PAPER ID-311251

Subject Code: KCA302

Roll No: | | | | | | | | | | | | | |

MCA
(SEM III) THEORY EXAMINATION 2023-24
SOFTWARE ENGINEERING

TIME: 3HRS **M.MARKS: 100**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief.

Q no.	Question	Marks
a.	What are the advantages of incremental model?	2
b.	What are the various steps in requirement engineering process?	2
c.	List the process maturity levels in SEIs CMM.	2
d.	What are the umbrella activities of a software process?	2
e.	What is Cyclomatic Complexity?	2
f.	What are the characteristics of good tester?	2
g.	Define black box testing strategy?	2
h.	Explain the need of Software project management.	2
i.	Differentiate between reactive risk and proactive risk strategies.	2
j.	What does Level 0 DFD represent?	2

SECTION B

2. Attempt any *three* of the following:

a.	What is software engineering? Explain the layered approach to software engineering.	10
b.	Differentiate between functional and non-functional requirements of software engineering.	10
c.	What is software design? Explain the various principles and design concepts of software design.	10
d.	What is integration testing? Differentiate between top-down and bottom-up integration testing.	10
e.	What is reverse engineering? Describe reverse engineering process.	10

SECTION C

3. Attempt any *one* part of the following:

a.	What is waterfall model? Describe the activities of waterfall model and also mention its drawbacks.	10
b.	Explain the need of software life cycle models in Software Engineering.	10

4. Attempt any *one* part of the following:

a.	What are the important activities that are carried out during the feasibility study phase? Explain	10
b.	What is software quality assurance? What are the various quality concepts of SQA? Explain	10

5. Attempt any *one* part of the following:

a.	What are the main advantages of using an object-oriented design approach over a function-oriented approach? Explain	10
b.	What is meant by the term cohesion in the context of software design? Differentiate architectural design and procedural design.	10

6. Attempt any *one* part of the following:

a.	Describe the errors are commonly found during Unit Testing?	10
b.	Explain the Integration testing process and system testing process and discuss their outcomes.	10

7. Attempt any *one* part of the following:

a.	What do you understand by Software Risk Analysis and How Risk Analysis is important in software engineering.	10
b.	Explain the role of CASE tools in Software Reengineering in detail.	10

Printed Pages: 02 **Sub Code: KCA- 302**

Paper Id: | 2 | 3 | 2 | 3 | 5 | 3 | **Roll No.** | | | | | | | | | | | | |

MCA
(SEM III) THEORY EXAMINATION 2022-23
SOFTWARE ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If you require any missing data, then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

(a) List 2 reasons for software crisis.
(b) "Software is developed or engineered; it is not manufactured in classical sense". Explain
(c) Describe 2 characteristics of SRS.
(d) Describe ER Diagram
(e) Describe structure chart.
(f) List two disadvantages of Lines of Code.
(g) What are the two main activities of regression testing?
(h) Differentiate between test drivers and test stubs
(i) Define need of maintenance.
(j) Discuss the ways to avoid risk.

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

(a) Discuss the prototype model. What is the effect of designing a prototype on the overall cost of the software project?
(b) What is feasibility study? What are the contents we should contain in the feasibility report?
(c) Draw a DFD for result preparation automation system of MCA Courses of AKTU university. Clearly describe the working of that system, also mention all assumptions made by you.
(d) What is integration testing? Explain different types of integration testing
(e) Discuss risk management? Explain how to select the best risk reduction technique when there are many ways of reducing a risk.

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

(a) What is Software development life cycle? Discuss the process for Spiral model.
(b) Current trends in Software Engineering are moving away from the waterfall model for large projects and moving toward iterative methods? What are we gaining and losing as a result? Explain with suitable examples.

4. Attempt any *one* part of the following: **10 x 1 = 10**

(a) Discuss the significance of requirement engineering. Also write the various steps with requirement engineering with proper explanation.
(b) What do you understand with the term "requirement elicitation"? Discuss any two techniques.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) Define Cohesion. What is Functional Cohesion? Does Functional Cohesion within a module bring about good software design? Give an example. What type of coupling and cohesion between/among modules is preferred for good quality software?

(b) What is a formal technical review? What ate the objectives of formal technical review? Give a comparative study of code inspection, reviews and walk-through.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Consider the following source code:

```
void sort (int *a, int n) {
inti, j, t;
if (n < 2) return;
for (i=0; i< n-1; i++) {
for (j=i+1; j < n; j++) {
if (a[i] > a[j]) {
t = a[i];
a[i] = a[j];
a[j] = t;
}
}
}
}
```

Calculate the formula of Halstead Analysis for Volume and Difficulty-level of the code?

(b) Write the difference between black-box testing and white-box testing. Consider a program which computes the square root of an input integer between 0 and 5000. Determine the equivalence class test cases. Determine the test cases using boundary value analysis also.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Categorize the use of case tools in software engineering with their advantages and disadvantages.

(b) What are the benefits of Software Configuration Management (SCM)? Elaborate the activities for SCM performed during SDLC?

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1298 Roll No. 1 2 4 5 9 1 4 0 6 1

MCA

(SEM. III) ODD SEMESTER THEORY EXAMINATION 2013-14

SOFTWARE ENGINEERING

Time : 3 Hours *Total Marks : 100*

Note :– Attempt **all** Sections.

SECTION–A

1. Attempt **all** parts : **(2×10=20)**

   (a) Define the term 'Software'. Describe its various characteristics.

   (b) Discuss the difference between Functional and Non-functional Requirements.

   (c) What do you mean by Feasibility Study ?

   (d) What is Software Quality Assurance (SQA) ?

   (e) What is the difference between flow chart and structure chart ?

   (f) What is the difference between Alpha testing and Beta testing ?

(g) Compare top-down and bottom-up testing. Give an example.

(h) Define data dictionary with example.

(i) What is re-engineering ?

(j) Differentiate between software version and software revision.

SECTION–B

2. Attempt any three parts : **(3×10=30)**

(a) Discuss the Prototype Model. What is the effect of designing a prototype on the overall cost of the Software Project ?

(b) Discuss the objective of modular software design. What do you mean by term cohension and coupling in context of software design ? How are the concepts of cohesion and coupling useful in arriving at good software design ?

(c) What do you understand by requirement elicitation ? Write various techniques of requirement elicitation and explain any two.

(d) What is Integration Testing ? Discuss the different types of integration testing with suitable examples.

(e) Uncontrolled change in process during software development may lead to confusion. Discuss.

SECTION–C

Note :— Attempt any **five** questions in this Section : **(5×10=50)**

3. Consider a program given below for the selection of the largest of numbers.

```
main()
{
float A,B,C;
printf("enter three values");
scanf("%f %f %f", & A,&B,&C);
if(A>B)
{
    if(A>C)
    printf("%f",A);
    else
    printf("%f",C);
}
else
{
    if(C>B)
    printf("%f",C);
    else
    printf("%f",B);
    }
}
```

(i) Design the set of test cases using boundary value analysis technique and equivalence class testing technique.

(ii) Select a set of test cases that will provide 100% statement coverage so find independent paths.

4. Using a schematic diagram and example show the order in which the following are estimated in COCOMO estimation technique : cost, effort, duration, size.

5. Explain software development life cycle. Discuss various stages of the waterfall model in detail.

6. Discuss the following :

   (a) Software Quality Attributes

   (b) Software Crisis.

7. Write the relative advantages of object oriented design over function oriented design.

8. (a) What is Software Maintenance ? Discuss the different types of software maintenance.

   (b) Discuss Reverse Engineering in brief.

9. Write a short note on Software Risk Analysis.

Printed Pages: 02 **Sub Code: NBC405**

Paper Id: 194405 **Roll No.** | | | | | | | | | | |

MCA (Dual Degree)
(SEM - IV) THEORY EXAMINATION 2017-18
SOFTWARE ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. What is software engineering?
b. When you know programming, what is the need to learn software engineering concepts?
c. What is software process or Software Development Life Cycle (SDLC)?
d. How can you gather requirements?
e. Differentiate validation and verification?
f. What are SDLC models available?
g. What is black-box and white-box testing?
h. Mention some project management tools.
i. What is software project management?
j. What are various types of software maintenance?

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. What is Software development life cycle? Discuss the generic waterfall model.
b. Define the term "Software Engineering". Explain the major differences between software engineering and other traditional engineering disciplines.
c. Distinguish between generic and customized software products. Which one has large share of market and why?
d. Discuss different components of the Software Engineering involved in the development process.
e. Discuss software process and product metrics with the help of examples.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) List advantages of software requirement specification. Describe characteristics of a good software requirement specification.
(b) What do you understand with the term "requirement elicitation"? Discuss any two techniques.

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) Define the S/W metrics and distinguish the term Measures, Metrics and Indicators.
(b) Explain various types of coupling and define module coupling.

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is black-box testing? List its advantages and disadvantages.

(b) What is bottom up design? Discuss its benefits and limitations.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Why project scheduling is required? Write three techniques of software project scheduling.

(b) What are various debugging approaches? Discuss them with the help of examples.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain all levels of COCOMO model. Assume that the size of an organic software product has been estimated to be 32,000 lines of code. Determine the effort required to develop the software product and the nominal development time. What is software project estimation? What is COCOMO model? Explain.

(b) What are benefits of using CASE tools? Explain in detail.

(b) Briefly highlight the difference between code inspection and code walk-through.

(c) What is stress and regression testing? When is regression testing done? Why is regression testing necessary? How is regression testing performed?

5. Attempt any two questions: 10×2=20

(a) What is software maintenance? Explain software re-engineering.

(b) Schematically draw the architecture of a CASE environment and explain how the different tools are integrated.

(c) Explain the COCOMO-II in detail. What types of categories of project are identified?

—x—

Printed Pages : 4

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NBC-405

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID :294405

Roll No.

M.C.A

(SEM-IV) EVEN SEMESTER THEORY EXAMINATION, 2014-15

SOFTWARE ENGINEERING

Time : 3 Hours] *[Total Marks : 100*

Note: (1) Attempt all questions.

(2) All questions carry equal marks.

1. Attempt any four questions: 5×4=20

(a) Suggest some ways to detect software errors in the early phases of the project when the code is not yet available.

(b) What is computer system engineering? How is it different from software engineering?

(c) What do you mean by software process? What is the difference between a methodology and a process?

(d) What are the important activities that are carried out during the feasibility study Phase?

(e) Differentiate between waterfall model and prototyping model.

(f) What is software crisis? Was Y2K a software crisis?

2. Attempt any four questions: 5×4=20

(a) What do you mean by component level design? Illustrate Fourth Generation Techniques also.

(b) What is software quality? Discuss software quality attributes.

(c) Differentiate between functional and object oriented approach of software design.

(d) What do you mean by functional requirements and non-functional requirements? List the above various requirements for any hospital.

(e) Consider the problem of railway reservation system and design the following:

(i) Problem Statement

(ii) Use Case Diagram

(f) What is software quality framework and SQA?

3. Attempt any two questions: 10×2=20

(a) Explain the following:

(i) Coupling

(ii) Cohesion

(b) What is Cyclomatic complexity? Explain with the help of an example.

(c) What are the generic guidelines that will lead to a good design? Explain.

4. Attempt any two questions: 10×2=20

(a) What are various debugging approaches? Discuss them with the help of examples.

Printed Pages : 4

294405

NBC405

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 294405

Roll No.

MCA-DUAL DEGREE
(SEM. IV) THEORY EXAM. 2014-15
SOFTWARE ENGG

Time : 3 Hours] [Total Marks : 100

Note : Attempt the questions as indicated.

Q1. Attempt any ***four*** parts from the following : 5x4=20

(a) What is software development life cycle? Discuss the generic waterfall model.

(b) Define the term "Software Engineering". Explain the major differences between software engineering and other traditional engineering disciplines.

Q5. Attempt any ***two*** parts from the following : 10x2=20

(a) Explain all levels of COCOMO model. Assume that the size of an organic software product has been estimated to be 32,000 lines of code. Determine the effort required to develop the software product and the nominal development time. What is software project estimation? What is COCOMO model? Explain.

(b) What are the benefits of using CASE tools? Explain in detail.

(c) Define the following :

(i) Information hiding

(ii) Integration testing

(iii) Black-box testing

(iv) Structural programming

(v) Regression testing

(c) Distinguish between generic and customized software products. Which one has larger share of market and why?

(d) Discuss different components of the Software Engineering involved in the development process.

(e) Discuss software process and product metrics with the help of examples.

Q2. Attempt any ***four*** parts from the following : 5x4=20

(a) List advantages of software requirement specification. Describe characteristics of a good software requirement specification.

(b) Discuss various key process areas of CMM at various maturity levels.

(c) What do you understand with the term "requirement elicitation"? Discuss any two techiniques.

(d) How does reliability and correctness are interrelated? Explain.

(e) Explain various types of coupling and define module coupling.

Q3. Attempt any ***two*** parts from the following : 10x2=20

(a) What is black-box testing? List its advantages and disadvantages.

(b) What is bottom up design? Discuss its benefits and limitations.

(c) Define the S/W metrics and distinguish the term Measured, Metrics and Indicators.

Q4. Attempt any ***two*** parts from the following : 10x2=20

(a.) Why project scheduling is required? Write three techniques of software project scheduling.

(b) What is software project estimation? What is COCOMO model? Explain.

(c) What are the various debugging approaches? Discuss them will the help of examples.

MCA

(SEM V) THEORY EXAMINATION 2021-22

SOFTWARE ENGINEERING

Total Marks: 70

Time: 3 Hours

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. **Attempt *all* questions in brief.** **2 x 7 = 14**

a.	Write two advantages of Waterfall model of Software life cycle.
b.	What do you mean by Requirement Gathering?
c.	What is Cyclomatic Complexity?
d.	What are the fundamentals of Testing? Explain in brief.
e.	What is Project Planning and Control?
f.	Explain in brief about cost estimation.
g.	What is reusability in Software Engineering?

SECTION B

2. **Attempt any *three* of the following:** **7 x 3 = 21**

a.	Explain the need of Software life cycle models in Software Engineering.
b.	Why do we use Validation and Verification in Quality Assurance Plans?
c.	Explain in detail about DFD and Structure Chart.
d.	Explain the Constructive Cost Model (COCOMO) used for determining the software cost estimate.
e.	What do you mean by Software Maintenance? Explain in detail.

SECTION C

3. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a)	What are the major differences between System Engineering and Software Engineering?
(b)	Explain Water fall Model. What are the problems that are sometimes encountered when the waterfall model is applied?.

4. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a)	Explain the Software requirement Analysis and Specification. Discuss various methods for Requirement gathering.
(b)	Explain the Requirement Elicitation and Analysis Process.

5. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a)	What is meant by Modular Design? When and how should a modular design be implemented?
(b)	What is the difference between Decision Table and Decision Tree?

6. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a)	Discuss White Box techniques in detail.
(b)	What is the process of Software Testing? Explain the different testing methods illustrating their importance.

7. **Attempt any *one* part of the following:** **7 x 1 = 7**

(a)	What do you mean by Function Point Analysis? Mention the features of it.
(b)	Discuss the concept of Software Maintenance Process.

PAPER ID-410477

Subject Code: KCA302

Roll No: | | | | | | | | | | | | | |

MCA
(SEM-V) THEORY EXAMINATION 2021-22
SOFTWARE ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a. List the reasons for Software Crisis
b. Under what circumstance prototype model is beneficial to choose.
c. Describe how software requirements are documented?
d. How flowchart us useful for software development?
e. List the important shortcomings for LOC for use as a software size metric
f. List the attributes of a software quality?
g. What are test scenarios and test cases?
h. Illustrate the main objectives of alpha and beta testing?
i. Mention different types of maintenance of that a software product might need.
j. Describe the various steps of Reverse Engineering process in detail.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

a. Discuss the process of Waterfall Model. Mention reasons as to why classical waterfall model can be considered impractical and cannot be used in real projects.
b. Explain the CMM with the help of diagram. Differentiate between ISO and CMM
c. Discuss the main advantages of using an object-oriented approach for software design over function-oriented approach.
d. What are the difference levels of testing? Discuss the main purpose of each testing.
e. Categorize the use of case tools in software engineering with their advantages and disadvantages.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

(a) Explain spiral model for software life cycle with a neat diagram and discuss various activities in each phase.
(b) What are the essential characteristics of software engineering? How it is different from other engineering discipline such as house building and bride design etc.? Explain in detail the various phases in a software development project?

4. Attempt any *one* part of the following: 10 x 1 = 10

(a) What are the problems arises in the formulation of requirement? Discuss the significance and use of requirement elicitation. Mention two techniques of it.
(b) For building a web-based library management system for an organization, develop a context-level and level-1 DFD for the system.

PAPER ID-410477

Roll No: | | | | | | | | | | | | | |

5. Attempt any *one* part of the following: 10 x 1 = 10

(a) What is Software Metrics and Measurement? Find Halstead's length and volume measure for following function.

```
void swap(int x[], inty[])
{
int temp;
temp=x[i];
a[i]=x[i+1]
x[i+1]=temp;
}
```

(b) Define the term software modularization? Explain various types of cohesion with the help of an example.

6. Attempt any *one* part of the following: 10 x 1 = 10

(a) Write the difference between black-box testing and white-box testing. Consider a program which computes the square root of an input integer between 0 and 5000. Determine the equivalence class test cases. Determine the test cases using boundary value analysis also.

(b) What is Regression Testing? Illustrate the necessary points to perform regression testing? Highlight some issues and difficulties of regression testing.

7. Attempt any *one* part of the following: 10 x 1 = 10

(a) Discuss risk management? Explain how to select the best risk reduction technique when there are many ways of reducing a risk.

(b) What are the benefits of Software Configuration Management (SCM)? Elaborate the activities for SCM performed during SDLC?

PAPER ID-310016

Subject Code: NMCA512

Roll No: | | | | | | | | | | | | | |

MCA

(SEM-V) THEORY EXAMINATION 2020-21

SOFTWARE ENGINEERING

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

a.	What are the characteristics of the software?
b.	What are the benefits of prototyping?
c.	What are the elements/components of design model?
d.	What are the objectives of testing?
e.	What is equivalence partitioning?
f.	How to compute the cyclomatic complexity?
g.	Write about drivers and stubs?
h.	Distinguish between alpha and beta testing?
i.	What is Software Requirement Engineering?
j.	What are the advantages of Modularization?

SECTION B

2. Attempt any *three* of the following: 10x3=30

a.	Explain how Unit testing of a Software System is performed?
b.	Write the advantages and disadvantages of classic waterfall life cycle model?
c.	Explain the process of ' Risk Analysis and Management.'?
d.	Explain the types of coupling and cohesion?
e.	What is software reuse? Explain the various aspects of software reuse?

SECTION C

3. Attempt any *one* part of the following: 10x1=10

a.	Differentiate between Validation and Verification of a Software Product?
b.	Differentiate between Structural testing and Functional testing?

4. Attempt any *one* part of the following: 10x1=10

a.	Describe the levels of CMM?
b.	List the levels or phases of testing?

5. Attempt any *one* part of the following: 10x1=10

a.	What are the factors affecting less than 100% degree of coverage?
b.	What is the impact of requirement changes during development of a software product?

6. Attempt any *one* part of the following: 10x1=10

a.	Explain the maintenance activities and maintenance problems. How is the cost of maintenance estimated?
b.	a) What is Halsted's software science metric. Define? b) Explain about function point metric in detail?

7. Attempt any *one* part of the following: 10x1=10

a.	Compare the object oriented and function-oriented design?
b.	Explain in detail about integration testing? How integration testing is different from system testing?

PAPER ID-310018

Subject Code: RCA502

Roll No: | | | | | | | | | | | | | |

MCA
(SEM-V) THEORY EXAMINATION 2020-21
SOFTWARE ENGINEERING

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	What is meant by Software and Software Engineering?
b.	What do you mean by Software Crisis?
c.	What are Software metrics and measurements?
d.	What are the testing principals needed for performing the Software Testing?
e.	Differentiate between Coupling and Cohesion.
f.	What do you mean by Software Quality Assurance (SQA)?
g.	Explain briefly about Reengineering activities.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	Explain about evaluation of Software engineering methodologies.
b.	Explain the Incremental process model with advantages and disadvantages.
c.	What do you mean by SEI-CMM Model?
d.	Explain the Acceptance Testing.
e.	Describe Software maintenance process in details.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Discusses the Software quality framework.
(b)	Define Software engineering. What are the challenges of Software engineering?

4. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Why SRS document also known as the black-box specification of a system?
(b)	Draw the complete DFD at least up to 2-levels for a library management system.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Write the steps to calculate Cyclometric complexity and illustrate with an example.
(b)	Discuss the concepts of the Cohesion and Coupling of software design and also explain the different types of coupling and cohesion.

6. Attempt any *one* part of the following: 7 x 1 = 7

(a)	Explain how black box testing differs from white box testing.
(b)	Distinguish between error and failure. Which of the two is detected by testing? Justify

7. Attempt any *one* part of the following: 7 x 1 = 7

(a)	What do you mean by Risk management? Explain how to select the best risk reduction technique when there are many ways of reducing a risk
(b)	What is Software Maintenance? Describe various categories of Maintenance.

Sub Code:RCA502

Paper Id: 214502 Roll No: | | | | | | | | | | | | | |

MCA
(SEM V) THEORY EXAMINATION 2019-20
SOFTWARE ENGINEERING

Time: 3 Hours *Total Marks: 70*

Note: 1. Attempt all Sections. If you require any missing data, choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. Discuss the any two reasons for increase in development cost.
b. Discuss the role of system analyst in development of project.
c. Define Function Requirement.
d. What does data flow diagram level 0 represent?
e. Define software design.
f. Name two configuration items.
g. Discuss two fundamental source of change.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. What is software? Explain characteristics of software.
b. Draw Context level and Level-1 DFD for Attendance Monitoring System.
c. What is software design? Describe levels of software design.
d. Write a short note on Formal Technical Review and Code Inspection and compare them.
e. State Baseline. Discuss the process of modification of base line.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) Differentiate between software engineering and traditional engineering.
(b) Discuss the Waterfall Model with advantages and disadvantages.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) Discuss the role of feasibility study in development of project. Explain any two types of feasibility study.
(b) Explain the CMM with the help of diagram. Differentiate between ISO and CMM.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) What do you mean by function oriented design? Discuss the advantages of modular system.
(b) Explain various types of coupling with the help of an example.

Paper Id: 214502 Roll No: | | | | | | | | | | | | | |

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) What is cyclomatic complexity? Calculate the cyclomatic complexity of the following code:

```
largest()
{ int fn, sn, tn;
        if(fn > sn) then
                if(fn > tn) then
                        print fn +"is largest"
                else
                        print tn + "is largest"
                endif
        else if (sn > tn)
                        print sn +"is largest"
        else
                        print tn + "is largest"
        endif
```

(b) What is integration testing? Explain different types of integration testing.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) What do you mean by Change Control? Explain the process of change control with the help of diagram.

(b) Discuss the various activities of Risk Assessment.

Printed Pages: 02 **Subject Code: RCA502**

Paper Id: 214502 **Roll No:** | | | | | | | | | | |

MCA

(SEM V) THEORY EXAMINATION 2018-19

SOFTWARE ENGINEERING

Time: 3 Hours ***Total Marks: 70***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.
2. Any special paper specific instruction.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a. Define various software characteristics.
b. Compare Data Flow and E-R diagram.
c. State SQA.
d. Write the advantage and disadvantage of function point measurement.
e. What are the two main activities of regression testing?
f. Write any two reasons to increase in the software development cost?
g. List advantages of Reverse Engineering?

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a. What is Software development life cycle? Discuss the generic waterfall model.
b. What is a flow chart? How is the flow charting techniques useful for software development?
c. What is bottom up design? Discuss its benefits and limitations.
d. Define software testing. Explain various level of testing
e. What are the benefits of using CASE tools? Explain in detail.

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

(a) Define the term "Software Engineering". Explain the major differences between software engineering and other traditional engineering disciplines.
(b) Discuss different components of the Software Engineering involved in the development process.

4. Attempt any *one* part of the following: 7 x 1 = 7

(a) What do you understand with the term "requirement elicitation"? Discuss any two techniques.
(b) Compare ISO and SEI-CMM model.

5. Attempt any *one* part of the following: 7 x 1 = 7

(a) Write a note on Halstead's Software Science.
(b) What is SRS document and Cyclomatic complexity?

6. Attempt any *one* part of the following: 7 x 1 = 7

(a) Differentiate between validation and verification. Describe Alpha and Beta testing along with their advantages and disadvantages.

(b) What is a formal technical review? What are the objectives offormal technical reviews? Give a comparative study of code inspection, reviews and walk-through.

7. Attempt any *one* part of the following: 7 x 1 = 7

(a) Using a schematic diagram and suitable example show the order in which the following are estimated in the COCOMO estimation technique:
cost, effort, duration, size.

(b) What do you mean by risk management? Explain how to select the best risk reduction technique when there are many ways of reducing a risk.