Total No. of Questions—12] [Total No. of Printed Pages—8

DEC-2008

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S.E. (E & TC/Comp./I.T./Elect./Instru.) EXAMINATION, 2008

ENGINEERING MATHEMATICS—III

(2003 COURSE)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answer Q. No. **1** *or* Q. No. **2**, Q. No. **3** *or* Q. No. **4**, Q. No. **5** *or* Q. No. **6** from Section I and Q. No. **7** *or* Q. No. **8**, Q. No. **9** *or* Q. No. **10**, Q. No. **11** *or* Q. No. **12** from Section II.

(*ii*) Answers to the two Sections should be written in separate answer books.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

(*v*) Use of electronic pocket calculator is allowed.

(*vi*) Assume suitable data, if necessary.

SECTION I

1. (*a*) Solve the following (any *three*) : [12]

(*i*) $\frac{d^2y}{dx^2} - \frac{6dy}{dx} + 9y = e^{3x}\ \text{cosec}^2 x + 5^x$

(*ii*) $\left(D^4 + D^2 + 1\right) y = 36x^2 - 17$

(*iii*) $\left(D^2 + 6D + 8\right) y = e^{e^{2x}}$

(*iv*) $\frac{d^2y}{dx^2} + 9y = 9 \sec 3x \tan 3x$ (by variation of parameters)

(*v*) $x^3 \frac{d^3y}{dx^3} + 3x^2 \frac{dy}{dx} + xy = \sin(\log x)$.

P.T.O.

(*b*) An electric current consists of an inductance 0.1 henry, a resistance R of 20 ohms and a condenser of capacitance C of 25 micro-farads. Find the charge q and current i at any time t, given at $t = 0$, $q = 0.05$ coulombs, $i = \frac{dq}{dt} = 0$. [5]

Or

2. (*a*) Solve the following (any *three*) : [12]

(*i*) $\frac{d^2y}{dx^2} + \frac{dy}{dx} = \frac{1}{1 + e^x}$

(*ii*) $\left(D^2 - 4D + 4\right) y = xe^{2x} \sin x$

(*iii*) $\left(D^3 + D\right) y = \sin x + 5e^x$

(*iv*) $\left(D^2 + 9\right) y = \frac{1}{1 + \sin 3x}$ (by variation of parameters)

(*v*) $(x + 3)^2 \frac{d^2y}{dx^2} - 4(x + 3) \frac{dy}{dx} + 6y = x.$

(*b*) Solve simultaneously :

$$\frac{dx}{dt} - 3x - 6y = t^2$$

$$\frac{dy}{dt} + \frac{dx}{dt} - 3y = e^t.$$ [5]

3. (*a*) Find the analytic function whose real part is

$$\frac{\sin 2x}{\cosh 2y - \cos 2x}.$$ [6]

(*b*) Evaluate :

$$\oint \frac{\sin 2z}{\left(z + \frac{\pi}{3}\right)^4} dz$$

where 'C' is $|z| = 2$. [5]

(c) Find the invariant points of the transformation

$$w = \frac{2z - 6}{z - 2}.$$ [5]

Or

4. (a) Show that the transformation

$$w = \frac{z - b}{z + b}$$

maps the right half of the z-plane into the unit circle $|w| < 1$.

(b is a real positive number.) [5]

(b) Evaluate :

$$\int_C \frac{\sin \pi z^2 + \cos \pi z^2 \, dz}{(z-1)^2 (z-2)}$$

where C is the circle $|z| = 3$. [6]

(c) Show that analytic function with constant amplitude is constant. [5]

5. (a) Establish the following relation :

$$e^{-2x} - e^{-3x} = \frac{10}{\pi} \int_0^\infty \frac{\lambda \sin \lambda x}{\left(9 + \lambda^2\right)\left(4 + \lambda^2\right)} \, d\lambda, \; x > 0.$$ [6]

(b) Solve the following integral equation :

$$\int_0^\infty f(x) \cos \lambda x \, dx = e^{-\lambda}, \; \lambda > 0.$$ [5]

(c) Find the z-transform of (any *two*) : [6]

(i) $f(k) = \left(\frac{2}{3}\right)^{|k|}$ for all k

(ii) $f(k) = \frac{(-3)^k}{k!}$ $k \geq 0$

(iii) $f(k) = 2^k \cosh \alpha k$ $k \geq 0$.

Or

6. (a) Find inverse of z-transformation of any *two* : [8]

(i) $F(z) = \frac{z^2}{\left(z - \frac{1}{4}\right)\left(z - \frac{1}{5}\right)}$ $\frac{1}{5} < |z| < \frac{1}{4}$.

(ii) $F(z) = \frac{z^2}{z^2 + 4}$ $|z| > 2$.

(iii) $F(z) = \frac{z^3}{(z-3)(z-2)^2}$ $|z| > 3$.

(b) Show that the Fourier transform of

$$f(x) = e^{-|x|} \text{ is } \frac{2}{1 + \lambda^2}.$$ [5]

(c) Find $Z(x_k)$ if

$$x_k = \frac{1}{2^k} * \frac{1}{3^k} * \frac{1}{(-5)^k} \quad k \geq 0,$$

by convolution theorem. [4]

SECTION II

7. (*a*) Find the Laplace transforms of (any *two*) : [8]

(*i*) $\dfrac{e^{-3t} \sin 2t}{t}$

(*ii*) $f(t) = \begin{cases} (t-1)^2, & t > 1 \\ 0, & 0 < t < 1 \end{cases}$

(*iii*) $\text{erf}\left(\sqrt{t}\right)$.

(*b*) Evaluate : [4]

$$\int_{-\infty}^{\infty} e^{-t}\, t^2\, \delta'(t-2)\, dt.$$

(*c*) Solve, using Laplace transform [4]

$$y'' + y = 0, \quad y(0) = 1, \; y'(0) = 2.$$

Or

8. (*a*) Find inverse Laplace transforms of (any *two*) : [8]

(*i*) $\dfrac{s^3}{s^4 - a^4}$

(*ii*) $\log \dfrac{s^2 + 1}{s^2 + s}$

(*iii*) $\dfrac{s\, e^{-\pi s}}{s^2 - 4s + 29}$.

(*b*) Express the following function in terms of unit step function and hence find the Laplace transform : [4]

$$f(t) = \begin{cases} t + 1, & 0 \le t \le 2 \\ 3, & t > 2. \end{cases}$$

(*c*) Verify the convolution theorem for $f(t) = e^{at}$, $g(t) = t$. [4]

9. (*a*) Prove the following (any *two*) : [8]

(*i*) $\nabla \times \left(\frac{\bar{a} \times \bar{r}}{r^3} \right) = -\frac{\bar{a}}{r^3} + \frac{3}{r^5} (\bar{a} \cdot \bar{r}) \bar{r}$

(*ii*) $\nabla^4 (\log r) = \frac{2}{r^4}$

(*iii*) $\nabla \left[\bar{r} \cdot \nabla \left(\frac{1}{r^n} \right) \right] = \frac{n^2}{r^{n+2}} \bar{r}.$

(*b*) Find directional derivative of $\phi = 4y^2 z - 2xz^3$ at (1, 2, –1) along the line $x - 1 = 2 (y + 1) = z - 2$. [5]

(*c*) If

$$\bar{r} \cdot \frac{d\bar{r}}{dt} = 0,$$

show that $\bar{r}$ has constant magnitude. [4]

Or

10. (*a*) If the directional derivative of

$$\phi = a (x + y) + b (y + z) + c (x + z)$$

has maximum value 12 in the direction parallel to

$$\frac{x - 1}{1} = \frac{y - 2}{2} = \frac{z - 1}{3},$$

find the values of *a*, *b*, *c*. [6]

(*b*) Show that :

$$\bar{F} = \frac{\bar{a} \times \bar{r}}{r^n}$$

is solenoidal field. [5]

(c) Show that :

$$\bar{F} = \frac{1}{r}\left[r^2\,\bar{a} + (\bar{a}\,.\,\bar{r})\,\bar{r}\right]$$

is irrotational. Hence find ϕ such that $\bar{F} = \nabla\phi$. [6]

11. (a) Find the work done in moving a particle from (0, 1, –1) to $\left(\frac{\pi}{2}, -1, 2\right)$ in a force field

$$\bar{F} = \left(y^2 \cos x + z^3\right)\vec{i} + \left(2y \sin x - 4\right)\vec{j} + \left(3xz^2 + 2\right)\vec{k}.$$ [5]

(b) Evaluate :

$$\iint_S \left(x\,\vec{i} + y\,\vec{j} + z^2\,\vec{k}\right).d\bar{S}$$

where S is the curved surface of the cylinder $x^2 + y^2 = 4$, bounded by the planes $z = 0$ and $z = 2$. [6]

(c) Evaluate :

$$\int_C \left(xy\,dx + xy^2\,dy\right)$$

by Stokes's theorem, where C is the square in xy-plane with vertices (1, 0), (–1, 0), (0, 1), (0, –1). [6]

Or

12. (a) Evaluate :

$$\iint_S \left(\nabla \times \bar{F}\right).\hat{n}\,dS$$

where S is the curved surface of the paraboloid $x^2 + y^2 = 2z$, bounded by the plane $z = 2$, where

$$\bar{F} = 3(x - y)\,\vec{i} + 2xz\,\vec{j} + xy\,\vec{k}.$$ [5]

(*b*) Evaluate :

$$\iint_S \bar{F} \cdot d\bar{S}$$

where

$$\bar{F} = \left(x + y^2\right) \vec{i} + y \vec{j} - 2zx \vec{k}$$

and S is the surface bounded by the planes $x = y = z = 0$ and $x + y + z = 1$. [6]

(*c*) Show that :

$$\bar{E} = -\nabla\phi - \frac{1}{c}\frac{\partial \bar{A}}{\partial t}, \bar{H} = \nabla \times \bar{A}$$

are solutions of Maxwell's equations :

(*i*) $\nabla \times \bar{H} = \frac{1}{c}\frac{\partial \bar{E}}{\partial t}$,

(*ii*) $\nabla \times \bar{E} = -\frac{1}{c}\frac{\partial \bar{H}}{\partial t}$

if

(1) $\nabla \cdot \bar{A} + \frac{1}{c}\frac{\partial \phi}{\partial t} = 0$,

(2) $\nabla^2 \bar{A} = \frac{1}{c^2}\frac{\partial^2 \bar{A}}{\partial t^2}$. [6]

Total No. of Questions—12] [Total No. of Printed Pages—3

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S.E. (IT) (Second Sem.) EXAMINATION, 2008

MICROPROCESSOR SYSTEM

(2003 COURSE)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answer *three* questions from Section I and *three* questions from Section II.

(*ii*) Answers to the two Sections should be written in separate answer-books.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

SECTION I

1. (*a*) Give features of 8086 and explain the concept of segmentation and pipelining in detail. [12]

(*b*) Give difference between 8086 and 80386 processor. [6]

Or

2. (*a*) Draw interfacing diagram of 8086 with 4 K × 16 EPROM and 8 K × 8 RAM. Explain address decoding logic. [12]

(*b*) What is the meaning of multiplexed Address-Data lines ? How to Demultiplex it ? Explain with the help of a diagram. [6]

3. (*a*) Draw programmer's model of 8086 and explain. [8]

(*b*) Explain any *four* addressing modes of 8086 with example. [8]

P.T.O.

Or

4. (*a*) What is meaning of Assembler Directives ? Explain any *four* directives. [8]

(*b*) Explain structure of DOS in detail. [8]

5. (*a*) Draw interfacing diagram of 8086 with 8259A (Interrupt priority controller). Explain. [8]

(*b*) What is master-slave connection in 8259 ? How many no. of slaves can be connected to one master ? [8]

Or

6. (*a*) What are different operating modes of 8253 ? Explain any *two* in detail. [8]

(*b*) Explain IVT (Interrupt Vector Table) of 8086 in detail. [8]

SECTION II

7. (*a*) Draw block diagram of 8255 PPI and explain it in detail. [8]

(*b*) What are different operating modes of 8255 ? Explain. [8]

Or

8. (*a*) Give difference between synchronous and asynchronous communication. [8]

(*b*) Give format of 'Command Word Register' and 'Mode Word Register' of 8251 (USART). Explain it. [8]

9. Explain the concept of segmentation and paging unit when 80386 is operating in RM mode, PM (Protected Mode). [18]

Or

10. (*a*) What is the meaning of 'privileged instructions' ? [2]

(*b*) What is call gate descriptor ? Give its significance in detail. [10]

(*c*) Explain confirming code segement and non-confirming code segment. [6]

11. (*a*) Explain Task State Segment (TSS) with the help of diagram in detail. [8]

(*b*) Explain :

(*i*) Task Register

(*ii*) Busy bit

(*iii*) NT (Nested Task) bit

(*iv*) TS (Task Switch) bit. [8]

Or

12. (*a*) What is exception ? Give its types. [6]

(*b*) Draw diagram of pentium processor architecture and explain. [10]

Total No. of Questions—12] [Total No. of Printed Pages—4+2

[3462]-189

S.E. (Information Technology) (Second Sem.) EXAMINATION, 2008

DATA STRUCTURES AND FILES

(2003 COURSE)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answers to the two Sections should be written in separate answer-books.

(*ii*) Figures to the right indicate full marks.

(*iii*) Assume suitable data, if necessary.

SECTION I

1. (*a*) Write pseudo-C code for sparse matrix addition. [6]

(*b*) What is frequency count ? With an example, explain, how frequency count is calculated and elaborate on its relationship with time complexity. [8]

(*c*) Write an algorithm for binary search and calculate its time complexity. [4]

Or

2. (*a*) Write pseudo-C code for simple and fast transpose of sparse matrix and compare their complexities. [8]

(*b*) Write an algorithm for Fibonacci search and calculate its time complexity. [5]

(*c*) Convert the following expressions into the other two forms : [5]

(*i*) ABCDE – + $ * EF * –

(*ii*) + – $ABC * D * * EFG.

P.T.O.

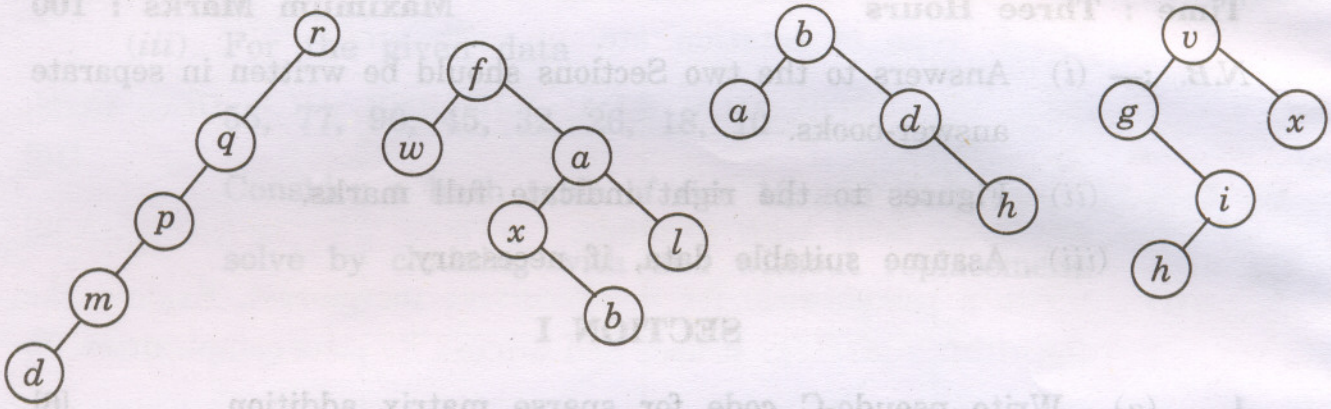
3. (I) Find which of the following is a : [2]

(*i*) Binary Search Tree

(*ii*) AVL tree

(*iii*) Skewed binary search tree

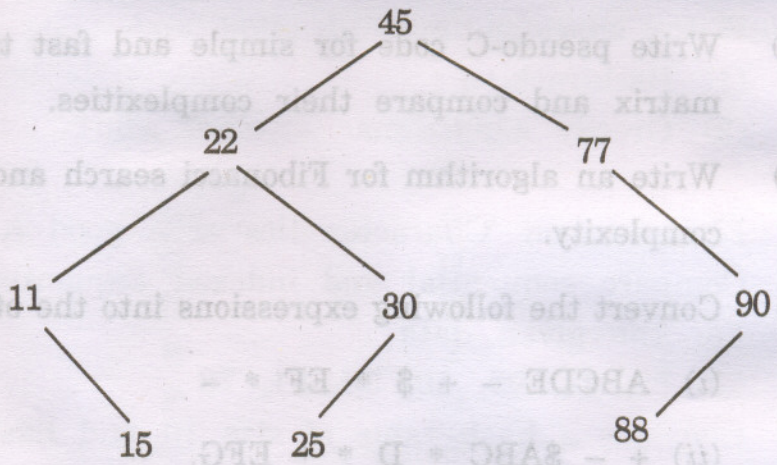
(*iv*) Binary tree (neither (*i*), (*ii*) or (*iii*).



(*a*) (*b*) (*c*) (*d*)

(II) Write a non-recursive algorithm to find the height of a binary tree. [6]

(III) Define a binary tree. Show the sequential representation of the binary tree given. [8]



Or

4. (*i*) Define skewed, full and complete binary trees with examples. [3]

(*ii*) Evaluate the following postfix expression and show stack status after every step in tabular form, given A = 5, B = 6, C = 2, D = 12 and E = 4

ABC + * DE / – [8]

(*iii*) Write non-recursive post-order and in-order traversals and compare their complexities. [5]

5. (*i*) What is GLL ? Explain its node structure in 'C'. Represent the following using GLL : [8]

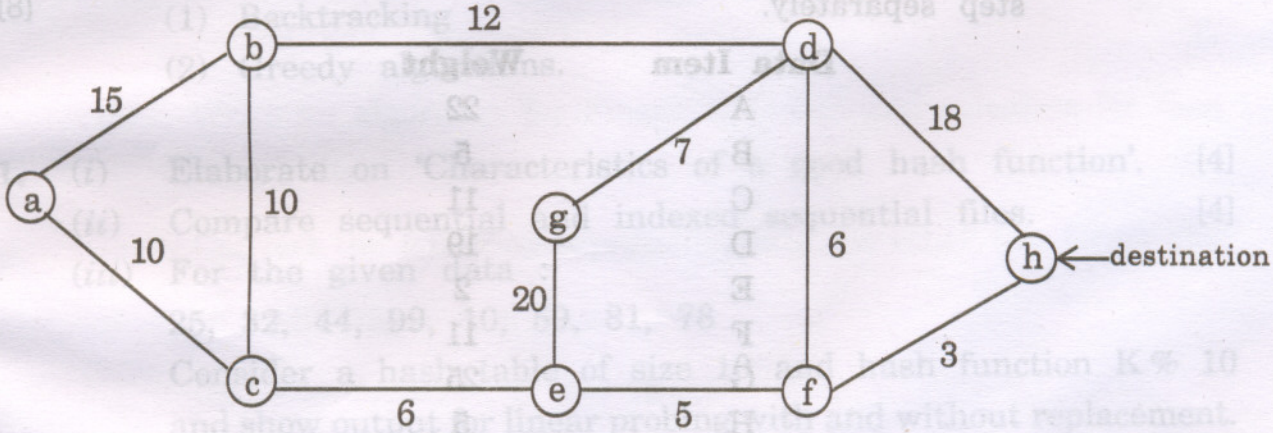
(1) D = ( )

(2) A = (*a*, (*b*, *c*), D)

(3) C = (*a*, C)

(4) B = (A, A, *d*, *e*)

(*ii*) Represent the following graph using Adjacency list and find the shortest path using Dijkstra's algorithm. Write all the sequence of steps used in the algorithm. [8]

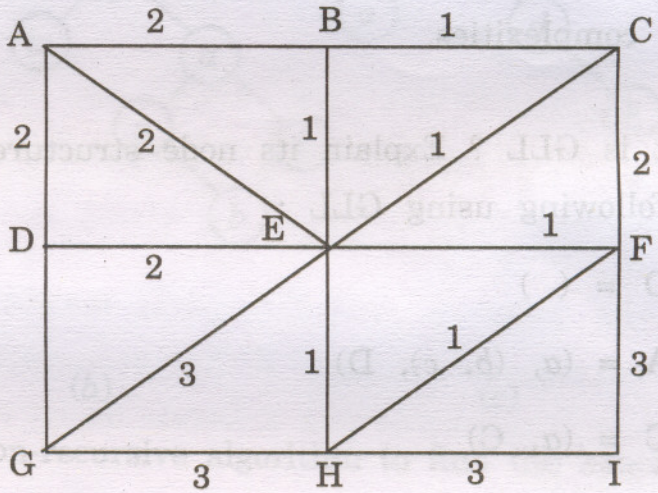


Or

6. (*i*) Define a graph. Explain the different representations for a graph using an example graph. [6]

(*ii*) For the graph given below, draw the adjacency matrix and find out minimum spanning tree using Kruskal's algorithm. [5]

(*iii*) For the same graph in figure, generate adjacency list and perform BFS and DFS. [5]



[Refer for Q. 6(*ii*) and Q. 6(*iii*)]

SECTION II

7. (*i*) Define Symbol table. [2]

(*ii*) For the given data, build the Huffman's tree and explain each step separately. [8]

Data Item	Weight
A	22
B	5
C	11
D	19
E	2
F	11
G	25
H	5

(iii) Write a note on OBST. [6]

Or

8. (i) Write a note on static and dynamic trees. [4]

(ii) Define a AVL tree.

For the given data, build a AVL tree and show the Balance factor, type of rotation etc. at each step.

SUB, POP, NOP, MOV, LDA, JMP, JNR, HLT, DEC, COM, BR, ADD. [10]

(iii) Define a heap with example. [2]

9. (i) Write a pseudo-code for non-recursive merge-sort. Explain the algorithmic strategy it uses and discuss its time complexities. [8]

(ii) Write short notes on : [10]

(1) Dynamic Programming

(2) Greedy Algorithms.

Or

10. (i) Write a pseudo-code for non-recursive quicksort. Explain its algorithmic strategy and discuss its time complexity. [8]

(ii) Write short notes on : [10]

(1) Backtracking

(2) Greedy algorithms.

11. (i) Elaborate on 'Characteristics of a good hash function'. [4]

(ii) Compare sequential and indexed sequential files. [4]

(iii) For the given data :

25, 32, 44, 99, 10, 59, 81, 78

Consider a hash table of size 10 and hash function K % 10 and show output for linear probing with and without replacement. [8]

Or

12. (*i*) Write a note on re-hashing. [4]

(*ii*) Compare and contrast sequential file organisation and random access file organisation. [4]

(*iii*) For the given data :

55, 77, 90, 45, 32, 26, 18, 10

Consider a hash table of size 10 and hash function K % 10, solve by chaining with and without replacement. [8]

Total No. of Questions—12] [Total No. of Printed Pages—4+1

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S.E. (Information Technology) (Second Sem.) EXAMINATION, 2008

PRINCIPLES OF COMMUNICATION ENGINEERING

(2003 COURSE)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answer any *three* questions from each Section.

(*ii*) Answers to the two Sections should be written in separate answer-books.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

(*v*) Assume suitable data, if necessary.

SECTION I

1. (*a*) Define Fourier transform. Explain and prove *two* properties of the Fourier transform. [8]

(*b*) Find and draw the continuous magnitude and phase spectra of single pulse shown below (Refer Fig. 1). [8]

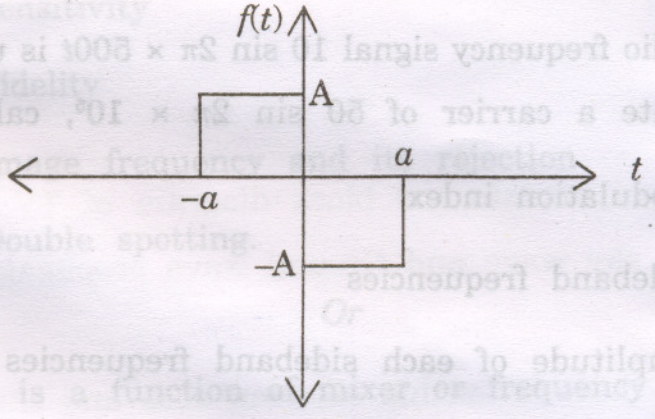

Fig. 1

P.T.O.

Or

2. (*a*) Compare and contrast :

(1) Continuous time *versus* Discrete time signals

(2) Continuous valued *versus* Discrete valued signals

(3) Deterministic *versus* Random signals. [6]

(*b*) Determine the Fourier series of voltage response obtained at the output of a half wave rectifier as shown in Fig. 2 below. Plot the discrete spectrum of the waveform ? [10]

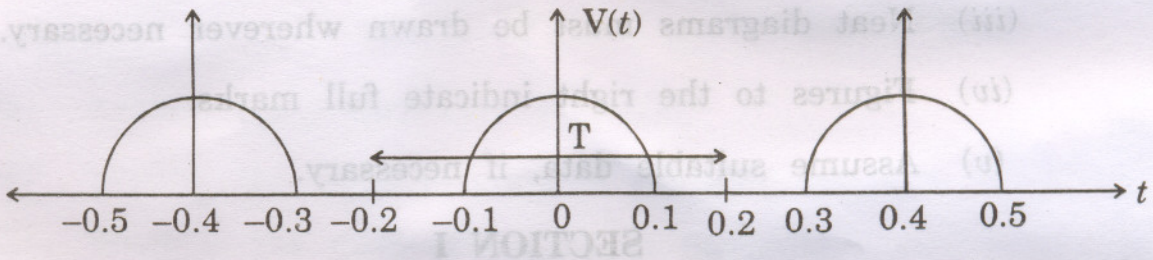

Fig. 2

3. (*a*) What is the need of modulation ? [3]

(*b*) Define amplitude modulation and frequency modulation with detailed waveforms. [5]

(*c*) An audio frequency signal $10 \sin 2\pi \times 500t$ is used to amplitude modulate a carrier of $50 \sin 2\pi \times 10^5$, calculate :

(1) Modulation index

(2) Sideband frequencies

(3) Amplitude of each sideband frequencies

(4) Total power delivered to the load of 500 Ω. [8]

Or

4. (*a*) What are the advantages of SSB transmission over DSB ? Why SSB transmission is not used for broadcast ? [4]

(*b*) In SSB system, if we suppress the carrier and one side band, how much percentage of power saving takes place ? Justify the answer. [4]

(*c*) Explain the following : [8]

(1) Carson's rule for frequency modulation bandwidth.

(2) Need of Bessel function in frequency modulation.

(3) Pre-emphasis.

(4) De-emphasis.

5. (*a*) Draw and explain the working of superheterodyne receiver. [8]

(*b*) Explain and define the following performance parameters of radio receiver : [10]

(1) Selectivity

(2) Sensitivity

(3) Fidelity

(4) Image frequency and its rejection

(5) Double spotting.

Or

6. (*a*) What is a function of mixer or frequency converter ? What is the role of intermediate frequency ? [6]

(b) What is the role of diode detector ? How does AGC (Automatic Gain Control) work ? [6]

(c) Explain the basic concept of frequency synthesizer. [6]

SECTION II

7. (a) What are the different tones used in telephone system ? Explain it. [8]

(b) Explain the cellular telephone system in detail. [5]

(c) Explain the time division multiplexing concept. [3]

Or

8. (a) Explain the DTMF dialing system. [8]

(b) Explain the block diagram of facsimile system. [6]

(c) What is the need of modem in facsimile ? [2]

9. (a) What is interlace scanning ? How interleaving takes place in even and odd fields ? [6]

(b) What is the significance of SAW filter in the TV system ? [4]

(c) What is standing wave ratio in transmission line ? How does it occur ? [6]

Or

10. (a) Draw and explain the block diagram of TV transmitter. [10]

(b) Explain sky wave and Ground wave propagation in detail. [6]

11. (a) Explain the relationship between data and channel bandwidth with suitable example. [8]

(*b*) Explain the different types of topologies used in network. [8]

(*c*) What is the need of PN code in spread spectrum technique ? [2]

Or

12. (*a*) How does the communication session tracing take place on the internet ? [6]

(*b*) Explain the type of total internal reflections in the fibre optic communication. Explain the advantages of fiber optical cable. [8]

(*c*) What is meant by OSI model ? List the different layers of OSI model. [4]

Total No. of Questions—12] [Total No. of Printed Pages—4

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S.E. (Computer) (Second Sem.) EXAMINATION, 2008

COMPUTER ORGANISATION

(COMMON TO I.T.)

(2003 COURSE)

Time : Three Hours **Maximum Marks : 100**

N.B. :— (*i*) Answer *three* questions from Section I and *three* questions from Section II.

(*ii*) Answers to the two Sections should be written in separate answer-books.

(*iii*) Neat diagrams must be drawn wherever necessary.

(*iv*) Figures to the right indicate full marks.

(*v*) Assume suitable data, if necessary.

SECTION I

1. (*a*) Draw and explain Von Neumann Architecture. [8]

(*b*) Perform the following division using restoring division algorithm :

Dividend = 1001

Divisor = 0101. [8]

Or

2. (*a*) Represent the following numbers in single precision floating point format : [8]

(*i*) 17.125

(*ii*) 12.5

(*b*) Draw a flowchart and explain the Booth's Algorithm used for signed number multiplication. [8]

P.T.O.

3. (*a*) Draw and explain single bus organization of the CPU.

(*b*) Compare Microprogrammed control *Vs.* Hardwired control.

Or

4. (*a*) Draw and explain with neat diagram microprogrammed cont unit.

(*b*) Compare Horizontal *Vs.* Vertical micro-instruction represent tion.

5. (*a*) Explain the design of ALU using sequential circuits.

(*b*) Write short notes on :

(*i*) Instruction Pipelining

(*ii*) Instruction Types. [1

Or

6. (*a*) Draw and explain CPU Architecture of INTEL/MOTOROL Processor. [1

(*b*) Explain any *four* addressing modes along with *one* examp each. [

SECTION II

7. (*a*) Compare SRAM *Vs.* DRAM. [

(*b*) Write short notes on :

(*i*) Magnetic Disk

(*ii*) EPROM

(*iii*) RAID. [12

3. (*a*) Draw and explain single bus organization of the CPU. [8]

(*b*) Compare Microprogrammed control *Vs.* Hardwired control. [8]

Or

4. (*a*) Draw and explain with neat diagram microprogrammed control unit. [8]

(*b*) Compare Horizontal *Vs.* Vertical micro-instruction representation. [8]

5. (*a*) Explain the design of ALU using sequential circuits. [8]

(*b*) Write short notes on :

(*i*) Instruction Pipelining

(*ii*) Instruction Types. [10]

Or

6. (*a*) Draw and explain CPU Architecture of INTEL/MOTOROLA Processor. [10]

(*b*) Explain any *four* addressing modes along with *one* example each. [8]

SECTION II

7. (*a*) Compare SRAM *Vs.* DRAM. [6]

(*b*) Write short notes on :

(*i*) Magnetic Disk

(*ii*) EPROM

(*iii*) RAID. [12]

Or

8. (*a*) What are the different cache mapping techniques ? Explain any *one* with neat diagram. [8]

(*b*) Write short notes on :

(*i*) Virtual memory

(*ii*) Cache memory. [10]

9. (*a*) What are the different bus standards used in computers ? Explain any *one* in brief. [8]

(*b*) Write short notes on :

(*i*) Video Displays

(*ii*) Scanners. [8]

Or

10. (*a*) What is DMA ? With a neat block schematic explain how it is used for data transfer. [8]

(*b*) What are the different peripherals used in computers for input/output purpose ? [4]

(*c*) Write a short note on Interrupt Driven I/O. [4]

11. (*a*) Draw and explain closely coupled configuration. [6]

(*b*) Explain briefly the role of :

(*i*) Clock Generator

(*ii*) Bus Controller

in the multiprocessing systems. [10]

Or

12. (*a*) **List out different features of RISC processor.** [6]

(*b*) **What are the different bus allocation schemes used to resolve the bus conflict ? Explain any *one* along with neat diagram.** [10]