UNIVERSITY OF PUNE
[4363]-34
T.E- IT Examination - 2013
Data Communication & Networking (314443)
(2003 Course)

[Total No. of Questions :]   [Total No. of Printed Pages :4]
  [Time : 3 Hours]   [Max. Marks : 100]

Instructions :
(1) Answers to the 03 section should be written in separate answer books.
(2) Figures to the right indicate full marks.
(3) Neat diagrams must be drawn whenever necessary.

Section I

Q1. (a) Calculate the CRC if the data to be sent is 100100.   (8)

The generator polynomial $g(x)=X^3+x^2+1$.

(b) Explain different analog to digital modulation techniques with   (8)

suitable diagram and constellation patterns (ASK, FSK, PSK).

OR

Q2. (a) Define modulation and draw the typical diagram modulated signals for   (8)
frequency and amplitude modulation.

(b) Explain the following error detection methods with suitable   (8)
examples. Comment on the performance of each method.

i) Vertical redundancy check.
ii) Longitudinal redundancy check
iii) Cyclic redundancy check.
iv) Checksum.

Q3. (a) Explain T3/E3 carrier system.   (8)

1

(b) Compare message switching, circuit switching and packet switching. (8)

OR

Q4. (a) Describe the working of DSL Technology? Also state the various (8)
technologies.

(b) Describe time division multiplexing. Explain the specifications of IT (8)

Carrier System.

Q5. (a) Explain the Twisted Pair Cable and its various categories. Also state (9)

the data rate and the use of every category.

(b) Compare (9)
i) Step index and grade index fibers.

ii) Single mode and multimode fibers.

OR

Q6. (a) Explain with suitable examples guided transmission media and (9)

unguided transmission media.

(b) Discuss the principle used in transmitting light waves through a (9)
fiber optic cable.

Section II

Q7. (a) Describe four ways of organizing a local area network with neat diagram. (8)

(b) What is the significance of using networking topologies? Justify your . (8)

answer with suitable examples

OR

Q8. (a) Describe the functions of all the layers of the TCP/IP Model in short. (8)

(b) Compare bridge, switch, Hub, Repeater. (8)

Q9. (a) Discuss the Link Control Protocol(LCP) of the point-to-point (8)

(PPP) stack in brief.

(b) Discuss CSMA/CD Random Access techniques. How is collision (8)
avoidance achieved in the same.

OR

Q10. (a) Discuss high level data link control protocol with its appropriate (8)
frame formats.

(b) Explain ALOHA , Slotted ALOHA and CSMA. Comment on the (8)
efficiency of each random access technique.

Q11. (a) Write a short note on Gigabit Ethernet. Compare Gigabit Ethernet (9)
with Traditional Ethernet.

(b) What is the difference between 10Base5, 10Base2, and 10 (9)
BaseT specification.

OR

Q12. (a) What is Virtual LAN? State the advantages of VLAN's. Explain (9)
how to set up VLAN's using layer 2 switches.

(b) Discuss SONET with reference to the following (9)
    i) Devices Types
    ii) Payloads and Frame.

UNIVERSITY OF PUNE

[4363-33]

T.E.(IT) Examination 2013

Multimedia Systems

(2003 pattern)

Time-Three hours   **Maximum Marks-100**

[Total No. of Question=12]   **[Total no. of printed pages= 3]**

Instructions:

(1)Answer to the TWO sections should be written in separate answer books

(2)Neat diagrams must be drawn whenever necessary.

(3)Figures to the right indicate full marks.

(4)Use of logarithmic tables slide rule,Mollier charts,electronic pocket calculator
and steam tables is allowed.

(5)Assume suitable data whenever necessary.

(6)Your answer will be valued as a whole.

SECTION-I

Q.1   (a)What is multimedia? Explain different building blocks of Multimedia.   (10)

       (b)State and explain vector scan and raster scan display devices.   (8)

<div align="center">OR</div>

Q.2   (a)Compare DDA and Bresenham line drawing algorithm.   (8)

       (b)What is aliasing?Explain any two methods of anti aliasing.   (10)

Q.3   (a)Explain seed fill algorithm for polygon filling.   (8)

       (b)What is display buffer? Explain in detail.   (8)

<div align="center">OR</div>

Q.4   (a)Explain in detail types of co-ordinate system.   (8)

<div align="center">1</div>

(b)Show with appropriate figures the following reflections of a 2D object.   (8)

   (i)About x axis

   (ii)About y axis

   (iii)About origin

   (iv)About a line y=x

Q.5   (a)Write a short notes on.   (16)

   1.Vector scan and raster scan display

   2.Flood fill

   3.Principle of segmentation in 2D animation

   4.Storage media for Multimedia

OR

Q.6   (a)Explain Gourd shading algorithm for polygon shading.   (8)

   (b)What is inside and outside test for polygon clipping?   (8)

SETCION-II

Q.7   (a)Explain the characteristics of sound.   (8)

   (b)Describe MIDI file format and its commands.   (8)

OR

Q.8   (a)Describe audio file formats supported by Windows OS.   (8)

   (b)Explain concept of animation with four principle methods.   (8)

Q.9   (a)Describe wave file format.   (6)

   (b)Explain RGB,YUV color models.   (10)

OR

Q.10 (a)Explain different compression techniques in audio.Explain PCM in detail.(8)

   (b)Explain the digitization process of sound.   (8)

2

Q.11 (a)What are the steps in designing animation sequence? (6)

(b)State the steps of JPEG compression. (6)

(c)Describe different types of loss less data compression technique. (6)

OR

Q.12 Write a short notes on. (18)

1.Use of Segmentation in Animation

2.Run length encoding

3.Video standards NTSC and PAL.

UNIVERSITY OF PUNE
[4363]-35
T. E. (*Information Technology*) Examination - 2013
(*HUMAN COMPUTER INTERFACE*)(*314450*)
(*2003 Course*)

[Time: *3* Hours]   [Max. Marks: 100]

Instructions:

1 *Answers to the* **two sections** *should be written in* **separate answer-books**.
2 *Draw neat diagrams wherever necessary.*
3 *Numbers to the right indicate* **full marks.**
4 *Assume suitable data, if necessary.*
6 *Answer* **Q1** *or* **Q2, Q3** *or* **Q4** *and* **Q5** *or* **Q6** *from* **section-I** *&* **Q7** *or* **Q8, Q9** *or* **Q10** *and* **Q11** *or* **Q12** *from* **section-II.**

SECTION -I

Q.1 A Discuss human factors related metrics to evaluate any 8
         interface.

     B Compare life critical system against commercial 8
        computer systems with reference to goals of user
        interface design.

OR

Q.2 A Explain following terms related to the human short-term 8
        memory.
        Digit Span, Chunking, Regency Effect, Closure

     B Explain the difference between slips and mistakes with 8
        the help of suitable example.

Q. 3 A List and explain Shneiderman's eight golden rules of 8
         interface design.

      B As screens grow larger, some designers are tempted to 10
         increase the number of menu items displayed at once.
         Give three strategies for organizing the layout and
         justify them briefly based on user tasks and knowledge.

OR

Q. 4 A Explain task objects and task actions as well as interface 8
         objects and interface actions to build computer interface
         for medical store.

      B With the help of Norman's Model of interaction explain 10

the process of execution evaluation cycle. What is meant by gulf of execution and gulf of evaluation with respect to this model?

| Q. 5 | A | Describe Heuristic Evaluation method: What steps comprise it, how and where is it used, how many evaluators are recommended, and where do the heuristics come from? | 8 |
| | B | Explain how scenarios help in the design process of interactive system. | 8 |

OR

| Q. 6 | | Write short note on:
a. Scenarios and Patterns
b. Affordances and Design | 16 |

SECTION II

| Q. 7 | A | Explain different dialog design notations. | 8 |
| | B | Describe various command organization strategies. | 8 |

OR

Q. 8	A	Find out all about natural language interfaces. Are there any successful systems? For what applications are these most appropriate.	8
	B	What are different issues while designing multiple window interfaces for an application?	8
Q. 9	A	List and explain advantages and disadvantages of online help and off line help	8
	B	Explain how following CSCW systems are useful for co-operative working. 1) Meeting Rooms 2) Shared Drawing Surfaces	8

OR

Q. 10	A	Explain an importance of hypertext over linear paper document. List important considerations for creating a good hypertext document.	8
	B	How CSCW is useful for education. Discuss in detail.	8
Q. 11	A	Describe the issues to be considered in designing web pages.	8
	B	Give four benefits and three problems of touch screens and voice recognition input.	10

OR

Q. 12		Write short notes on:	18
	A	Organization design to support usability	
	B	Ethnographic observation	
	C	Importance of HCI	

UNIVERSITY OF PUNE
[4363]-36
T. E. (IT) Examination - 2013
Software Engineering (2003 Course)

[Time: 3 Hours]   [Max. Marks: 100]

Instructions:

1 *Answers to the two sections should be written in separate answer-books.*

2 *Black figures to the right indicate full marks.*

3 *Neat diagrams must be drawn wherever necessary.*

4 *Answer any three questions from Section I and any three questions from Section II*

SECTION -I

Q.1	A	What is software Engineering? What are the characteristics of software? Explain the following software myths?
		  a) Management Myths
		  b) Practitioner's Myths
			08

	B	Explain the incremental model with example. Also list down its advantages.	08

OR

Q.2	A	What is software process? Explain different framework and umbrella activities in detail.	08
	B	Why the software maturity framework was developed? Explain the key process areas of capability maturity model.	08

Q. 3	A	Explain the essence of software engineering practice. List and explain core principles that focus on software engineering practice as a whole. List and explain in short.
		  a) Communication Practices
		  b) Construction Practices
			08

	B	What is system modeling and simulation? How system modeling and simulation help the software engineer.	08

OR

Q. 4	A	What is hately and phirbai extensions? Explain the	08

		relationship between data and control models.	
	B	Define the System? Explain the system engineering hierarchy.	08
Q. 5	A	How requirements are identified? How requirements are structured? Why requirments engineering is considered to be difficult phase of SDLC?	09
	B	What is the goal of object oriented analysis? What are elements of class responsibility collaborator (CRC) template? What is mean by dynamic behavior?	09

<div align="center">OR</div>

Q. 6	A	List all analysis rules of thumb. What is domain analysis? Explain in detail following UML diagrams stating purpose and applicability. a) Use case diagram b) Activity diagram	08
	B	What is mean by normal and exciting requirements? How requirements are validated?	06
	C	Describe two real life situations in which the customer and end user is the same. Describe two situations in they are different.	04

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SECTION II

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Q. 7	A	What are the guidelines for achieving design quality? What is abstraction? What is importance of modularity?	09
	B	Explain the data design at component level with all principles for data specification. Explain the following architectural styles with merits/demerits. a) Data Centered Architecture b) Data Flow Architecture	09

<div align="center">OR</div>

Q. 8	A	How do we design interface that a) Allows the user to maintain control b) Reduce the user's memory load c) Are consistence	12
	B	Define the terms a) Functional independence b) Cohesion c) Coupling	06
Q. 9	A	What questions need to be answered in order to develop a project plan according to W5HH principles?	08

	B	What is necessity of estimation? How estimation with use case is performed?	08
		OR	
Q. 10	A	What are the categories of stakeholders? What are the characteristics of effective project manager?	08
	B	Explain the different attributes for measuring the quality of software.	04
	C	Explain size oriented metric. What data should we collect to derive size oriented metrics?	04
Q. 11	A	Explain the following repository features with respect to software configuration management. a) Versioning b) Dependency tracing c) Requirement tracing d) Configuration management e) Audit trails	10
	B	Why software restructuring is required? Explain main phase of restructuring.	06
		OR	
Q. 12	A	What are the fundamental sources of change? What are the elements of configuration management system? What is importance of baseline?	08
	B	What is reverse engineering? How the reverse engineering is used for understanding a) Understanding of Process b) Understanding of Data	08