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RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Applied Sciences
Second Year - Semester II Examination – September/ October 2020

COM 2308 – SOFTWARE ENGINEERING

Time: Three (03) hours

1. This paper contains **five (05)** questions on **four (04)** pages.
2. This examination accounts for 60% of the course assessment. The total maximum mark attainable is 100. The marks assigned for each question and section, thereof are indicated in brackets.
3. This is a closed book examination.
4. Mobile phones or any other communication devices are not permitted.
5. Clearly state the assumptions you make, if any.
6. Answer **ALL** questions.

1. a) Describe what **bespoke software** is.

(02 marks)

b) Describe following software engineering challenges.

- Legacy challenge
- Heterogeneity challenge
- Delivery challenge

(06 marks)

c) Describe the term **Software crisis**.

(04 marks)

d) Assume that you are working on a project to develop a railway ticket booking system. The project duration is six (06) months. Describe why waterfall model is not suitable as a development model for this project.

(04 marks)

e) Describe the advantages and disadvantages of rigorously documenting the activities in a software process model.

(04 marks)

2. a) Describe the importance of **Test cases** in Test Driven Development (TDD).

(02 marks)

b) Describe why requirements may have to be compromised when using Component-based Software Engineering.

(02 marks)

c) Describe the reason for the following drawback in prototyping.
"Designers and end users can focus too much on user interface design"

(02 marks)

d. Describe the importance of version control.

(02 marks)

e. Describe how the **Nature of the application** will affect the program language selection.

(02 marks)

f) Describe how **naming guidelines** can be standardized.

(03 marks)

g) Describe why the following statement is true.
"Comments must be updated when code is updated during maintenance"

(03 marks)

h) Describe what **software fault tolerance** is.

(04 marks)

3. a) Describe why we do not try to achieve 100% defect free software during **Verification and Validation (V & V)** process.

(02 marks)

b) Describe what we try to do in **Verification process** (in V & V).

(02 marks)

c) Describe the business implication of failing the **Verification process** in real world situations.

(03 marks)

d) Describe how the function of the software will affect the V & V confidence.

(03 marks)

e. Describe why the following statement is true.
"program testing is the only validation technique for non-functional requirements"

(03 marks)

f) Describe difference between **Testing** and **Debugging**.

(04 marks)

g) Describe what **Stress Testing** is.

(03 marks)

4 a) Describe what **path testing** is.

(02 marks)

b) Describe three (03) reasons why is not always possible to find ideal people to work on a project.

(03 marks)

d. Describe what a **Risk** is.

(02 marks)

e) Describe the three (03) risk management strategies.

(06 marks)

f) Describe why **Risk Monitoring** is required.

(03 marks)

g) Describe two (02) reasons why software change is inevitable considering **Program evolution dynamics**.

(04 marks)

5. a) Describe why the following statement is true.
"As an evolving program changes, its structure tends to become more complex."
(02 marks)

b) Describe how the team stability affect the maintenance cost.
(03 marks)

c) Describe the method known as **pair programming**.
(02 marks)

d) Describe what "**Unscheduled corrective maintenance**" is.
(03 marks)

e) Describe what Derivation history is for a code component.
(02 marks)

f) In **Legacy System categories**, what is a "**Low-quality, high-business value**" system?
(03 marks)

g) Describe what **Configuration management** is.
(03 marks)

h) Describe what **Version** is.
(02 marks)

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