F 3639 (Pages : 3) Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Fifth Semester

Branch : Computer Science and Engineering

CS 010 504—DIGITAL SIGNAL PROCESSING (CS)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. Define Convolution sum.
2. State four properties of DFT.
3. What is the need for employing window technique for FIR filter design ?
4. What do you understand by 2's complement representation ?
5. What is the need for image compression ?

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 *marks.*

6. Find the z-transform and ROC of the signal $x(n) = -b^n u(-n-1)$.
7. Explain the relation between DFT and z-transform.
8. Explain the procedure for designing FIR filter using windows.
9. What is meant by rounding ? Discuss its effect on all types of number representations.
10. Explain the use of digital signal processors in audio compression.

(5 × 5 = 25 marks)

Turn over

Part C

Answer **all** *questions.*
Each full question carries 12 *marks.*

11. Determine the convolution sum of two sequences :

$\chi(n) = \{3, 2, 1, 2\}$;
$h(n) = \{1, 2, 1, 2\}$.

Or

12. (a) What is a unit step signal ? How can it be obtained from a unit impulse function ? (5 marks)

(b) Discuss in detail the operations on discrete time signals. (7 marks)

13. Draw the butterfly line diagram for 8-point FRT calculation and briefly explain. Use decimation-in-time.

Or

14. Explain :

(i) Limit cycle oscillations.

(ii) Truncation error.

(iii) Fixed point number representation.

(3 × 4 = 12 marks)

15. The desired frequency response of a low-pass filter is :

$$H_d\left(e^{j\omega}\right) = \begin{cases} e^{-j3\omega}, & -3\pi/4 \le \omega \le 3\pi/4 \\ 0, & 3\pi/4 < |\omega| \le \pi \end{cases}$$

Determine $H\left(e^{j\omega}\right)$ for M = 7 using a rectangular window.

Or

16. What is a linear phase filter ? Discuss in detail the different design techniques available for the FIR filters.

17. Convert the analog filter to a digital filter whose system function is $H(s) = \dfrac{1}{(s+2)^2 + (s+1)}$ using bilinear transformation.

Or

18. (a) Compare and contrast Butterworth and Chebysheve filter. (5 marks)

(b) Obtain direct Form I and direct Form II realization of the LTL system governed by the equation : $y(n) = \dfrac{-3}{8} y(n-1) + \dfrac{3}{32} y(n-2) + \dfrac{1}{64} y(n-3) + x(n) + 3x(n-1)$. (7 marks)

19. Draw and explain the basic architecture of TMS 320C54X.

Or

20. Explain, how targets can be detected using RADAR in detail ?

(5 × 12 = 60 marks)

F 3654

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Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Fifth Semester

Branch : Computer Science and Engineering/Information Technology

CS 010 505/IT 010 504—OPERATING SYSTEMS (CS, IT)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries 3 *marks.*

1. What is a Real time system ? Give an example.
2. What is a process ? Explain.
3. What are the three requirements to be satisfied for the solution of critical-section problem ?
4. Explain the function of a resident monitor.
5. What is a random access file ? Explain.

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*
Each question carries 5 *marks.*

6. What are the different ways of requesting Kernel services ? Explain.
7. Give basic concepts of a dispatcher.
8. Distinguish between Counting semaphores and Binary semaphores.
9. Explain the causes of thrashing.
10. Explain the purpose of open and close functions in a file.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*
Each full question carries 12 *marks.*

11. Explain in detail the various types of operating systems.

Or

Turn over

12. What are system calls of a typical operating system and what they do ? Explain the system calls related to process management right from process creation till its termination.

13. Explain inter-process communication in detail.

Or

14. With an examples, explain any two scheduling algorithms.

15. Define a critical-section. Explain how its solutions are obtained.

Or

16. What is a dead lock ? Explain why dead lock occurs and how it can be prevented.

17. Give brief description of contiguous memory allocation with necessary figures.

Or

18. With examples, explain any two page replacement algorithms.

19. Explain with diagrams directory structure of a file.

Or

20. Discuss Linux file system briefly.

(5 × 12 = 60 marks)

F 3667

(Pages : 2)

Reg. No.....

Name.....

B.TECH. DEGREE EXAMINATION, NOVEMBER 2016

Fifth Semester

Branch : Computer Science and Engineering

CS 010 506 – ADVANCED MICROPROCESSORS AND PERIPHERALS (CS)

(New Scheme – 2010 Admission onwards)

[Regular / Improvement / Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*

Each question carries 3 *marks.*

1. Write a note on flag registers in 8086.
2. Enumerate the data types supported by 80286.
3. Write a note on IDE.
4. Write a short note on CD technology.
5. What does 640K barrier refer to?

(5 × 3 = 15 marks)

Part B

Answer **all** *questions.*

Each question carries 5 *marks.*

6. Explain the programmer's model for 8086.
7. Explain the terms VLIW and Super Scalar Architecture.
8. Write a note on Universal Serial Bus.
9. Write a note on CHS addressing.
10. Write a note on extended memory.

(5 × 5 = 25 marks)

Part C

Answer **all** *questions.*

Each full question carries 12 *marks.*

11. With the help of relevant sketches, explain the architecture of 8086.

Or

12. Write an ALP to arrange numbers in array such that even numbers in ascending order comes first followed by odd numbers in descending order.

Turn over

13. (i) Explain the salient features of Pentium.

(ii) Write a note on multimedia programming.

Or

14. (i) What are salient features of 80286 in the real address mode?

(ii) Draw and discuss the basic read, write and fetch cycles of 80286.

15. (i) Compare PCI and AGP.

(ii) Write a note on USB 3.0 standards.

Or

16. Explain the different components of a mother board.

17. Discuss the main functional modules of a hard disk controller.

Or

18. (i) Write a note on logical block addressing.

(ii) Write a note on optical storage technology.

19. Explain SDRAM Technology

Or

20. (i) Explain HMA and its significance.

(ii) Explain how ECC helps in reliable data transfer ? What are the methods adopted?

(5 × 12 = 60 marks)

F 3713

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Reg. No.....

Name.....

B.TECH. DEGREE EXMINATION, NOVEMBER 2016

Fifth Semester

Branch : Computer Science and Engineering/Information Technology

LANGUAGE PROCESSORS (R, T)

(Old Scheme—Prior to 2010 Admissions)

[Supplementary/Mercy Chance]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer **all** *questions.*
Each question carries **4** *marks.*

1. Explain the functions of an assembler.
2. What is a macro Assembler ? Explain.
3. What role does lexical analyser play in a compiler ?
4. Explain the difficulties present in top down parsing.
5. What are data descriptors ? Explain.
6. Explain the significance of code generators.
7. What is YACC ? How does it work ?
8. Explain the use of incremental compilers.
9. What is a loader ? Explain its significance.
10. Discuss the necessity of overlays.

(10 × 4 = 40 marks)

Part B

Answer **all** *questions.*
Each full question carries **12** *marks.*

11. Explain the design options of a single pass assembler.

Or

12. Explain the design of a macro pre-processor in detail.
13. Discuss in detail the basic compiler functions.

Or

14. What is parsing ? Explain any *two* parsing techniques.

15. With diagramatic representation explain static and dynamic storage allocation.

Or

16. Explain clearly how operator priorities are handled in storage allocation.

17. With examples explain parameter passing mechanisms in procedure calls.

Or

18. What is incremental compiler ? Compare its functions with basic compiler.

19. What is linkage editor ? Explain the procedure for designing a linkage editor.

Or

20. Explain dynamic linking procedures.

(5 × 12 = 60 marks)