

F 3543

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Branch : Information Technology

MICROPROCESSORS (T)

(Regular / Improvement / Supplementary)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

1. What is meant by segmented memory?
2. What are the Addressing modes in 8086?
3. Briefly explain Program Control Instruction.
4. Write short notes on MASM.
5. What is meant by bus buffering?
6. Briefly explain minimum mode operation of 8086.
7. Compare the features of 80386 and 80486 processors.
8. What is Microcontroller? List out the applications.
9. What is meant by DMA Data transfer?
10. Explain the function of TMOD registers in 8951.

(10 × 4 = 40 marks)

Part B

11. Draw the internal architecture of 8086 and explain its operation.
Or
12. Draw and explain the programming model of 8086 Microprocessor.
13. Explain Arithmetic and Logic instructions, program control instructions in 8086.
Or
14. Write notes on program development tools.
15. With timing diagram, explain the minimum mode of operation of 8086 Microprocessor.
Or
16. Draw and explain the interfacing of 2 numbers of 16 K × 16 EPROMS with 8086.

Turn over

17. Explain the features of pentium processors in detail.

Or

18. Draw and explain the architecture of Microcontroller with any one application.

19. Draw the internal block diagram of 8255 PPI and explain the operation of each block in it.

Or

20. Draw and explain the interfacing of stepper motor to the 8086 Microprocessor.

(5 x 12 = 60 marks)

(Regular / Improvement / Supplementary)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

1. What is meant by segmented memory?
2. What are the Addressing modes in 8086?
3. Briefly explain Program Control Instruction.
4. Write short notes on MASM.
5. What is meant by bus buffering?
6. Briefly explain minimum mode operation of 8086.
7. Compare the features of 80386 and 80486 processors.
8. What is Microcontroller? List out the applications.
9. What is meant by DMA Data transfer?
10. Explain the function of TMD registers in 8251.

(10 x 4 = 40 marks)

Part B

11. Draw the internal architecture of 8086 and explain its operation.
12. Draw and explain the programming model of 8086 Microprocessor.
13. Explain Arithmetic and Logic instructions, program control instructions in 8086.
14. Write notes on program development tools.
15. With timing diagram, explain the minimum mode of operation of 8086 Microprocessor.
16. Draw and explain the interfacing of 2 numbers of 16 K x 16 EPROMs with 8086.

F 3517

(Pages : 3)

Reg. No.....IT.....

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Branch : Computer Science and Engineering / Information Technology

ENGINEERING MATHEMATICS – IV (R, T)

(Regular/Improvement/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Answer any **one** question from each module.
All questions carry equal marks.

MODULE I

1. (a) Describe (i) Transient state, (ii) Steady state and (iii) explosive state in a queuing system. (6 marks)

(b) Patients arrive at a clinic according to a Poisson distribution at the rate of 30 patients per hour. The waiting room does not accommodate more than 14 patients. Examination time per patient is exponential with mean rate of 20 per hour.

- (i) Find the effective arrival rate at the clinic.
- (ii) What is the probability that an arriving patient will not wait?
- (iii) What is the expected waiting time until a patient is discharged from the clinic? (14 marks)

Or

2. (a) On an average 96 patients per 24 hour-day require the service of an emergency clinic. Also on an average, a patient requires 10 minutes of active attention. Assume that the facility can handle only one emergency at a time. Suppose that it costs the clinic Rs.100 per patient treated to obtain an average servicing time of 10 minutes, and that each minute of decrease in this average time would cost Rs. 10 per patient treated, how much would have to be budgeted by the clinic to decrease the average size of the queue from $\frac{4}{3}$ patients to $\frac{1}{2}$ patient? (12 marks)

(b) In a service department manned by one server, on an average one customer arrives every 10 minutes. It has been found out that each customer requires 6 minutes to be served. Find (i) the average queue length ; (ii) the average time spent in the system. (8 marks)

Turn over

	D	E	F	G	H	Supply
A	10	30	30	50	10	7
B	70	30	40	60	60	8
C	40	8	70	20	20	10
Demand	8	8	7	14	24	

	I	II	III	IV	V
A	10	8	18	18	18
B	8	8	18	18	8
C	10	7	8	8	8
D	7	18	8	7	18
E	7	8	18	8	18

MODULE II

3. (a) Find by Horner's method, the positive root of the equation $x^3 + x^2 + x = 100$. (12 marks)
 (b) Find by Newton's method, the root of the equation $\log x = \cos x$. (8 marks)

Or

4. (a) Solve the system of equations.
 $10x - 2y - z - w = 3, -2x + 10y - z - w = 15, -x - y + 10z - 2w = 27, -x - y - 2z + 10w = -9$ by Gauss - Seidel iteration method. (12 marks)
 (b) Find a root of the equation $\cos x = 3x - 1$ which lies between 0 and 1 correct to three decimal places, using bisection method. (8 marks)

MODEL III

5. (a) Use Simpson's rule to find $\int_0^{0.6} e^{-x^2} dx$ by taking seven ordinates. (10 marks)

- (b) Find the polynomial $f(x)$ with the following data, using Newton's divided difference formulae.

$x :$	-4	-1	0	2	5
$f(x) :$	1245	33	5	9	1335

(10 marks)

Or

6. (a) In the table given below, the values of y are consecutive terms of a series of which 23.6 is the 6th term. Find the first and tenth terms of the series.

$x :$	3	4	5	6	7	8	9
$y :$	4.8	8.4	14.5	23.6	36.2	52.8	73.9

(10 marks)

- (b) Evaluate $\int_0^1 \frac{dx}{1+x^2}$ using Trapezoidal rule taking $h = \frac{1}{8}$ and hence find the approximate value of π . (10 marks)

MODULE IV

7. (a) Use graphical method to solve the following LPP. Minimize $Z = 20x + 10y$ subject to the constraints,

$x + 2y \leq 40, 3x + y \geq 30, 4x + 3y \geq 60$ with $x, y \geq 0$. (8 marks)

- (b) How will you identify alternate solution of an LPP? Using simplex algorithm, solve the following LPP: Maximize $Z = 3x + 2y + 5z$ subject to the constraints

$x + 2y + z \leq 430, 3x + 2z \leq 460, x + 4z \leq 420$ with $x, y, z \geq 0$. (3 + 9 = 12 marks)

Or

8. (a) Use Big - M method to solve the following LPP. Minimize $Z = 2x_1 + 9x_2 + x_3$ subject to the constraints.

$x_1 + 4x_2 + 2x_3 \geq 5, 3x_1 + x_2 + 2x_3 \geq 4$, with $x_1, x_2, x_3 \geq 0$. (10 marks)

- (b) Using principle of duality, solve the following LPP: Minimize $Z = x - 3y + 2z$ subject to the constraints,

$3x - y + 2z \leq 7, -2x + 4y \leq 12, -4x + 3y + 8z \leq 10$, with $x, y, z \geq 0$. (10 marks)

MODULE V

9. (a) Write a short note on the differences and similarities between Transportation Problem and Assignment Problem. (8 marks)

- (b) What do you mean by degenerate solution of a transportation problem? The following table gives cost matrix of transporting one unit of product from the sourced A, B and C to the destinations D, F, G and H. Determine the optimum allocation minimum cost using MODI method.

	D	F	G	H	Supply
A	19	30	50	10	7
B	70	30	40	60	9
C	40	8	70	20	18
Demand	5	8	7	14	34

(4 + 8 = 12 marks)

Or

10. (a) Differentiate between Linear Programming Problem and Assignment Problem. (6 marks)

- (b) A department has five employees (I, II, III, etc) with five jobs (A, B, C, etc) to be performed. The time (in hours) each men will take to perform each job is given in the following matrix. How should the jobs be allocated, one per employee, so as to minimize the total man-hours?

	I	II	III	IV	V
A	10	5	13	15	16
B	3	9	18	13	6
C	10	7	2	2	2
D	7	11	9	7	12
E	7	9	10	4	12

(14 marks)

F 3525

(Pages : 2)

Reg. No.....

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Branch : Information Technology

OPERATING SYSTEM CONCEPTS (T)

(Regular/Improvement/Supplementary)

Maximum : 100 Marks

Time : Three Hours

Answer all the questions.

Part A

1. Explain briefly about the function of OS.
2. Briefly explain about Micro Kernel.
3. What do you mean by critical section ?
4. Briefly explain about multiprocessing.
5. What is meant by partitioning ? List out the uses of it.
6. Briefly explain the memory management in Linux.
7. Expand the terms "RSS, SSTF, PRI, FIFO" also mention its function.
8. What is file sharing ? Briefly explain.
9. Compare the Network with distributed OS.
10. What is RPC ? Explain briefly.

(10 × 4 = 40 marks)

Part B

11. (a) Explain the different types of operating system with neat sketches.

Or

- (b) Briefly Enumerate some features of the windows 2000.

12. (a) Write a technical note on :

- (i) Dead lock.
- (ii) Semaphores.

Or

Turn over

(b) Briefly explain the process management in UNIX.

13. (a) Discuss in detail about the memory management requirements and its Techniques.

Or

(b) What is the concept of Virtual Memory ? What are the techniques available for its implementation ?

14. (a) Classify disk scheduling algorithm and explain in brief about any *two* algorithms in each class.

Or

(b) Explain about file allocation, sharing and security with an example.

15. (a) What are the essential features of a Client / Server architecture ?

Or

(b) Write a technical note on :

(i) Distributed Memory Management.

(ii) Clustering.

(5 × 12 = 60 marks)

(10 × 4 = 40 marks)

Part B

11. (a) Explain the different types of operating system with neat sketches.

Or

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12. (a) Write a technical note on :

(i) Dead lock.

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F 3543

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Branch : Information Technology

MICROPROCESSORS (T)

(Regular / Improvement / Supplementary)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

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2. What are the Addressing modes in 8086?
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17. Explain the features of pentium processors in detail.

Or

18. Draw and explain the architecture of Microcontroller with any one application.

19. Draw the internal block diagram of 8255 PPI and explain the operation of each block in it.

Or

20. Draw and explain the interfacing of stepper motor to the 8086 Microprocessor.

(5 × 12 = 60 marks)

Maximum : 100 Marks

Time : Three Hours

Answer all questions

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2. What are the Addressing modes in 8086?

3. Briefly explain Program Control Instruction.

4. Write short notes on MASM.

5. What is meant by bus buffering?

6. Briefly explain minimum mode operation of 8086.

7. Compare the features of 8086 and 80188 processors.

8. What is Microcontroller? List out the applications.

9. What is meant by DMA Data transfer?

10. Explain the function of TMOD registers in 8251.

(10 × 4 = 40 marks)

Part B

11. Draw the internal architecture of 8086 and explain its operation.

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12. Draw and explain the programming model of 8086 Microprocessor.

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F 3551

(Pages : 2)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Branch : Computer Science and Engineering / Information Technology

LANGUAGE PROCESSORS (RT)

(Regular/Improvement/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.

1. Explain the use of assembler directives.
2. Define positional and keyword parameters.
3. Explain the use of regular expressions in scanning.
4. Write a note on top down parsing.
5. Explain limitations of stack based memory allocation.
6. Write a note on triples and indirect triples.
7. Write a short note on the objectives of code optimization.
8. Write a note on dead code elimination.
9. Define linking and loading.
10. What is meant by binary programs ?

(10 × 4 = 40 marks)

Part B

11. (a) Discuss two pass translation and single pass translation methods used in assemblers.
(b) Write a note on error reporting in assemblers.

Or

12. Explain the design of macro processor.
13. Explain operator precedence parsing.

Or

14. Develop a recursive descend parser, for the following grammar : —

$E \rightarrow E + E \mid E - E \mid E * E \mid id$

Turn over

15. Explain allocation data structures, in detail.

Or

16. Briefly explain code generation algorithm, with example.

17. Explain how procedure calls are handled by compilers ?

Or

18. Write a note on global optimization.

19. Explain linking process in detail.

Or

20. What is meant by dynamic loading and loading schemes ?

(5 × 12 = 60 marks)

(10 × 4 = 40 marks)

Part B

11. (a) Discuss two pass translation and single pass translation methods used in assemblers.

(b) Write a note on error reporting in assemblers.

Or

12. Explain the design of macro processor.

13. Explain operator precedence parsing.

Or

14. Develop a recursive descent parser, for the following grammar : —

$$E \rightarrow E + E \mid E - E \mid E * E \mid E / E$$

F 3558

(Pages : 2)

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B.TECH. DEGREE EXAMINATION, NOVEMBER 2010

Fifth Semester

Branch — Computer Science and Engineering / Information Technology

DATA COMMUNICATION (RT)

(Regular/Improvement/Supplementary)

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** questions.

Each question carries 4 marks.

1. (a) Define modulation index with respect to an Amplitude modulated wave.
- (b) Define sampling theorem.
- (c) What is the need for multiplexing techniques in data communication ?
- (d) Define 'Channel capacity' in data transmission.
- (e) Differentiate between serial and parallel method of data transmission.
- (f) How is asynchronous mode of data transmission different from isochronous mode ?
- (g) What is the significance of using different coding techniques ?
- (h) Differentiate between EBCDIC and ASCII code.
- (i) What is meant by point to point communication ?
- (j) What is the importance of GSM architecture ?

(10 × 4 = 40 marks)

Part B

Answer **either** (a) **or** (b) part from each question.

Each question carries 12 marks.

2. (a) Briefly describe the different analog modulation techniques with waveforms.

Or

- (b) PCM is different from other forms of pulse modulation techniques. Explain.

3. (a) Compare the different digital modulation techniques based on different criteria.

Or

- (b) What is Multiplexing ? Explain the different types of multiplexing techniques used in data communication.

Turn over

4. (a) Differentiate between the different types of switching used in data communication.

Or

(b) Describe the different ways in which digital data can be transmitted.

5. (a) Differentiate between Hamming code and Block code in all aspects.

Or

(b) Explain in detail how ARQ techniques are implemented in data communication.

6. (a) Describe how a computer communicates with other computers.

Or

(b) Explain in detail about the different transmission media through which data can be communicated.

(5 × 12 = 60 marks)

(10 × 4 = 40 marks)

Part B

Answer either (a) or (b) part from each question.
Each question carries 12 marks.

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Or

(b) PCM is different from other forms of pulse modulation techniques. Explain.

3. (a) Compare the different digital modulation techniques based on different criteria.

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