

VINAYAKA MISSIONS RESEARCH FOUNDATION
(Deemed to be University)
M.E -DEGREE EXAMINATIONS- APR/MAY - 2019
COMPUTER SCIENCE AND ENGINEERING
FIRST SEMESTER
OBJECT ORIENTED SOFTWARE ENGINEERING

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 What is Software Engineering?
- 2 What are the events included in planned and unplanned communication events?
- 3 List the activities of requirement elicitation.
- 4 How the traceability is maintained?
- 5 Compare layering and partitioning.
- 6 Define façade design pattern.
- 7 What is implementation inheritance?
- 8 What are the activities involved in interface specification?
- 9 What are the activities involved in configuration management?
- 10 What are the configuration management activities?

PART-B (5 x 16 = 80)

- 11 a. What is a software engineering project? Explain the types of roles.
OR
b. Explain in detail about software engineering concepts.
- 12 a. Explain how the class diagrams are used for representing associations among the objects.
OR
b. How do you identify actors and scenarios in a project? Explain.
- 13 a. How communication is difficult in system design? Explain.
OR
b. Explain in detail about layers and partitions in system design.
- 14 a. How do you identify the missing attributes and operations in interface specification? Explain.
OR
b. Why unit testing is important in software project? Explain.
- 15 a. Describe the issues related to configuration management.
OR
b. Write a brief note on version identification schemes.

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M.E -DEGREE EXAMINATIONS- APR/MAY - 2019
COMPUTER SCIENCE AND ENGINEERING
FIRST SEMESTER
COMPUTER ARCHITECTURE

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Explain CPU time? How it can be classified?
- 2 Define the micro programmed control.
- 3 Give the value of the CPI for a pipelined processor.
- 4 Comment on speculating through multiple branches.
- 5 Illustrate the example for loop carried dependence in the form of recurrence.
- 6 List the simple hardware-fixed direction mechanisms for static branch prediction.
- 7 List the conditions for a memory system to be coherent.
- 8 What are the approaches used for multithreading?
- 9 Define a cache miss and cache hit.
- 10 Define RAID.

PART-B (5 x 16 = 80)

- 11 a. Discuss in detail about data hazards and explain the technique used to overcome data hazard.

OR

- b. Explain about the quantitative principles of computer design.

- 12 a. Explain how hardware based speculation is used to overcome control dependence.

OR

- b. Discuss in detail about multiple issues with Speculation.

- 13 a. Write briefly about hardware support for exposing more parallelism at compile time.

OR

- b. Explain in detail about static branch prediction.

- 14 a. Discuss about limitations in symmetric shared-memory multiprocessors and snooping protocols.

OR

- b. Explain briefly about the design issues.

- 15 a. With a neat sketch explain the various levels of RAID.

OR

- b. Define and with examples explain real faults and failures.

**VINAYAKA MISSIONS RESEARCH FOUNDATION
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M.E- DEGREE EXAMINATIONS – APR/MAY-2019

COMPUTER SCIENCE AND ENGINEERING

First Semester

APPLIED OPERATIONS RESEARCH

(Candidates admitted under 2016 Regulations-CBCS)

Time: Three hours

Maximum:100Marks

Answer **ALL** questions

PART – A (10 x 2 = 20 marks)

1. Define Surplus variable
2. Write the Characteristic of the canonical form.
3. What are the methods for finding the initial basic feasible solutions of transportation problems?
4. Define optimum solution in a transportation problem.
5. Define critical path.
6. What is meant by “total elapsed time” in a sequencing problem?
7. Give an example of (M/M/1) : (∞ /FCFS)
8. Given $\lambda=0.5, \mu=0.67$. Find W_q
9. Explain the terms (i) weakly connected , (ii) strongly connected
10. How many vertices does a regular graph of degree 4 with 10 edges have?

PART – B (5 x 16 = 80 marks)

11. a) Find the non-negative values of x_1, x_2 and x_3 which maximize

$$\text{Maximize } Z = 3x_1 + 2x_2 + 5x_3$$

Subject to

$$x_1 + 4x_2 \leq 420$$

$$3x_1 + 2x_3 \leq 460$$

$$x_1 + 2x_2 + x_3 \leq 430$$

$$x_1, x_2, x_3 \geq 0$$

OR

- b) Explain the procedure for solving BIG-M method.
12. a) Solve the following transportation problem by Vogel’s Approximation method.

	D ₁	D ₂	D ₃	D ₄	Availability	
	S ₁	11	13	17	14	250
Origin	S ₂	16	18	14	10	300
	S ₃	21	24	13	10	400
Requirements		200	225	275	250	

OR

b) Consider the problem of travelling salesmen and solve it.

	A	B	C	D	E
A	—	2	5	7	1
B	6	—	3	8	2
C	8	7	—	4	7
D	12	4	6	—	5
E	1	3	2	8	—

13. a) A project schedule has the following characteristics.

Activity	Time	Activity	Time
1-2	4	5-6	4
1-3	1	5-7	8
2-4	1	6-8	1
3-4	1	7-8	2
3-5	6	8-10	5
4-9	5	9-10	7

- i) Construct Network
- ii) Find the critical path.

OR

b) Find the sequence that minimizes the total elapsed time required to complete the following tasks on machine in the order 1- 2 – 3. Find also the minimum total elapsed time (hours) and the idle times on the machines.

Task	A	B	C	D	E	F	G
Time on							
Machine 1	3	8	7	4	9	8	7
Machine 2	4	3	2	5	1	4	3
Machine 3	6	7	5	11	5	6	12

(SI.NO.714)

(P.T.O)

14. a) In a railway marshalling yard, goods trains arrive at a rate of 30 train per day. Assume that the inter arrival – time follows an exponential distribution and the service time distribution is also exponential with an average of 36 minutes, calculate
- i) The probability that the yard is empty.
 - ii) Average Queue length assuming that the line capacity of the yard is 9 + trains.

OR

- b) A barbershop has two barber and three chairs for customers. Assume that the customers arrive in poisson fashion at a rate of 5 per hour and that each barber services customers according to an exponential distribution with mean of 15 minutes. Further if a customer arrives and there are no empty chairs in the shop, he will leave.
- a) What is the probability that the shop is empty?
 - b) What is the expected number of customers in the shop?

15. a) (i) Show that the two graphs shown in figures are isomorphic.



- (ii) Show that degree of each vertex in Hamilton circuit is greater than or equal to

$$\frac{n}{2}$$

OR

- b) (i) Find the complements of the following graphs
(a) K_n (b) $K_{m,n}$ (c) C_n
- (ii) Show that if G is a simple graph with n vertices, then the union of G and G^c is K_n

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VINAYAKA MISSIONS RESEARCH FOUNDATION
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M.E -DEGREE EXAMINATIONS- APR/MAY - 2019
COMPUTER SCIENCE AND ENGINEERING
SECOND SEMESTER
ADVANCED OPERATING SYSTEMS
(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 List out the functions encompasses with user friendliness.
- 2 Give short notes about semaphores with an example.
- 3 Draw the architecture of distributed system.
- 4 Specify the consensus problem.
- 5 Draw a structure of distributed file system.
- 6 Differentiate preemptive and non preemptive transfers.
- 7 Define Domino effect.
- 8 What is dynamic voting in fault tolerance?
- 9 Write short notes on floating master method.
- 10 Write the purpose of concurrency control.

PART-B (5 x 16 = 80)

- 11 a. Give brief notes about communicating sequential process and drawbacks.

OR

- b. Describe about necessary and sufficient conditions for a Deadlock.

- 12 a. a) Explain about issues in deadlock detection resolution.
b) What are control organizations for distributed deadlock detection?

OR

- b. Explain about Token based algorithms.

- 13 a. Describe the architecture and motivation of distributed shared memory.

OR

- b. Illustrate the various components of a Load distributing algorithm

- 14 a. Write brief notes about various phases of rollback recovery algorithms.

OR

- b. Describe about dynamic vote protocols in fault tolerance.

- 15 a. a) Write brief notes about design issues of memory management.
b) Explain about MACH kernel.

OR

- b. Describe about the concept of serializability theory in concurrency control.

VINAYAKA MISSIONS RESEARCH FOUNDATION
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M.E -DEGREE EXAMINATIONS- APR/MAY - 2019
COMPUTER SCIENCE AND ENGINEERING
FIRST SEMESTER
DATA BASE TECHNOLOGY

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 State what is conventional database?
- 2 What is ACID property in transaction?
- 3 List out the data types in SQL.
- 4 How do you create functions in OOQL?
- 5 State the advantage of database server.
- 6 List the types of query in MDS.
- 7 What is meant by entity and relation?
- 8 List out levels involved in database tuning.
- 9 What are deductive databases?
- 10 List the data types used in multimedia databases.

PART-B (5 x 16 = 80)

- 11 a. What is meant by transaction? Explain in detail about transaction processing.

OR

- b. Illustrate the concept of concurrency control in distributed databases.

- 12 a. Explain multi version locks with an example?

OR

- b. With a neat diagram, Explain the structure of a DBMS?

- 13 a. Write a detailed note on data mining.

OR

- b. Explain the various architectures of web database.

- 14 a. Write short notes on database tuning.

OR

- b. Explain the concept of integrity.

- 15 a. Explain briefly about text databases.

OR

- b. Explain how parallelism implemented in databases?

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M.E -DEGREE EXAMINATIONS- APR/MAY - 2019
COMPUTER SCIENCE AND ENGINEERING
SECOND SEMESTER
ELECTIVE - SOFTWARE PROJECT MANAGEMENT
(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 What is a project plan?
- 2 What is an alpha phase?
- 3 What is being practiced in the document?
- 4 What is a corrective and preventive action?
- 5 What is a metrics roadmap?
- 6 How do you define quality?
- 7 Draw the diagram for various infrastructure groups involved in PI.
- 8 What is a metrics for project closure?
- 9 What is testability?
- 10 What are the different activities in maintenance phase?

PART-B (5 x 16 = 80)

- 11 a. Explain in detail about alpha and beta phase

OR

b. Explain in detail about project life cycle model.
- 12 a. Explain in detail about process important.

OR

b. Explain in detail about ISO-9001 model.
- 13 a. Summarize the steps that constitute SCM.

OR

b. Explain in details about tools and automation in SCM.
- 14 a. Write a short note on : i) Management reporting ii) Involvement of infrastructure groups.

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OR

b. Summarize the software project management plan.

15 a. Define testing and its types in detail.

OR

b. Discuss the challenges during the requirement management phase.

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M.E -DEGREE EXAMINATIONS- APR/MAY - 2019
COMPUTER SCIENCE AND ENGINEERING
THIRD SEMESTER
ELECTIVE - ADHOC NETWORKS

(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions

Part-A (10 x 2 =20 Marks)

- 1 Give some example of distributed applications.
- 2 What are the types of Fading?
- 3 List some example of table driven routing protocols
- 4 Define Multicasting
- 5 List the disadvantages of clustering
- 6 What are the disadvantages of FDMA?
- 7 What are the two mechanism for location discovery?
- 8 What is coverage?
- 9 List the services provided by IEEE802.11
- 10 Which protocol is more bandwidth efficient RTMAC or MACA/PR?

PART-B (5 x 16 = 80)

- 11 a. Explain the applications areas of ad hoc networks.
OR
b. Explain MACAW protocol in detail.
- 12 a. Discuss table driven protocols with examples.
OR
b. List the characteristics of ideal routing protocol for ad hoc wireless network.
- 13 a. Write notes on Dynamic Energy and power management

OR

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b. Briefly explain CSMA based MAC.

14 a. Write notes on triangulation

OR

b. Explain the scheduling table update mechanism in distributed priority scheduling.

15 a. Explain the contention based protocols with scheduling and reservation in detail.

OR

b. Brief note on Heterogeneous Mesh Networks.

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M.E -DEGREE EXAMINATIONS- APR/MAY - 2019
COMPUTER SCIENCE AND ENGINEERING
THIRD SEMESTER
ELECTIVE - MOBILE APPLICATION DEVELOPMENT
(Candidates admitted under 2016 Regulations-CBCS)

Time : Three Hours

Maximum Marks:100 Marks

Answer **ALL** questions
Part-A (10 x 2 =20 Marks)

- 1 When is RTOS necessary?
- 2 What are the types of Mobile Devices?
- 3 In what way gestures are preferred than touch events.
- 4 What are the guidelines in designing exception management?
- 5 List out the features for capabilities for web access.
- 6 What is mobile cloud computing?
- 7 What are the types of user interfaces in android?
- 8 What are the tools used in social media integration?
- 9 What are the applications of mapkit framework?
- 10 How to integrate address book in Social media?

PART-B (5 x 16 = 80)

- 11 a. What is Requirement Gathering? Explain in detail.
OR
b. Explain in detail the importance of delivery of Mobile Application?
- 12 a. Discuss various user interfaces in mobile application.
OR
b. Explain the software constraints involved in mobile design.
- 13 a. Explain with diagram the mobile cloud architecture.
OR
b. Explain in detail about interactive multimedia application.
- 14 a. Explain how to interact with UI with suitable example?
OR
b. Explain in detail about deployment and its tools?
- 15 a. Explain Data Persistence using core data?
OR
b. Discuss briefly the integration of calendar and address book with social media application.
