

322456(22)

B. E. (Fourth Semester) Examination, April-May 2020

(New Scheme)

(CSE Branch)

OPERATING SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory and carries 2 marks. Attempt any two parts from (b), (c) and (d) which carry 7 marks each.

Unit-I

1. (a) What is interactive operating system? 2
- (b) Why operating system required on computer?
Describe the service provided by operating system. 7

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- (c) Differentiate between time sharing and real time operating system with any two real example. 7
- (d) Describe the distributed computing and parallel computing with suitable example. 7

Unit-II

2. (a) What is the use of process on processing of task? 2
- (b) Using Pre-emptive SJF scheduling draw the Gantt chart and calculate the average waiting time for the given data. 7

Process	Arrival Time	Burst Time
P_1	0	19
P_2	1	11
P_3	2	83
P_4	3	15

- (c) Explain Producer/Consumer problem with suitable diagram. 7
- (d) Write short notes on : 7
- (i) Process control block
- (ii) Interrupt processing

[3]

Unit-III

3. (a) Writing necessary conditions for deadlock. 2
- (b) Consider the following snapshot of a system :

	Allocation	Max	Available
	<i>ABCD</i>	<i>ABCD</i>	<i>ABCD</i>
P_0	0 0 1 2	0 0 1 2	1 5 2 0
P_1	1 0 0 0	1 7 5 0	
P_2	1 3 5 4	2 3 5 6	
P_3	0 6 3 2	0 6 5 2	
P_4	0 0 1 4	0 6 5 6	

Answer the following using Banker's algorithm :

- (i) What is the content of matrix needed? 7
- (ii) Is the system in a safe state? 7
- (c) Explain the deadlock recovery method. 7
- (d) Write short notes on : 7
- (i) Circular wait
- (ii) Safe and unsafe state

Unit-IV

4. (a) What is Resident Monitor? 2

[4.]

- (b) Explain multiprogramming with fixed partition with suitable example. 7
- (c) Consider the following page reference string :
4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5.
Assume 3 page frames and pure demand paging.
How many page faults would occur for :
(i) FIFO and (ii) optimal? 7
- (d) What is Thrashing? How does the system detect thrashing? 7

Unit-V

5. (a) Explain blocked I/O devices. 2
- (b) Explain the different types of buffering. 7
- (c) Write different types of file access methods with suitable diagram. 7
- (d) Write short notes on : 7
- (i) File sharing
- (ii) Virtual O.S.

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B. E. (Sixth Semester) Examination, 2020

(Old Scheme)

(Branch : CSE Br.)

COMPUTER NETWORKS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) is compulsory attempt any two from part (b), (c) and (d). The figure in the right hand margin indicate marks.

Unit - I

1. (a) What is basic difference between N-ISDN and B-ISDN? 2

(b) Explain basic network topologies and give

[2]

advantages of each. Differentiate between half duplex and full duplex transmission mode. 7

(c) What are the services of physical layer? Also explain handward protocol for computer network. 7

(d) What is switching? Explain circuit switching, packet switching & message switching. 7

Unit - II

2. (a) Write the number of bits used by MAC address with example. 2

(b) What is AJM reference model? Explain all the layers of ATM. 7

(c) What is ALOHA? Calculate the efficiency of pure ALOHA and slotted ALOHA along with graphs. 7

(d) Calculate the throughput for stop and wait flow control mechanism if the frame size is 4800 bits, bit rate is 9600 bps and distance between device is 2000 km, speed of propagation over the transmission is 200000 kms. 7

Unit - III

3. (a) Which one of the seven layers is specially related to routing and what is its purpose? 2

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(b) As IPv6 contain multiple header, how does it know where particular header ends and next item begins? 7

(c) Explain distance vector routing with neat diagram. Write the difference between distance vector routing & link state routing. 7

(d) How crash recovery is possible? Explain it with an example. 7

Unit - IV

4. (a) What is remote file server? 2

(b) Which layer is responsible for end-point flow control? Explain the method adopted for controlling the flow in detail. 7

(c) Explain the working principle of DES. What are the advantages & disadvantages of triple DES over DES. 7

(d) Explain why modern block ciphers are designed as substitution cipher instead of transposition ciphers. 7

Unit - V

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PTO

5. (a) Explain attacks and counter attacks in network. 2
- (b) What is FDDI? What are differences between FDDI-I & FDDI-II? 7
- (c) What is SONET? What is the significance of sonnet? Explain the sonnet frame structure. 7
- (d) Write short technical notes on : 7
- (i) Congestion control
 - (ii) Repeaters & Routers

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B. E. (Sixth Semester) Examination, 2020

(Old Scheme)

(Branch : CSE)

COMPILER DESIGN

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : In all questions part (a) is compulsory. In remaining part (b), (c) & (d). Attempt any two parts. Part (a) carry 2 marks & remaining parts (b), (c) & (d) each carries 7 marks.

Unit - I

1. (a) Draw different phases of compiler in detail.
- (b) Construct a transition diagram to :
 - (i) Identifiers
 - (ii) Floating point numbers

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- (iii) C relational operators
- (c) Compare NFA and DFA using Thompson's construction, construct finite automata for the regular expression $(a/b)^* abb(a/b)^*$.
- (d) Explain the tools that are needed in compiler construction.

Unit - II

2. (a) Define augmented grammar.
- (b) Write short note on :
- (i) Canonical collection of LR(0) items
 - (ii) Closure operation
 - (iii) GOTO operation
- (c) Is the given grammar is SLR(1) or not :
- $$S \rightarrow AaAb \mid BbBa$$
- $$A \rightarrow \epsilon$$
- $$B \rightarrow \epsilon$$
- (d) Explain Y_{ACC} and LEX tools in detail.

Unit - III

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3. (a) What is syntax free?
- (b) Convert the following expression :
- $$e = (a - b) * (c + d) + (a - b)$$
- is to :
- (i) Quadruple
 - (ii) Triples
 - (iii) Indirect Triples

- (c) Write postfix notation of :

(i) $a*(b+c)-d/e$

(ii) $a*-(b+c)$

- (d) Write short notes on :

(i) Synthesized attributes

(ii) Inherited attributes

Unit - IV

4. (a) Define dynamic storage allocation.
- (b) Explain in detail about allocation strategies.
- (c) What is activation record? Explain different fields of activation record.

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(d) Write short notes on the following :

- (i) Symbol table
- (ii) Dynamic storage allocation

Unit - V

5. (a) Explain in brief issues in the design of the code generator. Only draw the design.
- (b) What is global data flow analysis? Explain with example.
- (c) Explain in detail loop optimization.
- (d) Write steps for code generation algorithm and using that generate code sequence for the expression :

$$a = (p + q) - ((r + s) - t)$$

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B. E. (Sixth Semester) Examination 2020

(New Scheme)

(CSE Branch)

UNIX & SHELL PROGRAMMING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) of each unit is compulsory. Solve any two parts from (b), (c) and (d) of each unit. The figure in the right-hand margin indicate marks.

Unit - I

1. (a) List out the version of Unix. 2
- (b) What are the various modes in which a VI editor works? Explain each of term with example.

[2]

- (c) What is the meaning of term 'file system'? Explain the contents of boot block, super block, inode block, data block. 7
- (d) Explain the following commands using examples : 7
- (i) WC
 - (ii) script
 - (iii) s#y
 - (iv) head
 - (v) uniq

Unit - II

2. (a) What is Arrays and string in shell? 2
- (b) Write a shell script that presents a multiple choice questions, gets the user answer and responds back whether the answer is right wrong or none of the choices. 7
- (c) Describe the while loops with proper example. 7
- (d) Write a shell script to generate a factorial of a given number entered through keyboard. 7

Unit - III

3. (a) What is buffer pool? 2

[3]

- (b) What do you mean by buffer cache? Explain the various advantage and disadvantages of buffer cache. 7
- (c) Write an algorithm for reading disk blocks and explain with suitable example. 7
- (d) Briefly describe the scenarios the kernel may follow in getblk to allocate a buffer from a disk block. 7

Unit - IV

4. (a) What is Mounting? 2
- (b) What is the role of INODE in UNIX operating systems? Write an along for conversions of a path name to an INODE. 7
- (c) In UNIX operating systems how to change file's owner and file's mode then its algorithm. 7
- (d) How pipes are different from regular file? Explain read write process in pipes. 7

Unit - V

5. (a) What is Process Control? 2
- (b) Describe transitions layout of system memory. 7

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(c) What are various algorithms used to manipulate process virtual address space? Explain the algorithm for attaching and allocating a region. 7

(d) Write an algorithm for wake up system call. 7

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B. E. (Sixth Semester) Examination 2020

(Old Scheme)

(CSE Branch)

SOFTWARE ENGINEERING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory and carries 2 marks. Attempt any two parts from (b), (c) and (d) which carry 7 marks each.

Unit-I

- | | | |
|--------|--------------------------|---|
| 1. (a) | Explain Verification. | 2 |
| (b) | Explain Waterfall Model. | 7 |

[2]

- (c) Explain Software Development Process. 7
- (d) Explain Software Engineering Paradigm. 7

Unit-II

- 2. (a) What is Validation? 2
- (b) What is Software Prototyping? What are the advantages of software prototyping? 7
- (c) Explain Requirement Engineering Process. 7
- (d) Explain Rapid Prototyping Techniques. 7

Unit-III

- 3. (a) Explain Modular Design. 2
- (b) Explain SCM process. 7
- (c) Explain Software design concepts and principles in detail. 7
- (d) Explain uses interface design principles. 7

Unit-IV

- 4. (a) What is black box testing? 2

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- (b) Explain unit testing, integration testing and validation testing. 7
- (c) Explain various types of Software Test. 7
- (d) Explain Software testing strategies. 7

Unit-V

- 5. (a) What is White Box testing? 2
- (b) Explain COCOMO Model. 7
- (c) Explain Delphi Model. 7
- (d) Explain software cost estimation function. 7

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B. E. (Sixth Semester) Examination, 2020

(Old Scheme)

(CSE Branch)

COMPUTER GRAPHICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note : Part (a) of each question is compulsory.
Attempt any two question from (b), (c) and
(d) part of each questions.***

Unit-I

1. (a) Define resistance & resolution.

2

[2]

- (b) Draw a neat diagram of CRT. Explain the working of all the components. 7
- (c) What is polygon clipping? Explain in brief. 7
- (d) Explain the basic concept of midpoint ellipse algorithm? Derive the decision parameters for the algorithm and write down the algorithm steps. 7

Unit-II

- 2. (a) What is B-spline curves? 2
- (b) How the curves are drawn using forward differences? 7
- (c) What is Bzier curve? Enlist the general characteristics of Bzier curve. 7
- (d) Describe the functionality of blending function for uniform periodic B-spline curve for $d = 3$. 7

Unit-III

- 3. (a) Define transformation. 2
- (b) Explain painter algorithm for hidden surface removal. 7

[3]

- (c) Explain with example scan line algorithm. 7
- (d) Explain Projection and its types. Also draw taxonomy of projection. 7

Unit-IV

- 4. (a) What is Shading? 2
- (b) Explain texture mapping and their characteristics. 7
- (c) Define Lambert's law? Explain rendering and visualization of data sets? 7
- (d) Explain illumination model for diffused and specular reflection? 7

Unit-V

- 5. (a) What is procedural animation? 2
- (b) How the terrain mid point displacement are generated? 7
- (c) Explain morphing and motion control? 7
- (d) Explain arc length parameterization in brief. 7

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B. E. (Sixth Semester) Examination, 2020

(Old Scheme)

(CSE, IT Engg.)

DIGITAL SIGNAL PROCESSING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) of each question is compulsory. Attempt any two parts from (b), (c) & (d).

Unit-I

1. (a) Explain Signal. 2
- (b) Explain Time domain representation of discrete time signal. 7

[2]

- (c) Explain properties of fourier transform. 7
(d) What is energy & powers theorem. 7

Unit-II

2. (a) Explain sampling theorem. 2
(b) Explain discrete time processing of continuous time signal. 7
(c) How sampling rate can change using discrete time processing? 7
(d) How reconstruction of Band limited signal from its sample is possible. 7

Unit-III

3. (a) What is Z transform? 2
(b) Explain properties of region of convergence. 7
(c) Determine Z transform including the region of convergence of . 7

$$x(n) = \begin{cases} a^n, & n \geq 0 \\ 0, & n < 0 \end{cases}$$

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[3]

- (d) Determine the causal signal $x(n]$ having the z transform : 7

$$X(z) = \frac{1}{(1+z^{-1})(1-z^{-1})^2}$$

Unit-IV

4. (a) Explain properties of digital filter. 2
(b) Find the response of FIR filter with impulse response $h(n) = \{1, 2, 4\}$ to the input sequence $x(n) = \{1, 2\}$. 7
(c) Explain various application of DSP. 7
(d) Explain bilinear transformation methods for IIR filter design. 7

Unit-V

5. (a) Explain Bit reversal. 2

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[4]

- (b) Explain circular & linear convolution using DFT. 7
- (c) Given $x(n) = \{0, 1, 2, 3\}$ find $X(K)$ using DIT FFT algorithm. 7
- (d) Explain decimation in frequency (DIF) algorithm. 7

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B. E. (Sixth Semester) Examination, 2020

(Old Scheme)

(CSE Engg.)

MANAGEMENT INFORMATION SYSTEMS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory. Attempt any two parts from (b), (c) and (d) of each question.

Unit-I

1. (a) What do you understand by MIS? 2
- (b) How human factor consideration play an important role in MIS. 7

[2]

- (c) Explain the features of MIS. 7
- (d) Explain the MIS model. Why did early MIS efforts fail? 7

Unit-II

- 2. (a) Who are the users of MIS? 2
- (b) Explain CBIS model in detail. 7
- (c) What is manager's roles, work in different environments? 7
- (d) Explain the factors in business level and firm level strategy. 7

Unit-III

- 3. (a) Define HRIS. 2
- (b) Explain decision support system (DSS) in detail. 7
- (c) Explain executive information system in detail. 7
- (d) Describe the manufacturing information system. 7

Unit-IV

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[3]

- 4. (a) What do you mean by competitive environment? 2
- (b) Explain HR research subsystem. 7
- (c) State and describe strategic planning for MIS. 7
- (d) What is the objective of information resource management? 7

Unit-V

- 5. (a) What do you mean by E-com? 2
- (b) Explain E-com technology in detail. 7
- (c) Describe major problems in implementing a global information system. 7
- (d) Explain the international information system. 7

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B. E. (Sixth Semester) Examination, 2020

(Old Scheme)

(Computer Science and Engg. Branch)

INTER NETWORKING with TCP/IP

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) from each question is compulsory. Attempt any two parts from parts (b), (c) and (d) of each question.

1. (a) What do you mean by inter-network?
- (b) Explain the function of ISO-OSI reference model.
- (c) Explain TCP/IP protocol suite.

[2]

- (d) Explain various switching technology.
2. (a) Define the term protocols as it relates to data communication.
- (b) Explain working of IGMP.
- (c) Briefly describe the classes of IP addresses with their ranges.
- (d) Differentiate between IPv4 vs IPv6.
3. (a) What do you understand by routing.
- (b) Explain various types of OSPF message format of OSPF protocol.
- (c) Explain RIP protocol with its advantages and disadvantages.
- (d) Briefly describe the Multicast Backbone (M-Bone).
4. (a) Compare congestion control and flow control.
- (b) Explain leaky bucket algorithm.
- (c) Explain the principle of sliding window protocol.

[3]

- (d) For a host machine the uses the token bucket algorithm for congestion control, the token bucket has a capacity of 1 megabyte and the maximum output rate is 20 megabytes per second. Tokens arrive at a rate to sustain output at a rate of 10 megabytes per second. The token bucket is currently full and the machine needs to send 12 megabytes of data. What will be the minimum time required to transmit the data?
5. (a) Define virtual circuit identifier.
- (b) Explain types of ISDN equipment and how the equipment is interconnected to create ISDN networks.
- (c) Explain ATM reference Model.
- (d) Explain logical subnet concept and connection management.

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B. E. (Sixth Semester) Examination, 2020

(New Scheme)

(CSE Branch)

COMPUTER NETWORKS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) from each questions is compulsory. Solve any two parts from (b), (c) and (d).

Unit - I

1. (a) Define computer network. 2
- (b) Design full ISO/OSI reference model. Explain the function of each layer. 7

- (c) Compare LAN, MAN & WAN. 7
- (d) What is ISDN? Explain Broadband ISDN with the help of block diagram. 7

Unit - II

- 2. (a) Define Checksum. 2
- (b) Explain stop & wait and sliding window protocol for flow control. 7
- (c) Write various features of HDLC. Clearly explain various response modes & station types. 7
- (d) Calculate the efficiency of pure Aloha and slotted Aloha. 7

Unit - III

- 3. (a) Define virtual circuit. 2
- (b) Compare IPv4 & IPv6 addressing scheme. 7
- (c) Explain distance vector routing protocol along with example. 7
- (d) Explain multi protocol label switching (MPLS) routing mechanism. 7

[3]

Unit - IV

4. (a) Define multiplexing. 2
- (b) Write the differences between connection oriented & connectionless services. Explain TCP segment header format. 7
- (c) Discuss TCP connection management phases (Connection Setup, Data Transfer, Connection Tear Down) with example. 7
- (d) Explain transport layer congestion control policy. 7

Unit - V

5. (a) Define socket. 2
- (b) Write short notes on : 7
- (i) Domain Name Systems
- (ii) Electronic mail
- (c) Describe multimedia networking protocols RTP & RTCP in detail. 7
- (d) Define firewall. Explain different types of firewall. 7

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B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(CSE Engg. Branch)

COMPILER DESIGN

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note : Part (a) is compulsory for each question.
Solve any two from (b), (c) and (d). All
questions carry equal marks.***

Unit-I

1. (a) What is a compiler? 2
- (b) Explain the different phases of compiler with example. 7

[2]

(c) Convert $b(a+b)^*a$ into a DFA. 7

(d) What is LEX? Explain with suitable code. 7

Unit-II

2. (a) What do you mean by left recursion? Support your answer with example. 2

(b) Give the rules to find out FIRST and FOLLOW of Non terminals of grammar. For the given grammar find out FIRST and follow : 7

$$E \rightarrow TE^1, E^1 \rightarrow +TE^1 | \epsilon, T \rightarrow FT^1,$$

$$T^1 \rightarrow *FT^1 | \epsilon, F \rightarrow (E) | id$$

(c) Construct the predictive passes LL(1) table for the given grammar : 7

$$S \rightarrow AaAb | BbBa, A \rightarrow \epsilon, B \rightarrow \epsilon$$

(d) Construct SLR table for the given grammar : 7

$$S \rightarrow AA, S \rightarrow aA, A \rightarrow b$$

Unit-III

3. (a) What is role of semantic analyser? 2

[3]

(b) Explain synthesized and Inherited attribute with example. 7

(c) For the given grammar
 $E \rightarrow E_1 + T, E \rightarrow E_1 - T, E \rightarrow T, T \rightarrow T_1 * F,$

$$T \rightarrow T_1 / F, T \rightarrow F, F \rightarrow (E), F \rightarrow \text{num}$$

Give the semantic rule to represent syntax directed definition for arithmetic expression and draw annotated parse tree for $4 - 6/3 + 5$. 7

(d) For the given arithmetic expression,

$$Q := -b * (c + d)$$

give the quadruple, triple and indirect triple representation with brief explanation. 7

Unit-IV

4. (a) Define local and global variable. 2

(b) Explain about Activation Record. 7

(c) Explain different allocation strategies. 7

(d) Explain different parameters passing methods. 7

Unit-V

5. (a) Explain any two local optimization technique. 2

(b) Translate the following code to basic block and flow graph 7

```
Sum := 0
```

```
U := 1
```

```
While (i ≤ 10) do
```

```
  }
```

```
    Sum := sum + a [ 2 × i ]
```

```
    i := i + 1
```

```
  }
```

```
  avg = sum / i
```

(c) Explain different issues related to code generation. 7

(d) Generate the code sequence for assignment

```
a := x - y + x - z + x - z. 7
```

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B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(CSE Branch)

ENTERPRISE RESOURCE PLANNING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) from each question is essential and carries 2 marks. Any two parts may be attempted out of (b), (c) and (d). Each part is of 7 marks.

Unit-I

1. (a) Write the benefits of ERP. 2
- (b) Explain the technologies of ERP in detail. 7

[2]

- (c) What is BPR? Why the organization goes to implement BPR, although it runs under high risk? 7
- (d) Explain PLM with suitable diagram. Why PLM is required for production sector? 7

Unit-II

2. (a) What is Hidden Cost? 2
- (b) Explain the steps of SDLC with reference to ERP development. 7
- (c) Explain the role of consultant and vender. 7
- (d) What benefits you will get after ERP implementing, considering an example of BSP/Tata Steel/other of your choice? 7

Unit-III

3. (a) Write the basic and advanced functional modules of ERP. 2
- (b) Explain shop floor control with suitable diagram. 7
- (c) Write the major task of finance, as functional module. 7

[3]

- (d) According to your which is most emerging functional module of ERP, explain why? 7

Unit-IV

4. (a) Why ERP is better than MIS? 2
- (b) What is SCM? Why the organization wants to implement SCM, considering DIMART/Relience fresh/e-commerce market. 7
- (c) What is market place dynamics of ERP? Write the growth of ERP market. 7
- (d) Explain why CRM is integrated with ERP. 7

Unit-V

5. (a) Explain importance of internet in ERP. 2
- (b) How organizational culture is integrated with ERP? Write the advantages after integration. 7
- (c) Write top 5 ERP vendors in the world. Which is the top most vendor, why? 7

- (d) Briefly explain ERP packages of oracle, people soft and J. D. Edward. Explain the relation between them. 7

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B. E. (Sixth Semester) Examination,

April-May 2020

(New Scheme)

(Computer Science and Engg. Branch)

**SOFTWARE ENGINEERING & PROJECT
MANAGEMENT**

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) from each question is compulsory. Attempt any two parts from parts (b), (c) and (d) of each question.

1. (a) What is legacy software? 2
(b) Explain Capability maturity Model Integration? 7

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[2]

- (c) What is RAD model? Explain application and features of RAD model. 7
- (d) Explain Spiral model with its advantages and disadvantages. 7
2. (a) Define feasibility study? 2
- (b) Explain Functional and non functional requirements in terms of software engineering. 7
- (c) What is SRS? Which qualities are required for SRS. 7
- (d) Explain about Requirement Engineering Process? 7
3. (a) Describe Modularization. 2
- (b) What is Software architectural design? Explain with block diagram. 7
- (c) What is the need of Coupling and Cohesion? Also explain its types. 7
- (d) Explain top down and bottom up approach in terms of Software Design technique. 7
4. (a) What is System testing? 2

[3]

- (b) What is Unit testing. Also explain its benefits. 7
- (c) Write down the difference between Black Box Testing and White Box Testing. 7
- (d) Discuss about testing strategies for conventional software. 7
5. (a) Write down the advantages of CASE tools. 2
- (b) What is Risk Management? Explain principle of Risk Management. 7
- (c) What is Software Quality Assurance? Explain Major Software Quality Assurance Activities. 7
- (d) Write down the short notes on the following : 7
(any two)
- (i) Formal Technical Review
- (ii) Walkthrough
- (iii) ISO 9000 quality standards

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Roll No. :

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B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(CSE Branch)

COMPUTER GRAPHICS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all units. Part (a) of each unit is compulsory carry 2 marks. Attempt any 2 part from (b), (c) and (d) carry 7 marks.

Unit - I

1. (a) What is persistence? Explain use of this quality of phosphorus.
- (b) Explain Beam Penetration method of achieve color picture, using neat and clean diagram. How all

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[2]

possible colors can be achieved in this method explain in detail.

- (c) Explain the working of CRT monitor. Explain the method to draw and store picture in Raster and Random system.
- (d) Consider the 3 different Raster system with resolution 640×640 , 1280×1024 and 2560×2048 . What size of Frame buffer (In Byte) is needed for each of these system to store 12 bits per pixel.

Unit - II

- 2. (a) What do you mean by aliasing?
- (b) Explain DDA algorithm for drawing line with example.
- (c) Explain Midpoint circle drawing algorithm. Using same algorithm draw the circle having center at (5, 5) and radius 5 cm.
- (d) Explain following area filling algorithm with their application area for which they are best suited.
 - Scan line method
 - Boundary fill method (8 connected)

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[3]

Unit - III

- 3. (a) Explain Reflection transformation.
- (b) What is Transformation? Explain following transformations also write homogeneous matrix for them :
 - Rotation
 - Translations
 - Scaling
- (c) Define the term 'Window' and 'Viewport'. Also explain window to view port transformation pipeline. Illustrate the window to viewport mapping for a point at position (x_w, y_w) in the window, mapping into position (x_v, y_v) in the associated viewport.
- (d) What is clipping? Explain Cohen Sutherland line clipping algorithm.

Unit - IV

- 4. (a) Explain Approximation and Interpolation.
- (b) Explain projection Transformation and its type. Derive the Coordinate for parallel and perspective projection.

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- (c) Explain characteristics of B-Spline curves. Generate questions for blending function for the cubic spline considering $d = 3$.
- (d) What is specular reflection? Give the illumination model that incorporate this reflection.

Unit - V

5. (a) What is key frame?
- (b) What do you mean by Hidden Surface Removal? What are the different techniques, Explain any one method in detail.
- (c) What do you mean by Morphing in animation theory?
- (d) Discuss the steps of Design of animation sequence.

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**B. E. (Sixth Semester) Examination,
April-May 2020**

(New Scheme)

(CSE Branch)

(Professional Elective-I)

MULTIMEDIA and VIRTUAL REALITY

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) is compulsory of each unit. Attempt any two parts from (b), (c) & (d) of each unit.

Unit-I

1. (a) Define Multimedia. 2
- (b) Explain the concept of temporal media. 7

[2]

- (c) What are the applications of multimedia? Explain. 7
- (d) What do you mean by image recognition? How can an image be recognised? 7

Unit-II

2. (a) What is the basic difference between lossless & lossy compression? 2
- (b) Define the term MIDI. Explain two different components of a MIDI interface. 7
- (c) Explain the basic concepts of video & animation. 7
- (d) What is Authoring System? Explain various authoring tools. 7

Unit-III

3. (a) Define USB. 2
- (b) Explain the various features of JPEG-2000. Also explain how it differ from JPEG. 7
- (c) Explain static Huffmann encoding and dynamic Huffmann encoding technique. 7

[3]

- (d) Explain MPEG-1 compression scheme. 7

Unit-IV

4. (a) What is Optical Media? 2
- (b) Write advantages of CD-DA technology. 7
- (c) How data is stored in WORMS? 7
- (d) Explain the principles of CDWO. 7

Unit-V

5. (a) What is Virtual Reality? 2
- (b) Explain the importance of VRML programming in virtual reality. 7
- (c) Explain augmented reality system. 7
- (d) Write short notes on : (any two) 7
- (i) Data Globes
 - (ii) Holographic Display
 - (iii) Head Mounted Display

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B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(CSE Engg. Branch)

INTER-NETWORKING with TCP/IP

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all five questions. Part (a) of each unit is compulsory. Attempt any two parts from (b), (c) and (d) of each unit.

Unit-I

1. (a) Define Gateway. 2

(b) How the numbers of cross-points reduced in the

[2]

multistage switch having 03 stages, show with example? And explain different types of switches. 7

(c) Explain TCP/IP reference model. 7

(d) Explain packet-switching and what advantage does a circuit-switched network have over a packet switched network. 7

Unit-II

2. (a) Define class full addressing. 2

(b) A host with IP addresses 130.23.43.20 and physical address B2 : 34 : 55 : 10 : 22 : 10 has a packet to send to another host with IP address 130.23.43.25 and physical address A4 6E : F4 : 59 : 83 : AB. The two hosts are on the same Ethernet network.

Answer the following :

(i) Which protocol is used to identify physical address of the receiver? Explain the operation performed by the protocol to obtain physical address also show the values in packets send by both devices encapsulated in Ethernet frames.

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[3]

(ii) Which protocol is used to identify IP addresses of sender? Explain the operation performed by the protocol to obtain IP address also show the values in packets send by both devices encapsulated in Ethernet frames. 7

(c) A company is granted the site address 181.56.0.0 (class B). The company needs 1000 subjects. Design the subnets. 7

(d) Explain IPv4 header format and differentiate between IPv4 and IPv6. 7

Unit-III

3. (a) Change the multicast IP address 232.43.14.7 to an Ethernet multicast physical address. 2

(b) Explain with the help of diagram the three steps to create source-based multicast tree in DVMRP. 7

(c) Explain working of BGP. 7

(d) Explain working of RIP in steps also write its performance. 7

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[4]

Unit-IV

4. (a) Define UDP. 2
- (b) Draw diagram of send window and receive window used in TCP and explain working of sliding window with the help of diagram. 7
- (c) In TCP, connection-oriented transmission requires three phases : connection establishment, data transfer, and connection termination. Explain the three phases with the help of flow diagram showing feollowing fields of segments : 7
- (i) Sequence number
 - (ii) ACK number
 - (iii) Flags
 - (iv) Window size
- (d) Explain token bucket algorithm and initially the bucket is full of token when 1 Mb burst arrive at the rate 25 Mb/Sec, the token bucket capacity is 500 kb, token arrives at the rate 2Mb/Sec and maximum output rate is 25 Mb/Sec. Calculate burst length and total time to drain 1 Mb data with no data lost? 7

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[5]

Unit-V

5. (a) Define ATM Network. 2
- (b) Explain how virtual circuit connection created in ATM network between client and server? 7
- (c) Explain ATM reference model and write functions of each layer? 7
- (d) Explain ISDN. 7

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B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(CSE Engg. Branch)

MANAGEMENT INFORMATION SYSTEMS

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all units. Every units carry equal marks. Part (a) is compulsory and solve any two from rest.

Unit-I

1. (a) What do you mean by term 'MIS'? 2
- (b) Describe the distinguishing feature of MIS list out some MIS system that are used in Education system. 7

[2]

- (c) Explain the concept of organizational information subsystem. 7
- (d) How report writing software is useful in system approach to MIS? 7

Unit-II

2. (a) What is computer and information literacy? 2
- (b) Explain CBIS along with it's model. 7
- (c) What is strategic informtion system? In what way it can be beneficial to a firm? 7
- (d) List and explain global Business drives GBD. 7

Unit-III

3. (a) What do you mean by EIS? 2
- (b) What are the DSS objectives? Draw and explain a DSS model. 7
- (c) Explain Human Resource Information system with suitable diagram. 7
- (d) Explain model of Mastering Information system with suitable diagram. 7

[3]

Unit-IV

4. (a) What is SDLC? 2
- (b) Describe about the information resource management. 7
- (c) Explain strategic planning for information resources. 7
- (d) Discuss firm and it's environment. What are the environment factors which affect a firm? 7

Unit-V

5. (a) Differentiate between moral and ethic. 2
- (b) Explain the GIS information system. 7
- (c) Describe electronic data exchange in the field of E-Commerce. 7
- (d) Explain briefly about architecture of IIS. 7

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B. E. (Sixth Semester) Examination, April-May 2020
(New Scheme)

ADVANCED OPERATING SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory and carries 2 marks.

Attempt any two parts from (b), (c) and (d) which carries 7 marks each.

Unit-I

1. (a) Define distributed O. S.
(b) Explain the distributed file service architectural in a distributed file system with an example.

[2]

- (c) Explain Andrew file system.
- (d) X.500 directory service is more than a global directory. Comment.

Unit-II

- 2. (a) Define cryptography.
- (b) Explain RSA algorithm with a suitable example.
- (c) Explain digital signatures in detail.
- (d) Explain different issues in distributed algorithm design principles.

Unit-III

- 3. (a) Define a file.
- (b) Explain briefly I/O) process management in UNIX.
- (c) What is a SHELL? What are the responsibilities of Shell? Give the general format for unix command system.
- (d) Describe shell programming environment.

[3]

Unit-IV

- 4. (a) Define command interpreter.
- (b) Draw and explain the architecture of WINDOWS OS.
- (c) Explain windows programming environment.
- (d) Explain briefly memory management of windows OS.

Unit-V

- 5. (a) Define Memory.
- (b) Compare memory management of Windows with Linux.
- (c) Explain system calls of Windows OS.
- (d) Explain system calls of Linux OS.

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B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(CSE Engg. Branch)

OBJECT ORIENTED MODELLING & DESIGN

(Professional Elective-I)

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory and carry 2 marks. Attempt any two questions from (b), (c) & (d) of each unit and equal 7 marks.

Unit-I

1. (a) Differentiate between links and associations?
(b) What is the requirement to design object oriented model?

[2]

- (c) Explain the process of object oriented modeling technique?
- (d) Explain following concepts for modelling :
 - (i) Abstraction
 - (ii) Object and class
 - (iii) Generalizations
 - (iv) Meta data

Unit-II

- 2. (a) What is an state?
- (b) Design the activity and sequence diagram of transfer money through ATM?
- (c) Explain the importance of relationship in the UML?
- (d) What is nested state? Draw nested state for phone line?

Unit-III

- 3. (a) Write four software testing method name?

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[3]

- (b) Prepare a data dictionary for Railway reservation system?
- (c) Draw the use case diagram for Open Book Test System. Describe each Actor and use case?
- (d) Prepare a data dictionary for Railway reservation system?

Unit-IV

- 4. (a) How we find Actors from problem?
- (b) Make a Reuse Plan and break a system into Subsystems for ATM?
- (c) Explain how system control strategy is handled by system designer?
- (d) How a system is breaking into subsystems? Explain with suitable example?

Unit-V

- 5. (a) What is fine tuning classes?

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PTO

(b) How pattern is helpful in software development?

Discuss.

(c) How you can implement functionality in database?

(d) Discuss Reusability, Extensibility and Robustness with

example.

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B. E. (Sixth Semester) Examination, April-May 2020

(New Scheme)

(EI Branch)

PROGRAMMABLE LOGIC CONTROLLER

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all question. Part (a) is compulsory in each question. Attempt any two out of part (b), (c) and (d) in each question.

Unit-I

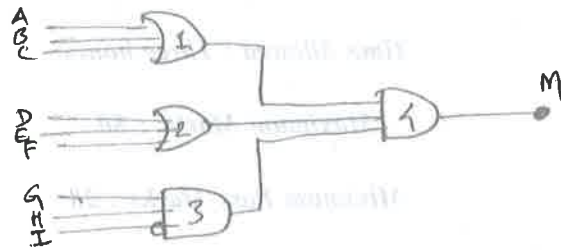
- | | |
|--|---|
| 1. (a) What is ISO slots? | 2 |
| (b) Draw and explain block diagram of PLC. | 7 |

[2]

- (c) Enlist the advantages and disadvantages of PLC. 7
- (d) Describe power supply section of PLC. 7

Unit-II

2. (a) What is PLC scanning? 2
- (b) Explain PLC registers in detail. 7
- (c) Make a ladder diagram for given gate diagram : 7



- (d) Create a ladder diagram for process fan is to run only when all of the following conditions are met :
- (i) Input 1 is off.
 - (ii) Input 2 is ON or input 3 is ON or both 2 and 3 are ON.
 - (iii) Input 5 4 6 are both ON.
 - (iv) One or more of inputs 7, 8 or 9 is ON. 7

[3]

Unit-III

3. (a) What is Counter? 2
- (b) Explain off delay timer with example. 7
- (c) Write the number comparison functions with application. 7
- (d) Write short notes on : 7
- (i) Division and square root function
 - (ii) PLC trigonometric and log function

Unit-IV

4. (a) What are the differences between jump and strip functions? 2
- (b) Discuss BCD or multibit data processing in detail. 7
- (c) Explain MCR function and its application. 7
- (d) Describe a process requiring the nesting of two subroutines. 7

Unit-V

- 5 (a) What is SCADA? 2
- (b) Compare DCS and PLC with application. 7
- (c) Explain DAS with advantages. 7
- (d) Describe basic block of DCS. 7