

PGIVS 1789 A-16
M.C.A. IVth Semester Degree Examination
Computer Science
(Embedded Systems)
Paper : MCA - 4.5 C

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. *Answer any five questions*
2. *All questions carry equal marks.*

1. a) Explain an embedded system with an example (8)
b) Discuss the challenges and issues of an Embedded system. (8)
2. a) What is RTOS? Describe the scheduler of RTOS. (8)
b) Explain any one scheduling algorithm. (8)
3. a) What is thread? Explain single thread with a neat diagram. (8)
b) Describe the basic design of an embedded system using RTOS. (8)
4. a) What is interfacing? Explain parallel I/O interface. (8)
b) Explain Blind counting synchronization method. (8)
5. a) Describe display units. (8)
b) Compare RAM and ROM. Discuss ROM variants. (8)
6. a) Explain DMA working with a block diagram. (8)
b) What is DART? Describe a system with DART. (8)

7. a) Discuss the architectural features of ATMEL RISC processor. (8)

b) What is analog interface? Explain. (8)

8. Write notes on any **two** of the following :

a) IC technology

b) Bus handshaking

c) Semaphores

d) Digital camera

(8+8)

PGIVS - 1788 A - 16
M.C.A IVth Semester Degree Examination
Computer Science
(Organisational Behaviour)
Paper : MCA 4.4

Time : 3 Hours

Maximum Marks : 80

Instructions :

1. Answer any Five questions
2. All questions carry equal marks. (5×16=80)

1. Explain the causes of industrial conflicts also describe the various resolution & preventive mechanism of conflicts.
 2. Define Organizational Behaviour & also give justifications for the study of organizational behaviour
 3. Define perception. Explain the process of perception & also describe the factors influencing perceptions & also state the causes of perceptual distortions
 4. What is Group Dynamics? & what are the roles of group members? & also explain the potential hazards of group effects.
 5. Critically examine classical conditioning & Observational learning Theory.
 6. Describe the various theories of motivation.
 7. Explain the various Theories of Leadership.
 8. Discuss the important determinants of personality.
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PGIVS 1787 A-16
M.C.A. IVth Semester Degree Examination
Computer Science
(Optimization Techniques)
Paper : MCA - 4.3

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. Answer any **five** questions
2. All questions carry **equal** marks.

1. a) State the standard form of linear programming problem (LPP). Explain the procedure of solving LPP by graphical methods. (8)
- b) A manufacturer of packing material, manufactures two types of packing tins, Round and Flat. Major production facilities involved are cutting and joining. The cutting department can process 300 Round tins or 500 flat tins per hour. The joining department can process 500 Round tins or 300 flat tins per hour. If the contribution towards profit for a Round tin is the same as that of Flat tin. Formulate this problem as LPP and obtain the optimum production level by graphical method. (8)
2. a) Enumerate the steps involved in solving a LPP by simplex method. (8)
- b) Solve the following LPP by simplex method
Maximize $z = 21x_1 + 15x_2$
Subject to the constraints :
 $-x_1 - 2x_2 \geq -6$
 $4x_1 + 3x_2 \leq 12$ (8)
 $x_1, x_2 \geq 0$
3. a) Enumerate the steps involved in formulating dual problem from the primal problem. (8)
- b) Obtain the dual of the following LPP :
Maximize $z = 30x_1 + 20x_2$
s.t. $-x_1 - x_2 \geq -8$ (8)
 $-6x_1 - 4x_2 \geq -12$
 $5x_1 + 8x_2 = 20$
 $x_1, x_2 \geq 0$

4. a) What is an assignment problem? Explain how assignment problem is a particular case of LPP. (8)
- b) Carefree corporation has four plants each of which can manufacture any one of the four products. Product costs differ from one plant to another as follows :

Plants	Products			
	1	2	3	4
A	33	40	43	32
B	45	28	31	23
C	42	29	36	29
D	27	42	44	38

Obtain the optimum sequence of assigning product to each plant to minimize cost. (8)

5. a) What is transportation problem? Enumerate the steps involved in 'North West Corner Method'. (8)
- b) Obtain the initial basic feasible solution by Least cost method for the following transportation

Matrix :	Ware house				Supplies
	W_1	W_2	W_3	W_4	
F_1	48	60	56	58	140
F_2	45	55	53	60	260
F_3	50	65	60	62	360
F_4	52	64	55	61	220
Demand	200	320	250	210	

6. a) Distinguish between CPM and PERT. (8)
- b) Draw the network diagram for the following activities and find the critical path and total duration of the project :

Activity :	1-2	1-3	2-3	2-4	3-4	4-5
Duration (Days) :	20	25	10	12	5	10

7. a) Explain decision making under certainty and uncertainty (8)
- b) Explain the procedure of obtaining optimal solution of the two - person zero - sum game. (8)
8. Write short notes on any two of the following :
- a) Revised simplex method
- b) Big - M method
- c) Shortest - Route Problem (8 each)

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PGIVS 1786 A-16
M.C.A. IVth Semester Degree Examination
Computer Science
(Object Oriented Analysis and Design Using UML)
Paper : MCA - 4.2

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

1. Answer any *five* questions
2. All questions carry *equal* marks.

1. a) Briefly explain the different phases of unified process. (8)
- b) What are the four basic relationships defined UML? Give suitable examples for their usage (8)
2. a) Explain in brief the Design and attributes of complex system. (8)
- b) Explain the following by using sample class model :
 - i) Attributes and operations
 - ii) Qualified associations
 - iii) Multiplicity
 - iv) Generalization and inheritance (8)
3. a) What is an object diagram? Discuss its various elements. (8)
- b) Explain the following Hierarchies :
 - i) Links
 - ii) Aggregation (8)

4. a) Describe an activity? Diagram for a telephone system. (8)
- b) What is usecase? What are its guidelines. Discuss for use case model. (8)
5. a) Discuss the various phases of software Development. (8)
- b) What is an Interaction Diagram? Discuss briefly with an example. (8)
6. a) Explain in brief the principles of micro and Macro Development Process. (8)
- b) Discuss the quality assurance and metrics of software Development in OOAD. (8)
7. a) Explain in brief weather monitoring system Hardware. (8)
- b) Explain in brief the Risk management and task management of a system. (8)
8. Write short notes on :
- i) Benefits of tools in software Development
 - ii) Documentation
 - iii) Small talk
 - iv) Class Diagram (4 each)
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PGIVS - 1785 A - 16
M.C.A. IVth Semester Degree Examination
Computer Science
(Programming in Java)
Paper : MCA - 4.1

Time : 3 Hours

Maximum Marks : 80

Instructions to Candidates:

Answer any Five questions. All questions carry equal marks.

1. a) Briefly discuss the java development tool kit.
b) Explain the process of building and running Java application program. (8+8)
 2. a) What is constructor method? How it differs from other member functions.
b) Briefly explain how multiple inheritance is achieved in Java (8+8)
 3. a) With suitable example explain static class in Java
b) Explain exception handling mechanism with an example (8+8)
 4. a) What is the difference between applet and application
b) Explain applet life cycle synchronisation (6+10)
 5. a) How is achieved in Java threads? Explain with syntax
b) With suitable example explain packages in Java (8+8)
 6. a) Briefly discuss interface in Java
b) Explain AWT event hierarchy (8+8)
 7. a) What is swings? Explain components and containers in the swings
b) Briefly discuss the various JDBC driver types (8+8)
 8. a) What are servlets? Explain life cycle of servlet
b) What is RMI? Describe code shippet of RMI at Client side (8+8)
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