



UNIVERSITY OF MORATUWA

ITE 2132

Faculty of Information Technology

Bachelor of Information Technology (BIT) External Degree

ITE 2132: Object Oriented Programming - Practical Exam

Time Allowed: 1 hour

August 2019

Paper 01

Question 1

You have been asked to develop a software system for HGT Hospital. Choose Java language to develop the application.

The system manages information about Doctors. Doctors can be of two categories, namely General Practitioners and Specialists. Three classes called **Doctor**, **GeneralPractitioner**, and **Specialist** exist in the application.

A Doctor has a name, address, phone number, and registration number as properties. A General Practitioner has a name, address, phone number, registration number, and hourly rate as properties. A Specialist has a name, address, phone number, registration number, and doctor's charge per patient as properties.

At the end of every month, the system must calculate the total payment for each Doctor. So, you have decided to add a method called **totalPayment()** to the **Doctor** class. Method **totalPayment()** should take an integer parameter and return the total payment for the doctor. General Practitioners are paid based on the number of visiting hours during the month, and Specialists are paid based on the number of patients consulted during a month. Total payment for a General Practitioner is equal to the multiplication between the hourly rate and the number of visiting hours during the month. You may take the number of visiting hours as a parameter. Total payment for a Specialist is equal to the multiplication between doctor's charge and the number of patients consulted during the month. You may take the number of patients consulted as a parameter.

- a) Implement the **Doctor** class. Include at least 2 constructors to the class. Use the keyword *this* in the appropriate places.

(25 Marks)

- b) Implement the **GeneralPractitioner** class. You should include at least one constructor to the class, which will set the values of parameters to the class members and must override the **totalPayment()** method. Use the keywords *this* and *super* in the appropriate places.

(25 Marks)

- c) Implement the **Specialist** class. You should include at least one constructor to the class, which will set the values of parameters to the class members and must override **totalPayment()** method. Use the keywords *this* and *super* in the appropriate places.

(25 Marks)

- d) Implement the main method. Get user inputs from the keyboard about the Doctor (General Practitioner or Specialist), hourly rate and doctor's charge according to the category of the Doctor. Then display the doctor's information and his/her monthly total payment.

(25 Marks)

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