

THIAGARAJAR POLYTECHNIC COLLEGE, SALEM

(Autonomous)

Reg. No.

April 2019 Examinations

DIPLOMA IN COMPUTER ENGINEERING

Computer Architecture

Year/Sem: II / IV (EVEN-II)

Max. Marks : 75

Time : 3 hr.

PART-A**(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 What is register transfer language? Give an example.
- 2 State the micro operations for PUSH and POP operations.
- 3 What are the basic registers available in a computer?
- 4 State any two needs for using an I/O interface.
- 5 Draw the block diagram of 128 x 8 RAM chip and 512 x 8 ROM chip
- 6 State the differences between PROM and EPROM
- 7 Assume the value of data Segment register is $(2225)_H$ and the offset is $(3253)_H$. Find the effective address.
- 8 A non-pipe line system takes 50 ns to process a task. The same task can be processed in a six-segment pipeline with a clock cycle of 10 ns. Determine the speedup ratio of the pipeline for 100 tasks.

PART-B**(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Draw the circuit diagram of a binary incrementer.
- 10 State the difference between direct and indirect address.
- 11 Draw the basic computer instruction formats.
- 12 Draw the flow chart for CPU-IOP communication.
- 13 How many characters per second can be transmitted over a 1100-baud line in each of the following (i) Synchronous serial transmission and ii) Asynchronous serial transmission with two stop bits and one start bit.
- 14 Explain associative memory page table.
- 15 What are the control flags and status flags available in 8086 register?
- 16 a) How many 128 x 8 RAM chips are needed to provide a memory capacity of 2048 bytes?
b) How many lines of the address bus must be used to access 2048 bytes of the memory? How many of these lines will common to all chips?

PART-C**(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of question.****(ii) All divisions carry equal marks.**

- 17 A Explain 4-bit arithmetic circuit with a neat diagram and function table. 10
(OR)
B i) Explain the applications of logical micro operations. 5
ii) Draw the general model of a control unit and state the function of each signal. 5
- 18 A Draw and explain flow chart for their initial configuration of instruction cycle and how to determine the type of instruction. 10
(OR)
B i) Explain interrupt cycle. 5
ii) State any five memory reference instructions with their micro operations. 5

contd....2

- 19 A Explain source initiated and destination initiated handshaking methods with block diagrams, timing diagrams and sequence of events. 10
- (OR)**
- B i) Draw the circuit diagram of DMA controller and explain. 5
ii) Explain daisy chaining priority interrupt with a neat diagram. 5
- 20 A What is cache memory? What is mapping? What are the three types of mapping used in cache? Explain in detail. 10
- (OR)**
- B i) Draw the circuit diagram of match logic circuit for one word of associative memory. 5
ii) A virtual memory consists of 16 pages each of 1K and main memory consists of 4 blocks each of 1 K. Assume at a moment, the pages 3,5,6 and 8 are present continuously in the main memory. Draw the memory page table for the above. 5
- 21 A With neat diagrams, explain about Flynn's classification of parallel processing. 10
- (OR)**
- B i) Draw the block diagram of 8086 microprocessor and state the function of bus interface and execution unit. 5
ii) Explain arithmetic pipelining with a neat diagram. 5
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DIPLOMA IN COMPUTER ENGINEERING

Computer Networks

Year/Sem: II / IV (EVEN-II)

Max. Marks : 75

Time : 3 hr.

PART-A**(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 Expand MAN and HAN.
- 2 What are the components of data communication?
- 3 What is Hub?
- 4 Define protocol.
- 5 Expand ICMP and IGMP.
- 6 How many bits are used for IPV4 and IPV6 address?
- 7 What is meant by Internet of things?
- 8 Expand FDDI.

PART-B**(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Define proxy server.
- 10 What are the advantages and disadvantages of bus topology?
- 11 What is the difference between layer 2 and layer 5 switches?
- 12 What are the types of errors?
- 13 Write notes on flow control.
- 14 What is the use of ARP and RARP?
- 15 Explain about the Class D Network.
- 16 Give the PDU format of 802.4.

PART-C**(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All divisions carry equal marks.**

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|----|---|---|----|
| 17 | A | i) Explain about the network criteria. | 5 |
| | | ii) Write notes on Webserver. | 5 |
| | | (OR) | |
| | B | i) Explain about Frequency modulation. | 5 |
| | | ii) Write notes on File server. | 5 |
| 18 | A | Explain in detail about the Hamming Code. | 10 |
| | | (OR) | |
| | B | i) Write the notes on Radio waves. | 5 |
| | | ii) Explain briefly about LOS. | 5 |
| 19 | A | Explain in detail about OSI model. | 10 |
| | | (OR) | |
| | B | i) Explain about switching route discovery. | 5 |
| | | ii) Write notes on dialog control. | 5 |
| 20 | A | i) Explain about UDP. | 5 |
| | | ii) Explain about Supernetting. | 5 |
| | | (OR) | |
| | B | Explain in detail about FTP. | 10 |
| 21 | A | Compare 802.3, 802.4 and 802.5 | 10 |
| | | (OR) | |
| | B | Explain in detail with example about circuit and message switching. | 10 |

PART-A**(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 What are the types of Java program?
- 2 What are the types of type casting?
- 3 What is inheritance?
- 4 What is the use of 'this' keyword?
- 5 What are the types of packages?
- 6 Give the syntax of final statement.
- 7 What is stream?
- 8 Write about the comments in Java.

PART-B**(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Write short notes on JVM.
- 10 Write short notes on Bitwise operator.
- 11 How will you prevent inheritance in Java?
- 12 Give any three String methods.
- 13 List few system packages.
- 14 Write the differences between swings and Applet.
- 15 Define Multi threading.
- 16 Give the syntax of Nested if...else statement.

PART-C**(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All divisions carry equal marks.**

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|----|---|---|----|
| 17 | A | i) Write short notes on Paradigms of programming languages. | 5 |
| | | ii) List any applications of OOPs. | 5 |
| | | (OR) | |
| | B | List and explain the features of Java. | 10 |
| 18 | A | i) Write short notes on labeled loops. | 5 |
| | | ii) How will you create two dimensional array in Java? | 5 |
| | | (OR) | |
| | B | Explain any four java operators in Java. | 10 |
| 19 | A | i) Write short notes on command line argument. | 5 |
| | | ii) How will you define an interface? | 5 |
| | | (OR) | |
| | B | With an example explain Multi level inheritance. | 10 |
| 20 | A | i) With a neat sketch explain the life cycle of Applet. | 5 |
| | | ii) Write short notes on Layout manager. | 5 |
| | | (OR) | |
| | B | How will you define and create a Package? Give example. | 10 |
| 21 | A | i) Explain about JDBC drivers types. | 5 |
| | | ii) How will you create and run a thread in Java? | 5 |
| | | (OR) | |
| | B | With an example explain all the blocks of exception handling. | 10 |

PART-A**(5 x 2 = 10 Marks)****Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.****(ii) All questions carry equal marks.**

- 1 Define meta data.
- 2 What is primary key?
- 3 What are the types of MySQL data types?
- 4 What is the use of IF NULL()?
- 5 What is full text indexing?
- 6 Define trigger.
- 7 What is an API?
- 8 Define big data.

PART-B**(5 x 3 = 15 Marks)****Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.****(ii) All questions carry equal marks.**

- 9 Discuss decision support database.
- 10 List the different types of normalization.
- 11 Explain LEAVE command and ITERATE command.
- 12 Explain grand command.
- 13 List the advantages of non transactional storage engine.
- 14 List the advantages of MyISAM.
- 15 Explain any three functions of warehousing.
- 16 List out the types of data stores in NOSQL.

PART-C**(5 x 10 = 50 Marks)****Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.****(ii) All divisions carry equal marks.**

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|----|---|---|----|
| 17 | A | Explain client server system and distributed systems. | 10 |
| | | (OR) | |
| | B | Explain overall architecture of DBMS with neat diagram. | 10 |
| 18 | A | i. Explain how will you install MySQL on windows. | 5 |
| | | ii. Explain data definition command in MySQL. | 5 |
| | | (OR) | |
| | B | Explain in detail about data manipulation command and data retrieval command. | 10 |
| 19 | A | Explain various types of join with sample queries. | 10 |
| | | (OR) | |
| | B | i. Discuss the types of union with examples. | 5 |
| | | ii. Discuss limit handling in union. | 5 |
| 20 | A | Discuss about the use of stored procedure in MySQL with example. | 10 |
| | | (OR) | |
| | B | Write about the creation of triggers with examples. | 10 |
| 21 | A | Explain the architecture of data warehouse with neat diagram. | 10 |
| | | (OR) | |
| | B | i) Explain the basic operations of NOSQL. | 5 |
| | | ii) Explain the various types of queries in NOSQL. | 5 |