T.E I.T. Sem V CBSGS Nov-13

Sub:- CGVRS. 27-11-13

P3–upq–Oct13–2ndHalfoc13 D-95

Con. 6773–13. **LJ–11318**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions from remaining **six** questions.
(3) Make **suitable** assumptions whenever **necessary** and state them **clearly**.

1. Solve any **four** :—
   (a) Derive 3D inverse transformation for translation and scaling **5**
   (b) What are fractals ? Derive an equation D = log N / log S **5**
   (c) Explain different applications of Computer Graphics and VR Systems **5**
   (d) Compare Boundary fill and flood fill algorithms **5**
   (e) What are 3D trackers ? Enumerate the important tracker characteristics. **5**

2. (a) Explain Sutherland – Hodgeman polygon clipping algorithm with a suitable example. Discuss its advantages and disadvantages. **10**
   (b) Develop an algorithm to draw thick line kite with a thread. Justify the line drawing algorithm and VR Tool kit required for the above design. **10**

3. (a) Explain graphical rendering pipeline. **10**
   (b) With mathematical representation and properties, explain Bezier Curves. **10**

4. (a) Show that transformation matrix for reflection about a line y = x is equivalent to reflection to X – axis followed by counter clockwise rotation of 90°. **10**
   (b) Explain Physical modeling in VR Systems. **10**

5. (a) With a suitable example, explain Cohen–Sutherland line clipping algorithm. **10**
   (b) For a unit cube situated at origin, apply one point perspective projection on Z = 0 plane, assuming centre of projection at Zc = 2 on Z – axis. **10**

6. (a) Explain all 2D transformations with suitable examples. **10**
   (b) Describe computer Animation and the use of 2D and 3D morphing in it. **10**

7. Write notes on (any **four**) :— **20**
   (a) Winding Number Method
   (b) Le Grange Interpolation
   (c) Raster Scan and Random Scan display
   (d) Input and Output devices used in VR Systems
   (e) CMY and RGB colour model.

TE. SEM VI (I.T.) NOV-DEC 2013

02/12/13 CTNC

VT-S.H.Exam. Oct(I).-13- 87

Con. 6790–13. **LJ–11356**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions out of **remaining** questions.
(3) Assume **suitable** data if **necessary**.

1. Solve any **four** :– **20**
   (a) What is frequency reuse factor ?
   (b) Explain – Direct sequence spread spectrum.
   (c) Explain in detail ISDN protocol stack.
   (d) What are different types of Bluetooth structure ?
   (e) Write difference between ASK, FSK and PSK.

2. (a) What are different tasks carried out by Data Link layer ? Explain flow control mechanism. **10**
   (b) Explain in brief Bridging. **10**

3. (a) What is Telecommunication Management Network (TMN) ? Explain information architecture of TMN. **10**
   (b) What are the different types of transfer modes ? **10**

4. (a) Explain in detail Cyclic Reductancy Code (CRC). **10**
   (b) Explain in detail GSM architecture ? **10**

5. (a) Explain the different components of typical switch. Also explain switching in ATM ? **10**
   (b) How call is Initiated and released in ISDN ? **10**

6 (a) What is traffic management ? Explain in detail traffic shaping ? **10**
   (b) Explain modulator and demodulator for QPSK. What is probability of error for QPSK ? **10**

7. Write short notes on (any **four**) :– **20**
   (a) Radio Resource Management in 3G
   (b) Logical channels in GSM
   (c) Bluetooth protocol stack
   (d) Error correction and Detection method
   (e) Network topology.

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Dec 7, 2013

TE (IT) Sem V Rev.
Manufacturing Process, Planning & System

9-11-13-DTP7-RM-8

Con. 7055-13. **LJ-11398**

(3 Hours) **[Total Marks : 100**

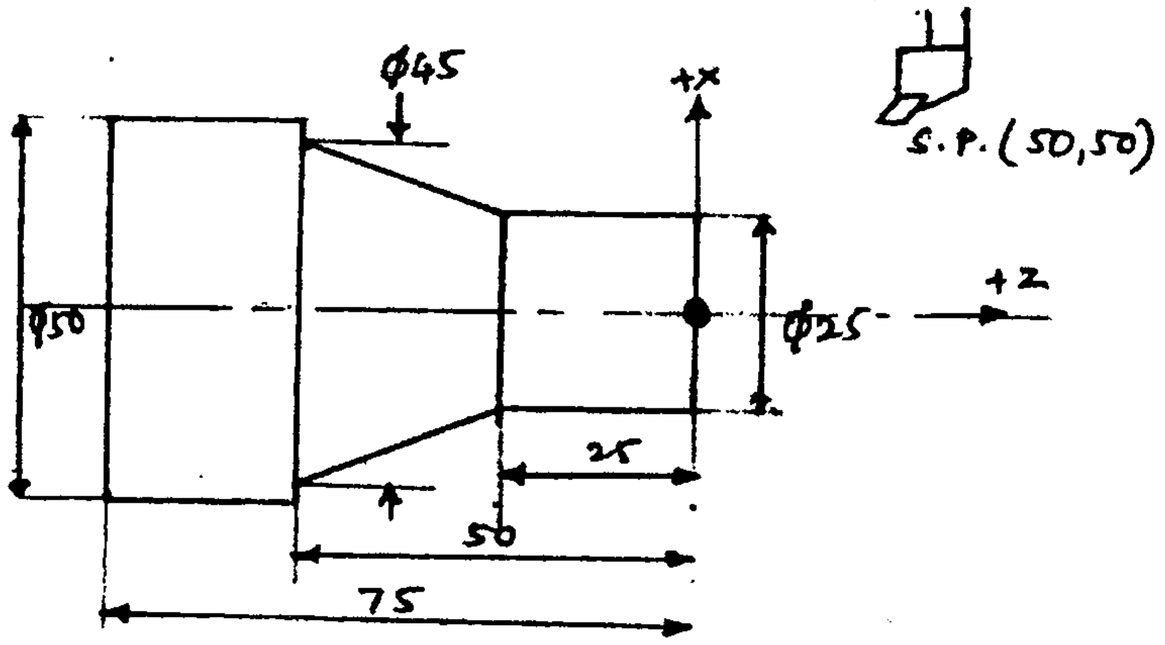
N.B. : (1) Question No. **1** is **compulsory**.
(2) Solve any **four** questions from remaining **Six.**
(3) Draw neat **sketches** wherever **required.**
(4) Assume suitable data wherever necessary and justify the **same.**

1. (a) Explain Product -Process continuum. **5**
(b) Explain the transformation process for software industry. **5**
(c) Explain alongwith neat sketches following lathe operations : **10**
Turning, Facing, Drilling and Knurling.

2. (a) With neat labelled block diagram explain horizontal column and knee type milling machine. **6**
(b) With neat sketches differentiate between boring and reaming operations performed on drilling machine. **4**
(c) Differentiate with neat sketch between metal drawing and metal extension. **5**
(d) Explain spot welding process and write its applications. **5**

3. (a) Differentiate between thermoplastics and thermo-setting plastics. **5**
(b) Write a note on computer aided Process Planning. **7**
(c) Explain any four SQC tools with neat sketches. **8**

4. (a) Define quality and explain its dimensions . **5**
(b) Differentiate with neat sketches between open loop control system and closed loop control system for CNC machines. **5**
(c) Write a note on Order of Automation. **4**
(d) Prepare a CNC part program for the following job :– **6**



Raw material size ϕ50 mm. Bar stock.

[TURN OVER

5. (a) Explain components of robots and write its applications in manufacturing industries. **5**
   (b) What are the benefits and limitations of FMS ? **5**
   (c) Explain ergonomic principles concerning hand tool design. **5**
   (d) Explain the role of forecasting in capacity planning. **5**

6. (a) Differentiate between product layout and process layout. **6**
   (b) Explain the role of demand management in make to order environment. **4**
   (c) Write a note on inputs and outputs of MRP. **5**
   (d) Write a note on ERP. **5**

7. Write notes on (any **four**) :- **20**
   (a) Oxy-acetelene gas welding.
   (b) Compression moulding of polymers.
   (c) Capability index and centering of the process in analysis of the process.
   (d) Evolution of CNC machine tools.
   (e) Lean manufacturing.

TE (IT) Sem V 12/12/13.

08-11-13-DTP2-KG-12

OOAD

Con. 7085-13. **LJ-11437**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. **1** is **compulsory.**
(2) Attempt any **four** questions of the remaining **six** questions.
(3) **Diagrams** should be **neat** and **clean**.
(4) Assume suitable **data** if **necessary**.

1. (a) Explain the following features of Object Orientation with Suitable examples. **10**
   (a) Encapsulation
   (b) Aggregation
   (c) Association
   (d) Inheritance
   (e) Generalization

   (b) Study the following case study and give answers of the following questions. **10**
   (i) Indentify actors, goals and use cases.
   (ii) Draw a system level use case diagram clearly stating the difference between include and extend.

   Knowledge Books Store would like to establish a Internet based Online Book Store. The customer can interactively select any book from the category, fictional, non-fictional, educational. They can then examine the price and short description and cost of the book, select the book they want to purchase and proceed to paying for them. To complete the payment a form must be filled out with shipping and payment information. When the order is confirmed, a confirmation email is sent to the customer, with the details of the order and reference number. The reference number can be used to check the status of the order online. The system must verify the credentials of the customer, request the book from the ware house, print an invoice and request a delivery to customer.

2. (a) What is requirement ? What are functional and non-functional Requirements ? from the Q.1 B (Case Study) identify and explain five functional and five non-functional requirements. **10**

   (b) What are the design principles ? Explain the difficulties and risk in design ? **10**

Explain

3. (a) ~~Draw~~ the various types of Cohesion and Coupling **10**

   (b) Draw state chart diagram for automatic transmission system for gears in the car. Car can only start in neutral position. Manual selection is to be done to move to either reverse gear or higher gears. Upper gears are first, third and fourth and changes automatically based on the speed of the car. Second **10**

[TURN OVER

4. (a) Draw the Actitivity diagram for "Online shopping Scenario" show swim lanes. **10**
   (b) Explain the various Software Testing Strategies. **10**

5. (a) Draw sequence diagram for withdrawing money from ATM machine. **10**
   (b) What is design pattern ? Explain any two Design Pattern. **10**

6. (a) For a Library managements sysem, design the test cases for the "issue and return of book" **10**
   (b) You are appointed as a consultant for Intranet Development for your college, write a detailed problem statement for the problem, and draw the Deployment diagram. **10**

7. Write a short notes on (any **two**) :- **20**
   (a) User Interface Design Principles.
   (b) Mapping Model to Code.
   (c) Nested State Diagram.
   (d) Interaction Modeling in UML.
   (e) Frameworks and Components.

T.E. I.T. Sem V Oct-13 21/Nov/13

Sub:- OFCD OFCD

02-11-13-DTP6- PM-4

Con. 6733-13 **LJ-11275**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No.**1** is **compulsory**.

(2) Answer any **four** questions from remaining **six** questions.

1. (a) What is kernel ? Describe briefly the approaches of designing kernel. **5**

(b) What is real time operating system ? Write the characteristics of real time operating system. **5**

(c) In typical process state transition diagram. Clearly state under what condition the following state transitions occurs ? **5**

(i) Running to ready

(ii) Running to waiting

(iii) Waiting to ready

(d) What is Programmed I/O ? Describe in brief. **5**

2. (a) Consider a system running 10 I/O bound tasks and one CPU bound task. Assume that I/O bound task issues an I/O operation once for every millisecond of CPU computing and that each I/O operation takes 10 milliseconds to complete. Also assume that the context switching overhead is 0. 1 millisecond and that all processes are long running tasks. What is the CPU utilization for round Robin Schedular when : **10**

(i) the time quantum is 1 millisecond

(ii) the time quantum is 10 milliseconds ?

(b) Describe the implementation of file allocation techniques. **10**

3. (a) What is meant by interprocess communication ? Explain shared memory and message passing. **10**

(b) Consider the following page traces in demand paging system with 4 page frames :- **10**

2, 3, 1, 2, 4, 3, 2, 5, 3, 6, 7, 9, 3, 7.

Determine the number of page faults and hit ratio using FIFO and LRU page replacement algorithms.

4. (a) Consider the following system snapshot using data structure in the Banker's algorithm. **10**

Process	Max				Allocation				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	6	0	1	2	4	0	0	1	3	2	1	1
P1	1	7	5	0	1	1	0	0				
P2	2	3	5	6	1	2	5	4				
P3	1	6	5	3	0	6	3	3				
P4	1	6	5	6	0	2	1	2				

Using Banker's algorithm, answer the following questions :-
(i) How many resources to type A, B, C and D are there ?
(ii) What are the contents of Need matrix ?
(iii) Is the system is in safe state ? Find the sate sequence if it is.

(b) Draw and explain archietecture of RTOs. **10**

5. (a) Suggest the implementation of binary semaphore that avoids the busy waiting. **10**
(b) A 16 bit computer has page size of 1024 bytes. The page table of process is as **10**

Page No.	Frame No.
0	7
1	2
2	5
3	1
4	12
5	6
6	6
7	0

follows :

Determine the physical address corresponds to logical address.
(i) 3720 (ii) 1125

6. (a) On a disk with 1000 cylinders, number 0 to 999, compute the number of tracks the disk arm must move to satisfy all request in the disk queue. Assume the last request serviced was at track 345 and the head is moving towards track 0, the queue in FIFO order contains request for the following tracks : **10**

123, 874, 692, 475, 105, 376

Perform the computation for following scheduling algorithm :-
(i) FIFO (ii) SSTF (iii) SCAN.

(b) What is thread ? Explain user level threads and kernes level threads. **10**

7. Write short notes on the following : **20**
(a) NOs.
(b) Different types of schedulars.
(c) Distributed O.S.
(d) I-node.

T.E. Sem-I EVS 18/12/2013.
ETRX, CMPN, IT, EXTC.

Con. 7101-13. **LJ-11450**

(2 Hours) **[Total Marks : 50**

N. B. : (1) Question No. **1** is **compulsory**.
(2) Attempt any **four** questions from Question Nos. **2** to **7**.
(3) Draw **suitable** sketches wherever **required**.
(4) **Figure** to the **right** indicates **full** marks.

1. Answer any **five** of the following:– **10**
   (a) Explain the concept of food chain with suitable example.
   (b) What are the causes and effects of E-pollution?
   (c) Differentiate between : Renewable and Non-renewable energy resources.
   (d) What is sustainable development? What are its benefits?
   (e) Explain the term 'Hot Spots of Biodiversity'.
   (f) What are the functions of State Pollution Control Board.
   (g) Why thermal pollution is growing? How it can be controlled?

2. (a) Explain briefly the characteristic features of forest ecosystem. How forest ecosystem can be conserved? **5**
   (b) Why there is need for water conservation? Explain briefly how rain water harvesting can be carried out? **5**

3. (a) How marine pollution is caused? Explain adverse effects caused on account of it. **5**
   (b) What is disaster management? How these techniques can be implemented in the event of cyclone. **5**

4. (a) Explain briefly the salient features of Air Pollution Prevention and Control Act. **5**
   (b) Why global warming is taking place? What are the adverse effects produced by it? **5**

5. (a) What is Biodiversity? Explain the important values of biodiversity. **5**
   (b) How acid rain is formed? What adverse effects are produced on account of it. **5**

6. (a) What role is played by Information Technology to the field of human health and environment. **5**
   (b) Explain structural and functional aspects of an ecosystem. **5**

7. (a) What is solid waste? Explain the methods to control solid waste. **5**
   (b) List important air pollutants. What are their sources and how do they affect us? **5**
