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06EC761

Seventh Semester B.E. Degree Examination, May/June 2010
Data Structures using C++

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

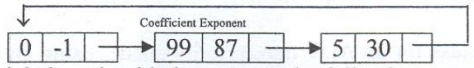
1 a. What is dynamic memory allocation? How it is performed in C++? Explain with examples. **(06 Marks)**

b. What are template classes and template functions in C++? Write a C++ code snippet to demonstrate the same for an employee database. **(08 Marks)**

c. Explain the different parameter passing techniques in C++, with examples. **(06 Marks)**

2 a. Design a linked class to represent and manipulate univariate polynomials. Use circular linked list with head nodes. Make provisions to store coefficient and the exponent field in each node. Terms with zero coefficients are not represented. The terms are in decreasing order of exponent and the head node has its exponent field equal to -1.

Ex.



The polynomial class should also support the following operations:

i) Degree( ) → returns the degree of the polynomial.
ii) Input( ) → Read in a polynomial
iii) Output( ) → Output the polynomial
iv) Add(b) → Add to polynomial b and return the result
v) Value(X) → Return the value of polynomial at point X.

Support with corresponding constructors and destructors. **(12 Marks)**

b. Write the store and retrieve member functions for a class sparse matrix stored in row major order. Use linked based representation. [Assume required data.] **(08 Marks)**

3 a. Give the array based representation of a stack. Write the ADT class definition for the customized stack. **(08 Marks)**

b. Write a C++ program for parenthesis matching, using a stack. Also explain the same. **(08 Marks)**

c. Compare the indirect addressing representation and simulating pointers. **(04 Marks)**

4 a. Give the ADT class definition for a queue. Write C++ member functions to implement a queue performing the following operations:
i) Delete an element ii) Insert a new element iii) Check for extreme conditions
iv) Display the elements in the queue. [Use linked based representation].
Write required constructors and destructors. **(10 Marks)**

b. Define the following and explain with examples:
i) DEQUE ii) Circular queues. **(06 Marks)**

c. Write a note on applications of queues. **(04 Marks)**

PART – B

5 a. Write an ADT definition of a dictionary. The operations to be performed are i) insertion of an element, with a specified key value ii) Search dictionary for an element, with a specified value iii) Delete an element with a specified key value. Use linear list representation to write a class definition for the same. Write C++ code snippets for all member functions. **(10 Marks)**

b. Explain skiplist, with examples. **(05 Marks)**

c. What is hashing? What are hash functions? Explain with an example, using a hash table. **(05 Marks)**

6 a. What are binary trees? How are binary trees represented? What are the traversals that can be done? Define all the above mentioned operations along with insertion and display on a binary search tree using a C++ class. Write the code in C++. Also, write the code for all the traversals, using recursion definition & template functions. **(12 Marks)**

b. Draw the binary exporession trees corresponding to the following expressions:

i) (a + b) / (c – d * e) + e + g * h/a
ii) ((-a) + (x + y) / ((+b) * (c * a))
iii) (((a + b) * c) / d)
iv) ((a + b) > (c – e)) || q < f&& (x < y || y > z) **(08 Marks)**

7 a. Develop a C++ class for an ADT max-priority queue, using an ordered linked based linear list (doubly linked list). Also develop the similar definition for an ADT min-priority queue. Write suitable member functions for the derived class. **(10 Marks)**

b. Explain the concept of HBLT and WBLT. Also, write C++ functions for i) delete max element from max HBLT. ii) Initializing a max HBLT. **(10 Marks)**

8 a. Define B-trees of order m. Explain how an element is inserted into a B-tree, with an example. Consider all possible cases. **(10 Marks)**

b. What are the AVL trees? Explain deletion an element from an AVL search tree. **(10 Marks)**

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06EC71

Seventh Semester B.E. Degree Examination, May/June 2010
Computer Communication Networks

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Explain OSI model, with a neat block diagram. Consider a source, destination machine and some intermediate nodes for discussion. **(10 Marks)**

b. How addresses employed (used) in internet employing TCP/IP protocol can be classified? **(02 Marks)**

c. What is DSL technology? List different DSLs available. Discus salient features of ASDL. **(08 Marks)**

2 a. What is framing? How frames can be classified? Explain bit stuffing with the help of an example. **(06 Marks)**

b. What is the meaning of datalink control? Explain stop-and-wait ARQ, using a suitable block diagram. **(10 Marks)**

c. In a stop-and-wait ARQ system the bandwidth of the line is 1 Mbps and 1 bit takes 20 ms to make a round trip. What is the bandwidth delay product? If the system data frames are 1000 bits in lengths, what is the percentage utilization of the link? **(04 Marks)**

3 a. A slotted ALOHA network transmits 200 bit frames using a shared channel with 200 kbps bandwidth. Find the throughput if the system produces 500 frames/sec. **(03 Marks)**

b. A network using CSMA/CD has a bandwidth of 10 Mbps. If the maximum propagation time is 25.6 μsec, what is the minimum size of the frame? **(03 Marks)**

c. Explain token passing method of controlled access of the channel. **(06 Marks)**

d. What is channelization in the context of multiple access? What are the various available channelization techniques? List the properties of orthogonal sequences used in CDMA. **(08 Marks)**

4 a. Explain 802.3 MAC frame format. **(06 Marks)**

b. An ethernet MAC sublayer receives 38 bytes of data from upper layer. How many bytes of padding must be added to the data? **(02 Marks)**

c. Explain two different kinds of services as defined in IEEE 802.11. **(06 Marks)**

d. What is fast ethernet? Explain autonegotiation. What are the purposes of using this feature in design of fast ethernet. **(06 Marks)**

PART – B

5 a. What are the five different categories of connecting devices, based on the layer at which they operate in a network? Explain each of them. **(10 Marks)**

b. Differentiate between a bus backbone network and star backbone network. **(06 Marks)**

c. Explain the concept of VLAN, in brief. **(04 Marks)**

6 a. What is the need of transition from IPV4 to IPV6? What are the strategies deviced by IETF to help the transition? **(12 Marks)**

b. Find the error, if any, in the following IPV4 addresses:
i) 75.45.301.14 ii) 221.34.7.8.20 **(02 Marks)**

c. What is classless addressing in IPV4? What is a mask? Explain. **(06 Marks)**

7 a. Explain Dijkstra algorithm. Apply the same to node 'A' of the graph shown in Fig.7(a) and prepare routing table for node A. **(06 Marks)**

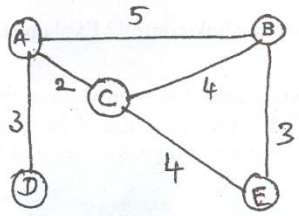

Fig.7(a) Topology of Network

b. What is tunneling in case of multicast routing? Explain multicast backbone of routers using concept of tunneling? **(06 Marks)**

c. Write in brief, any four applications of multicasting. **(08 Marks)**

8 Write short notes on any two of the following :

a. UDP

b. TCP segment format

c. IPV4 datagram format. **(20 Marks)**

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06EC72

Seventh Semester B.E. Degree Examination, May/June 2010
Optical Fiber Communication

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Discuss the advantages of optical fiber communication. **(06 Marks)**

b. Derive the necessary mathematical condition that the angle of incidence θ must satisfy for the optical skew ray to propagate in a step index fiber. **(08 Marks)**

c. Estimate the maximum core diameter for an optical fiber with refractive index difference of 1.45% and core refractive index of 1.52 in order that it may be suitable for single-mode operation when operating wavelength is 0.85 μm. Also calculate cut off wavelength λ_c if core diameter is 1.1 μm. **(06 Marks)**

2 a. Explain material absorption losses of optical energy in silica glass fibers roughly sketching their contribution at different wavelengths. **(06 Marks)**

b. Explain what is material dispersion. Derive an expression for material dispersion starting from the expression for group delay. **(08 Marks)**

c. An 8 km optical link consists of multimode step index fibre with a core refractive index of 1.45 and relative index difference of 1.2%. Estimate :

i) The delay difference between the slowest and fastest modes at the fiber output

ii) The rms pulse broadening due to intermodal dispersion. **(06 Marks)**

3 a. Draw the cross-section of Ga Al As double-hetero structure LED, energy band diagram and refractive index variation. Explain their importance. **(07 Marks)**

b. Sketch and explain the Fabry-Perot resonator cavity of a laser diode. **(07 Marks)**

c. A GaAs laser operating at 850 nm has 450 μm length and refractive index $\eta = 3.5$. What are the frequency and wavelength spacing? If the half power point, $\lambda - \lambda_o = 2.5$ nm, what is the spectral width σ of the gain? **(06 Marks)**

4 a. Describe the different types of mechanical misalignments while joining two similar fibers. Compare their relative losses. **(05 Marks)**

b. Explain different mechanical splicing methods. **(06 Marks)**

c. Explain with a neat diagram the design of a basic ferrule connector. **(05 Marks)**

d. A four port multimode fiber FBT coupler has 50 μw optical power launched into port 1. Measured output at ports 2, 3 and 4 are 0.004, 26.0 and 27.5 μw respectively. (Ports 1 and 4 are input and output of one fiber and ports 2 and 3 are input and output of another fiber respectively). Calculate insertion losses and cross-talk. **(04 Marks)**

PART – B

5 a. Draw the signal path through a digital link with relevant components and optical/electrical waveforms at every stage. **(06 Marks)**

b. Explain with a neat diagram the fundamental concept of coherent detection. **(08 Marks)**

c. What is a burst – mode receiver? Explain. **(06 Marks)**

6 a. Following are the parameters of a point-to-point optical link:

i) Optical power launched : +5 dBm
ii) Sensitivity of detector : -30 dBm
iii) Source/detector connector loss : 1 dB
iv) Length of optical cable : 55 km
v) Cable attenuation : 0.3 dB/km
vi) Jumper cable loss : 2.5 dB
vii) Connector loss at each fiber joint : 1 dB

Assume two jumper cables and two cable joints. Compute the power margin of the link. Explain the significance of power budget and system margin. **(08 Marks)**

b. In a multimode link using LED as optical source, material dispersion related rise time degradation is 20 ns over the 5 km link. Receiver has 30 MHz bandwidth. Fiber has 500 MHz. km bandwidth distance product with mode mixing parameter q = 0.7. Assuming LED with drive circuit has rise time of 15 ns, calculate link rise time. **(06 Marks)**

c. Explain with a neat diagram the functioning of radio-over-fiber links of a broadband wireless access network. **(06 Marks)**

7 a. Explain the operational principle and implementation of WDM with diagrams. **(07 Marks)**

b. Explain the functioning of optical isolator with sketches of components involved. **(06 Marks)**

c. Explain tunable light sources. **(07 Marks)**

8 a. Explain in detail the amplification mechanism with energy level diagram in an EDFA. **(08 Marks)**

b. Draw and explain the basic structure of an STS-N SONET and STM-N SDH frames. **(06 Marks)**

c. Explain the working of ultra-fast point-to-point transmission system using optical TDM operating at 160 Gb/s with a neat diagram. **(06 Marks)**

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06EC73

Seventh Semester B.E. Degree Examination, May/June 2010
Power Electronics

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. List out some applications of power controller. **(06 Marks)**

b. Write the characteristic features of following power devices.
i) SCR ; ii) TRIAC ; iii) LASCR ; iv) MCT ; v) SITH. **(10 Marks)**

c. Compare the characteristic of power MOSFET and 1GBT. **(04 Marks)**

2 a. Discuss the steady state characteristics power MOSFETS compare this with characteristics of power BJT. **(10 Marks)**

b. The beta (β) bipolar transistor shown in Fig.2(b) below varies from 12 to 75. The load resistance R_C = 1.5 Ω. The dc supply voltage is V_{CC} = 40 V and input voltage to the base circuit V_B = 6V, if $V_{CE(sat)}$ = 1.2 V, $V_{BE(sat)}$ = 1.6 V, R_B = 0.7 Ω. Determine :
i) Overdrive factor (ODF)
ii) The forced β and
iii) The power loss in the transistor P_T. **(10 Marks)**

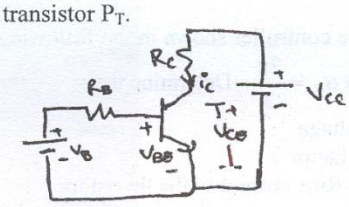

Fig.2(b)

3 a. Define the following term with respect to SCR :
i) Latching current ; ii) Holding current
iii) Turn-on time ; iv)Turn off time. **(08 Marks)**

b. The latching current for SCR inserted in between a dc voltage source of 200 V and load is 100 mA. Calculate the minimum width gate pulse current required to turn-on this SCR in case the load consist of i) L = 0.2 H ; ii) R = 20 Ω in series with L = 0.2 H. **(06 Marks)**

c. With help of neat circuit diagram and waveforms, explain RC firing circuit used with half controlled rectifier. **(06 Marks)**

4 a. What is the need of di/dt protection and dv/dt protection? Explain how protection is provided. **(04 Marks)**

b. The input voltage of Fig.4(b), V_s = 200 V with load resistance R = 5 Ω and the load and stray inductance are negligible and thyristor is operated at f_s = 2 kHz. If the required dv/dt is 100 V/μs. The discharge current is limited to 100 A. Determine :
i) The values R_s and C_s ; ii) The snubber loss. **(08 Marks)**

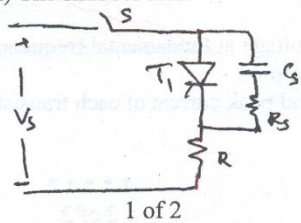

Fig.4(b)

c. Explain the operation of single phase semi-converter with highly inductive load. Derive the expression for V_{dc} and V_{rms}. **(08 Marks)**

PART – B

5 a. What is forced commutation? With help of neat diagram and relevant equations, explain the operations of self commutation circuit. **(10 Marks)**

b. Derive the equation for turn-off time of SCR in impulse commutated circuit for the following circuit. For the impulse commutated thyristor circuit shown in Fig.5(b). Determine turn-off time of the circuit for R = 10 Ω and C = 20 μF and supply voltage V_s = 220 V. **(10 Marks)**

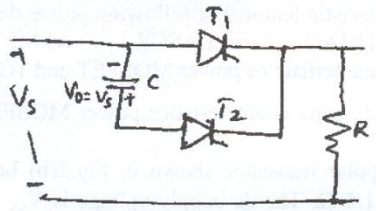

Fig.5(b)

6 a. What are advantages and disadvantages ON-OFF control and phase control of ac voltage controller? **(08 Marks)**

b. For the AC voltage controller shown in the following fig.6(b), the delay angles of thyristors are equal and $\alpha_1 = \alpha_2 = \frac{2\pi}{3}$. Determine the :

i) RMS O/P voltage
ii) Input power factor
iii) Average and Rms current of the thyristors.

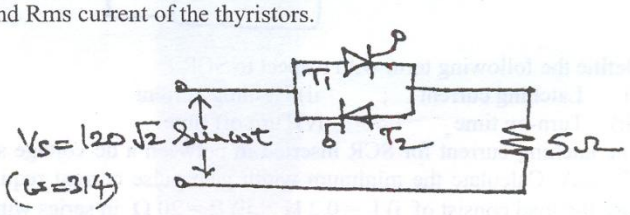

Fig.6(b)

(12 Marks)

7 a. What is chopper? Explain principle of step up chopper with relevant equations. **(10 Marks)**

b. Give the classification of chopper. Explain briefly each one of them. **(10 Marks)**

8 a. Write the principle of operation of 1 - ϕ inverter with relevant diagram and waveform. Also discuss the performance parameter. **(10 Marks)**

b. The 1 - ϕ full bridge inverter has resistive load R = 2.4 Ω the dc input voltage V_s = 48 V. Determine :

i) RMS output voltage at fundamental frequency
ii) The output power
iii) The average and peak current of each transistor. **(10 Marks)**

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06EC74

Seventh Semester B.E. Degree Examination, May/June 2010
DSP Algorithms and Architecture

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Explain the issues to be considered in designing and implementing a DSP system, with the help of a neat block diagram. **(06 Marks)**

b. Briefly explain the major features of programmable DSPs. **(06 Marks)**

c. Explain the operation used in DSP to increase the sampling rate. The sequence $x(n) = [0, 2, 4, 6, 8]$ is interpolated using interpolation sequence $b_R = [1/2, 1, 1/2]$ and the interpolation factor is 2. Find the interpolated sequence y (m). **(08 Marks)**

2 a. What is the role of shifter in DSP? Explain the implementation of 4-bit shift right barrel shifter, with a diagram. **(06 Marks)**

b. Identify the addressing modes of the operands in each of the following instructions and their operation.
i) ADD B ; ii) ADD # 1234 h ; iii) ADD 5678 h ; iv) ADD + * addrreg. **(08 Marks)**

c. Explain the features of a program sequencer unit of a programmable DSP with a neat block diagram. **(06 Marks)**

3 a. Describe the multiplier/adder unit of TMS 320 C 54 xx processor with a neat block diagram. **(06 Marks)**

b. Describe any four data addressing modes of TMS 320 C 54 xx DSP with examples. **(08 Marks)**

c. Assume that the current contents of AR3 to be 400 h, what will be its contents after each of the following TMS 320 C 54 xx addressing modes is used? Assume that the contents of ARO are 40 h.
i) * AR3 + 0 ; ii) * AR3 + ; iii) * AR3 + OB. **(06 Marks)**

4 a. Describe the operation of the following instructions of TMS 320 C54 xx processor, with an example.
i) MAC ; ii) RPT ; iii) MPY. **(06 Marks)**

b. Describe the operation of hardware timer with a neat diagram. **(06 Marks)**

c. By means of a figure explain the pipeline operation of the following sequence of instruction if the initial values of AR1, AR3, A are 104, 101, 2 and the values stored in the memory locations 101, 102, 103, 104 are 4, 6, 8, 12. Also provide the values of registers AR3, AR1, T and accumulator after completion of each cycle.

```
ADD * AR3 + , A
LD * AR1 + , T
MPY * AR3 + , B
ADD B, A
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```

(08 Marks)

PART – B

5 a. Describe the importance of Q-notation in DSP algorithm implementation, with examples. What are the values represented by 16 – bit fixed point number N = 4000 h in Q15, Q10, Q7 notations? **(10 Marks)**

b. Explain how the FIR filter algorithms can be implemented using TMS 320 C54 xx processor. **(10 Marks)**

6 a. Explain a general DITFFT butterfly in place computation structure. **(04 Marks)**

b. Determine the number of stages and number of butterflies in each stage and the total number of butterflies needed for the entire computation of 512 point FFT. **(06 Marks)**

c. Explain how the bit-reversed index generation can be done in 8 point FFT. Also write a TMS 320 C 54 xx program for 8 point DIT FFT bit reversed index generation. **(10 Marks)**

7 a. Explain the memory interface block diagram for the TMS 320 C 54 xx processor. **(06 Marks)**

b. Draw the I/O interface timing diagram for read – write – read sequence of operation. **(06 Marks)**

c. What are interrupts? How interrupts are handled by the C 54 xx DSP processors. **(08 Marks)**

8 a. Explain with a neat diagram, the synchronous serial interface between the C54 xx and a CODEC device. **(06 Marks)**

b. Explain the operation of Pulse Position Modulation (PPM) to encode two biomedical signals. **(06 Marks)**

c. Explain with a neat block diagram, the operation of the pitch detector. **(08 Marks)**

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06EC751

Seventh Semester B.E. Degree Examination, May/June 2010
Operating Systems

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Explain the batch processing system, with figures. In a batch processing system, the results of 1000 students are to be printed. Reading a card or printing a result needs 100 msec whereas read/write operation in a disk needs only 20 msec. Processing a record needs 10 msec of CPU time. Determine the total time taken, CPU idle time and speed of the reading operation with and without spooling technique. **(08 Marks)**

b. Describe the scheduling and memory management techniques in a time sharing operating system. Determine the efficiency and user response time of the system, if the time slice used is 5 msec and context switching time is 120 microseconds, when the number of active users is 6. The process P_1 has a CPU burst of 20 msec and an I/O operation of 120 msec and the process P_2 has a CPU burst of 18 msec and I/O operation of 60 msec. Write the timing diagrams and scheduling table. **(12 Marks)**

2 a. Explain
i) functions of an operating system
ii) Microkernel operating system. **(08 Marks)**

b. Describe the operation of the operating system while processing an I/O interrupt, with a detailed block diagram. How the memory protection violation interrupt is generated? Explain with an example and figure. **(12 Marks)**

3 a. Describe with diagrams: (i) kernel level threads (ii) process state transitions. **(08 Marks)**

b. Describe race condition and analyze the different cases in air reservation system, when the total seating capacity is 200. The last seat number 200 is to be allocated in a multiprocessing system, sharing the common database. Explain any one remedy for the problem encountered. Write the relevant algorithms. **(12 Marks)**

4 a. Differentiate between :
i) Static and dynamic memory allocation
ii) First-fit and best-fit free space allocation. **(08 Marks)**

b. Describe fixed and variable partitioned, contiguous memory allocation schemes along with their merits and ldemerits. Also, explain memory compaction/relocation used in these schemes. **(12 Marks)**

PART – B

5 a. Explain paged allocation scheme along with the address translation method. Determine the unknown values in logical and physical address space, if the main memory size is 1 Mbyte and is partitioned into 64 equal parts. The number of pages in the logical address space is 2048. **(08 Marks)**

5 b. Describe FIFO and LRU page replacement policies, their features, merits and demerits, with respect to the following example: Alloc = 3 and Alloc = 4 frames
All pages are initially empty and the first page referred itself causes a page fault.
Page reference string : 5, 4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5
Reference time string: $t_1, t_2, t_3, \ldots\ldots\ldots\ldots\ldots\ldots, t_{13}$. **(12 Marks)**

6 a. Differentiate between :
i) Sequential and direct file organization
ii) Linked and indexed disk space allocation. **(08 Marks)**

b. Describe file system operation during open, a file operation and close operation. **(12 Marks)**

7 a. Compare
i) Long term and short term schedulers
ii) Preemptive and non-preemptive scheduling
iii) User mode and supervisor mode. **(08 Marks)**

b. Describe SRN/SJN and LCN scheduling policies and determine average turn around time, average waiting time and equations/formulae along with scheduling table for the following example: **(12 Marks)**

Process	Arrival time in msec	Execution time in msec	Deadline in msec
P_1	0	3	4
P_2	2	3	14
P_3	3	2	6
P_4	5	5	11
P_5	8	3	12

8 a. Describe the issues in message passing and also direct and indirect naming techniques. **(08 Marks)**

b. Describe the delivery of interprocess messages along with algorithm for send and receive operations. What are the advantages of mailboxes? **(12 Marks)**

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06EC756

Seventh Semester B.E. Degree Examination, May/June 2010
Image Processing

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. With the help of a neat block diagram, explain the components of a general purpose image processing system. **(12 Marks)**

b. Explain the digital representation of an image, and obtain an expression for the storage size of an image. **(08 Marks)**

2 a. With a neat sketch, explain microdensitometer image acquisition system. **(08 Marks)**

b. Let p and q be the pixels at coordinates (10, 12) and (15, 20), respectively. Find out which distance measure gives the minimum distance between the pixels. **(06 Marks)**

c. Mention the various applications of digital image processing. **(06 Marks)**

3 a. Explain in brief the following properties of the discrete Fourier transform as applied to images: i) Separability ii) Periodicity iii) Convolution and correlation iv) Average value v) Translation **(10 Marks)**

b. With a neat block diagram and relevant filter response, explain homomorphic filtering approach for image enhancement. **(10 Marks)**

4 a. Define 2-D forward and inverse discrete cosine transform, and mention its properties. **(08 Marks)**

b. Generate Hadamard transform matrix H_n for n = 3 from the core matrix $H_1 = \frac{1}{\sqrt{2}}\begin{pmatrix} 1 & 1 \\ 1 & -1 \end{pmatrix}$. Indicate its sequency. **(06 Marks)**

c. For the given orthogonal matrix A and image U, obtain the transformed image V. Compare the energy in U and V, and give your inference.

$$A = \frac{1}{\sqrt{2}}\begin{bmatrix} 1 & 1 \\ 1 & -1 \end{bmatrix} \qquad U = \begin{bmatrix} 6 & 3 \\ 12 & 1 \end{bmatrix}$$ **(06 Marks)**

PART – B

5 a. Explain image subtraction and image averaging operations, with one example each. **(10 Marks)**

b. Using the second derivative, develop a Laplacian mask for image sharpening. **(10 Marks)**

6 a. Explain and compare ideal low pass filter and Butterworth filter in image smoothing. **(10 Marks)**

b. Bring out the difference between spatial domain and frequency domain image enhancement approaches **(05 Marks)**

c. Implement the Laplacian in frequency domain to sharpen the images. **(05 Marks)**

7 a. Explain any two types of noise pdfs commonly dealt with image restoration process. **(08 Marks)**

b. What is an order statistic filter? Explain any two such filters, and compare their relative merits and demerits. **(08 Marks)**

c. Explain in brief the inverse filtering approach and its limitation in image restoration. **(04 Marks)**

8 a. Write a note on the RGB colour model, with neat diagrams. **(10 Marks)**

b. What is pseudo colour image processing? Explain any one such method with neat diagrams. **(10 Marks)**

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06EC767

Seventh Semester B.E. Degree Examination, May/June 2010
Human Resource Management

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART - A

1 a. Define human resource management. Mention its functions and objectives. Explain its objectives briefly. **(10 Marks)**

b. Mention the external and internal forces which affect on human resource management. Describe any three of them. **(10 Marks)**

2 a. What is human resource planning? **(02 Marks)**

b. What are the factors affecting human resource planning? Explain any two of them. **(09 Marks)**

c. What do you mean by job analysis? Explain the process of job analysis. **(09 Marks)**

3 a. What is job design? Explain any two factors affecting job design. **(10 Marks)**

b. Define recruitment. Bring out the factors, which influence recruitment. **(10 Marks)**

4 a. What is selection? Explain the process of selection. **(10 Marks)**

b. Explain the various inputs required for a training and development programme. **(10 Marks)**

PART - B

5 a. Bring out the various employee benefits and services. Describe each, in brief. **(10 Marks)**

b. Explain any two types of incentive schemes. **(10 Marks)**

6 a. Discuss the various types of welfare activities. **(10 Marks)**

b. Outline the causes for industrial accidents. How can they be avoided? **(10 Marks)**

7 a. Bring out the parties and their roles in industrial relations. **(10 Marks)**

b. Define a trade union. Why do employees join the unions? Explain. **(10 Marks)**

8 a. Define the term ethics. Trace the sources of ethics. Why is ethics important? **(10 Marks)**

b. What is HRM evaluation? What are the approaches to HRM evaluation? Explain any two of them. **(10 Marks)**

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