G. H. Raisoni College of Engineering, Nagpur

(An Autonomous Institution)

Third Term / Fifth Semester B. E. (Computer Science & Engineering)

End Semester Examination Winter – 2016

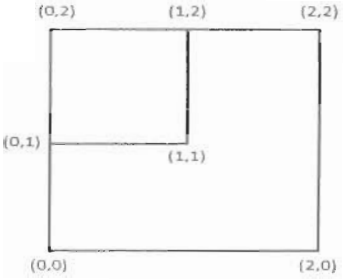
Computer Graphics & Visualization (Elective-I)

Time: 3 hrs.] **[Max. Marks: 60**

Instructions to Candidates:

1) [CO-1/CO-2/CO-3 …] at the beginning of question/sub-question indicates the course outcome related to the question.
2) All questions carry marks as indicated.

1.	(a)	[CO-1]	How many k bytes does a frame buffer need in a 600 * 400 pixel?	2
	(b)	[CO-3]	Write a program fragment to draw the following figure using REL command	2



	(c)	[CO-2]	The reflection along the line y=x is equivalent to the reflection along the x-axis followed by counter clockwise rotation by θ degree. Then what will be the value of θ?	2
	(d)	[CO-3]	Find the transformation for cavalier projection with $\theta = 45^{\circ}$	2
	(e)	[CO-4]	Specify the properties of Bezier curve	2
	(f)	[CO-1]	Provide a display file structure for a line segment.	2
2	(a)	[CO-2]	Rasterize a line from (5, 5) to (13, 9) using bresenham's line generation algorithm	5
	(b)	[CO-1]	Compare raster scan system with random scan system with suitable example	5
3			Answer **Any Two** questions	
	(a)	[CO-2]	Fill a polygon defined by vertices A(2, 2) B(8, 1) C(8, 6) D(5, 3) and E(3, 5) using fence fill algorithm with fence at x= 5	5
	(b)	[CO-2]	Fill a polygon defined by vertices X(1, 1) Y(4, 4) Z(4, 1) A(8, 5) and B(1, 5) using edge flag algorithm	5
	(c)	[CO-2]	Consider a clipping window defined by vertices A(-1, -1) B(1, -1) C(1, 1) and D(-1, 1) clip a line from P(-3/2, -1) to Q(3/2, 2)	5
4.			Answer **Any Two** questions	
	(a)	[CO-3]	A mirror is placed vertically such that it passes through the points (10, 0) and (0, 10). Find the reflected view of triangle ABC with coordinates A(5, 50) B(20, 40) C(10, 70).	5
	(b)	[CO-3]	Find the inverse transformation for converting a figure defined by vertices A(3,2) B(2,1) C(4,1) into figure A'(-3,-1) B'(-4,-2) C'(-2,-2)	5
	(c)	[CO-3]	Suppose there is a rectangle ABCD whose co-ordinates are A(1,1) B(4,1) C(4,4) D(1,4) and the window co-ordinates are (2,2) (5,2) (5,5) (2,5) and the given viewport location is (0.5,0) (1,0) (1,0.5) (0.5,0.5). Calculate the viewing transformation matrix.	5
5.	(a)	[CO-3]	Find a matrix for parallel projection onto the plane $3x + y + 4z + 1 = 0$. When (i) an orthographic projection is used (ii) an oblique projection is used	5
	(b)	[CO-4]	Outline the steps required to generate a hidden-surface image using the depth-buffer approach	5
6.	(a)	[CO-4]	Determine the expression for the *Hermite blending functions* or *Hermite Spline*	4
	(b)	[CO-4]	Outline the stages of graphics modelling	4

G. H. Raisoni College of Engineering, Nagpur

(An Autonomous Institution)

Third Term / Fifth Semester B. E. (Computer Science & Engineering)

End Semester Examination Winter – 2016

Java Programming (Elective-I)

Time: 3 hrs.] **[Max. Marks: 60**

Instructions to Candidates:

1) [CO-1/CO-2/CO-3 …] at the beginning of question/sub-question indicates the course outcome related to the question.
2) All questions carry marks as indicated.
3) Use of non-programmable calculator is permitted.

1.	(a)	[CO-1]	Differentiate between checked and unchecked Exceptions.	2
	(b)	[CO-1]	Can constructor be declared as 'static'? Justify your answer.	2
	(c)	[CO-2]	What is daemon thread and which method is used to create the daemon thread?	2
	(d)	[CO-1]	How can a subclass call a method or a constructor defined in a super class?	2
	(e)	[CO-1]	State the usage of the keyword 'transient'?	2
	(f)	[CO-2]	Will the following class compile? If not, why?	2

```
public class Singleton<T> {

public static T getInstance() {
if (instance == null)
instance = new Singleton<T>();
return instance;
}
private static T instance = null;
}
```

2.			Solve **Any Two** of the following	
	(a)	[CO-1]	Write a java application to find all magic numbers between 0 and 999. (for example magic number $407=4^3+0^3+7^3$).	
	(b)	[CO-1]	Given the following class.	6

```
class Test{
        int a;
        Test(int i){
        a=i;
  }}
```

Write a method called 'swap()' that exchange the content of objects referred by two test object references.

	(c)	[CO-2]	Write a java program which read contents of file "ABC.txt" and write it to a file "XYZ.txt".	6
3.			Solve **Any Two** of the following	
	(a)	[CO-2]	Illustrate with an example applet program. How the applets override the methods defined by Applet class.?	
	(b)	[CO-2]	Describe thread life cycle in details.	
	(c)	[CO-2]	Explain the process of synchronization used for multithread programming with example.	
4.	(a)	[CO-3]	What is stream? Explain IO stream in java.	
	(b)	[CO-3]	Explain following methods with proper syntax. i) valueOf() ii) compareTo() iii) getChars()	6
5.	(a)	[CO-3]	Explain generic restriction with suitable example.	6
	(b)	[CO-3]	Demonstrate use of Datagram Socket class.	6

BCSL303

G. H. Raisoni College of Engineering, Nagpur

(An Autonomous Institution)

Fifth Semester B. E. (Computer Science & Engineering / Information Technology)

End Semester Examination Winter – 2016

Database Management System

Time: 3 hrs.] **[Max. Marks: 60**

Instructions to Candidates:

1) [CO-1/CO-2/CO-3 …] at the beginning of question/sub-question indicates the course outcome related to the question.
2) All questions carry marks as indicated.
3) Assume suitable data wherever necessary.
4) Due credit will be given to neatness and adequate dimensions.
5) Illustrate your answer wherever necessary with the help of neat sketches.

1.	(a)	[CO-1]	Stat the various drawbacks of Conventional File System.	2
	(b)	[CO-1]	Database has how many type of users? Describe it in brief.	2
	(c)	[CO-1]	Draw and describe the various components used in designing an E-R Model.	2
	(d)	[CO-1]	List different constraints used in DBMS.	2
	(e)	[CO-1]	To update database what are the different commands available in SQL?	2
	(f)	[CO-1]	In Relational Algebra describe all type of Join Operations.	2
2.	(a)	[CO-2]	Describe Trigger and also state its Syntax with example.	5
			OR	
	(a)	[CO-2]	Using proper example explain all types of Normal forms.	5
	(b)	[CO-2]	Describe the Architecture of Database System and explain it in detail.	5
3.	(a)	[CO-2]	Design an E-R model for Inventory control.	5
	(b)	[CO-3]	Describe in detail the Aries Algorithm for recovery.	5
4	(a)	[CO-3]	State the steps involved in Query Processing, also explain it's functionality.	5
	(b)	[CO-3]	Write in detail about ACID properties and also its use.	5
5	(a)	[CO-3]	What are the different states that every Transaction go through.	5
	(b)	[CO-3]	Explain Time-Stamp-Based Protocol.	5
6	(a)	[CO-4]	Illustrate the concept of different file organization techniques.	4
	(b)	[CO-4]	Illustrate case study on characteristics of NOSQL in brief.	4

G. H. Raisoni College of Engineering, Nagpur

(An Autonomous Institution)

Fifth Semester B. E. (Computer Science & Engineering)

End Semester Examination Winter – 2016

Software Engineering & Project Management

Time: 3 hrs.] **[Max. Marks: 60**

Instructions to Candidates:

1) [CO-1/CO-2/CO-3 …] at the beginning of question/sub-question indicates the course outcome related to the question.
2) All questions carry marks as indicated.
3) Due credit will be given to neatness and adequate dimensions.
4) Illustrate your answer wherever necessary with the help of neat sketches.

1.	(a)	[CO-1]	Which one of the following is not a phase of Prototyping Model? i) Quick Design ii) Coding iii) Prototype Refinement iv) Engineer Product	2
	(b)	[CO-1]	SDLC stands for i) Software Development Life Cycle ii) System Development Life cycle iii) Software Design Life Cycle iv) System Design Life Cycle	2
	(c)	[CO-1]	One can choose Waterfall Model if the project development schedule is tight. i) True ii) False	2
	(d)	[CO-1] [CO-2]	Which one of the following is not an Evolutionary Process Model? i) WINWIN Spiral Model ii) Prototyping Development Model iii) Spiral Model iv) All are Evolutionary Software Models	2
	(e)	[CO-2]	What is the first step of requirement elicitation? i) Identifying Stakeholder ii)Listing out Requirements iii) Requirements Gathering	2
	(f)	[CO-3]	Which of the following is not included in SRS? i) Performance ii) Functionality iii) Design solutions iv)External Interfaces	2
2.	(a)	[CO-1]	What is Evolutionary process models .Give any one Example.	4
	(b)	[CO-1]	How system Engineering works for software Development.	4
3.	(a)	[CO-1]	What are different myth carried out by various stake holders of software engineering?	4
	(b)	[CO-2]	Signifies the importance of product engineering and process engineering.	4
4.	(a)	[CO-3]	Explain Object-Oriented Analysis and Scenario-Based Modeling with example.	4
	(b)	[CO-3]	What is the difference between white box, black box? Explain with suitable example.	4
5.	(a)	[CO-3]	What is verification and validation? State various actions involved in verification and validation.	5
	(b)	[CO-3]	Explain how many types of risk for any software projects. Give brief examples.	5
			OR	
	(c)	[CO-3]	Give significance of function oriented metrics and how it is far ahead of size-oriented metrics.	5
6.	(a)	[CO-5]	Explain re-engineering with the help of suitable diagram.	4
	(b)	[CO-3]	Explain scaled agile system with its significance to a recent software development.	4

G. H. Raisoni College of Engineering, Nagpur

(An Autonomous Institution)

Fifth Semester B. E. (Computer Science & Engineering / Information Technology)

End Semester Examination Winter – 2016

Operating System

Time: 3 hrs.] **[Max. Marks: 60**

Instructions to Candidates:

1) [CO-1/CO-2/CO-3 …] at the beginning of question/sub-question indicates the course outcome related to the question.
2) All questions carry marks as indicated.
3) Assume suitable data wherever necessary.
4) Due credit will be given to neatness and adequate dimensions.
5) Illustrate your answer wherever necessary with the help of neat sketches.
6) Use of non-programmable calculator is permitted.

(a) [CO-2] Context switching is an added overhead. Justify?

(b) [CO-2] Emphasize on the role of mutual exclusion in critical section problem. 2

(c) [CO-1] Give the significance of System call?

(d) [CO-2] List different attributes of a file.

(e) [CO-2] Illustrate Thrashing in memory management.

(f) [CO-2] Explain Resource Allocation Graph. 2

(a) [CO-1] Discuss the different types of Operating System. 4

(b) [CO-2] If the CPU Scheduling Policy is Priority Based Scheduling, then find the Completion Time(CT), Turn Around Time(TAT), and Waiting Time(WT) for each process. The Priority(Higher the no. higher the priority), Arrival Time and Burst Time(Service Time) are given below for each process- 8

Process No.	Arrival time	Burst time	Priority
1	0	6	4
2	1	7	5
3	2	2	8
4	3	3	7
5	5	5	6

Draw the Gantt Chart for each of following mention scheduling algorithm-

(i) Priority based Scheduling(Non Preemptive)
(ii) Priority based Scheduling(Preemptive)

3. (a) [CO-2] Solve the Dining Philosopher problem by using the semaphore. 4

(b) [CO-2] Consider the following snapshot of a system: 8

	Allocation	Max	Available
	ABC	ABC	ABC
P0	010	753	332
P1	200	322	
P2	302	902	
P3	211	222	
P4	002	433	

Answer the following questions using the banker's algorithm:

i) What is the content of the matrix Need?
ii) Is the system in a safe state, if yes then write safe sequence.

If a request from process P1 arrives for (1,0,2), can the request be granted immediately?

(a) [CO-2] Suppose that a disk drive has 200 cylinders, numbered 0 to 199. A disk queue with requests in FIFO order is- 98, 183, 37, 122, 14, 124, 65, 67 8
If the disk head is initially at cylinder 53. What is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of following disk-scheduling algorithms?

(i) SSTF
(ii) Look
(iii) FCFS
(iv) C-SCAN

OR

(a) [CO-2] Consider the following memory map:-

If a new process of size 16MB comes then which block is allocated for that process. Find the appropriate memory block with brief explanation by using following techniques:-

(i) First Fit
(ii) Best Fit
(iii) Next Fit
(iv) Worst Fit

(b) [CO-2] Illustrate the different directory structure

Explain on **(Any Three)** 12

(a) [CO-2] Segmented Paging

(b) [CO-2] Optimal Page replacement Policy

(c) [CO-2] Linked File Allocation Method

(d) [CO-3] Case study on any latest operating System.

G. H. Raisoni College of Engineering, Nagpur

(An Autonomous Institution)

Fifth Semester B. E. (Electronics & Telecommunication / Information Technology Computer Science & Engineering)

End Semester Examination Winter – 2016

Computer Networks

Time: 3 hrs.] **[Max. Marks: 60**

Instructions to Candidates:

1) [CO-1/CO-2/CO-3 …] at the beginning of question/sub-question indicates the course outcome related to the question.
2) All questions carry marks as indicated.
3) Assume suitable data wherever necessary.
4) Due credit will be given to neatness and adequate dimensions.
5) Illustrate your answer wherever necessary with the help of neat sketches.

1			Answer **Any Six** questions	
	(a)	[CO-1]	Why is Error & Flow control important in designing layers in OSI / any reference model?	
	(b)	[CO-1]	Differentiate between Connection-Oriented and Connectionless Services.	
	(c)	[CO-1]	With the help of neat diagram describe Coaxial Cable.	
	(d)	[CO-3]	Which type of services are offered by Data link layer.	
	(e)	[CO-3]	Illustrate Pure ALOHA in brief	
	(f)	[CO-3]	By using proper example, explain Optimality principle in Transport Layer.	2
	(g)	[CO-3]	Draw the primitives for a sample Transport service.	
2.	(a)	[CO-1]	With respect to design, model, application and more compare OSI and TCP/IP Reference Model.	
	(b)	[CO-2]	Find Transmitted frame for the given frame, using polynomial code checksum, assume: Frame is 1101011011 and Generator is 10011.	
			OR	
	(c)	[CO-1]	Illustrate the concept of Broadband-ISDN Virtual Circuits and where is it used.	
3.	(a)	[CO-2]	How does Sliding Window protocol over comes drawback of Elementary Data link protocol? Explain Go-back-N protocol in detail.	5
	(b)	[CO-2]	Describe in detail the HDLC Protocol with its frame.	5
4.	(a)	[CO-3]	Illustrate the concept and working of CSMA with proper diagrams.	5
	(b)	[CO-2]	Write short note on **Any Two** of the following i) IEEE 802.11 Wireless LAN. 2.5 ii) IEEE 802.3. 2.5 iii) Token Ring. 2.5 iv) Token Bus. 2.5	
5.	(a)	[CO-2]	With suitable assumptions explain Distance Vector Routing.	
	(b)	[CO-3]	For Congestion prevention what are the different policies used by Transport, Network and Data link layer.	
	(a)	[CO-3]	State in brief about IP Address formatting and its subnets.	
	(b)	[CO-3]	State how client-server connectivity is established.	

BCSL305

G. H. Raisoni College of Engineering, Nagpur

(An Autonomous Institution)

Third Term / Fifth Semester B. E. (Computer Science & Engineering)

End Semester Examination Winter – 2016

Principles of Programming Language

Time: 3 hrs.] **[Max. Marks: 60**

Instructions to Candidates:

1) [CO-1/CO-2/CO-3 …] at the beginning of question/sub-question indicates the course outcome related to the question.
2) All questions carry marks as indicated.

1.			Answer the following question	12
	(a)	[CO-1]	Define Syntax and Semantics.	
	(b)	[CO-1]	What is a programming language?	
	(c)	[CO-2]	What is meant by generic sub program?	
	(d)	[CO-3]	Differentiate compilers & Translaters.	
	(e)	[CO-2]	What is Stack and dynamic local variables?	
	(f)	[CO-1]	What are the attributes of good programming language?	
2.	(a)	[CO-1]	Why is it useful for a programmer to have some background in language design, even though he or she may never actually design a programming language.	6
	(b)	[CO-1]	How can knowledge of programming language characteristics benefit the whole computing community?	6
3.	(a)	[CO-2]	What is Lexical Analyzer? What are the approaches for building a lexical analyzer. Implement using an example using state diagram.	
	(b)	[CO-2]	What are the formal methods of describing the syntax? Explain the Grammar.	6
4.	(a)	[CO-3]	Write the reason for the statement: "Exception handling is very important, but often neglected by programming languages"?	6
	(b)	[CO-3]	State whether static binding is more reliable or dynamic binding .Explain why?	6
5.	(a)	[CO-3]	List the three general methods of implementing a programming language?	
	(b)	[CO-3]	Write a case study on object oriented programing language	6

MBAL221

G. H. Raisoni College of Engineering, Nagpur

(An Autonomous Institution)

Fifth Semester B. E. (Master of Technology Management $5^1/_2$ Years Course)

(Electrical Engineering / Electronics Engineering / Electronics & Telecommunication Engineering / Computer Science & Engineering)

End Semester Examination Winter – 2016

Business Environment

Time: 3 hrs.] **[Max. Marks: 60**

Instructions to Candidates:

1) All questions carry marks as indicated.
2) Assume suitable data wherever necessary.
3) Due credit will be given to neatness and adequate dimensions.
4) Illustrate your answer wherever necessary with the help of neat sketches.

1.		Mark True or False statement with reasons to support your answer.	12
	(a)	Hyper inflation is a type of Inflation.	(True/False)
	(b)	Work environment prevailing outside the organization comes under Micro environment.	(True/False)
	(c)	Agriculture comes under emerging sector of Indian Economy.	(True/False)
	(d)	Globalization means products manufactured in India & sold worldwide.	(True/False)
	(e)	Technological variables are a part of PEST analysis.	(True/False)
	(f)	In bank's parlance ATM stands for All Time Money	(True/False)
2.		"Indian Economy depends heavily on Emerging Sectors"-Elaborate	8
3.		Consumerism is the back bone of Indian economic growth-Explain	8
4.		Why is it necessary to have Competitive Environment?	8
5.		"Currently in India, service sector is booming" –Explain the trend in Service Sector growth.	8
6.	(a)	What are the external influences on Indian Business Environment?	8
		OR	
	(b)	What kind reforms are required in public sector	8
7.	(a)	Explain the concept of intellectual property.	8
		OR	
	(b)	What are the impacts of the micro & macro indicators on business environment?	8