) How is activation control coupling different from coordination control coupling? [5]

Question 4

Using the story in Question 2 do the following:

- a) Draw a use case diagram. [14]
- b) Draw a sequence diagram (using paragraph 2). [11]

End!!!