

III B. Tech I Semester Supplementary Examinations, May - 2018
DIGITAL SYSTEM DESIGN & DIGITAL IC APPLICATIONS

(Common to Electronics and Communication Engineering and Electronics and Instrumentation Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answering the question in **Part-A** is compulsory
 3. Answer any **THREE** Questions from **Part-B**

PART -A

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|---|---|------|
| 1 | a) What are the requirements of VHDL? | [3M] |
| | b) What are levels of Abstraction in VHDL? | [4M] |
| | c) What are the commercial ROM types? | [4M] |
| | d) Define Fan in and fan out. | [4M] |
| | e) What is a floating point encoder? Explain. | [3M] |
| | f) Discuss the steps involved in the analysis of sequential circuits? | [4M] |

PART -B

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|---|--|------|
| 2 | a) Explain brief history of VHDL? | [5M] |
| | b) Explain the packages and libraries of VHDL? | [8M] |
| | c) Explain about concurrent and sequential statements? | [3M] |
| 3 | a) Explain about major Net list formats for design representation | [8M] |
| | b) Discuss about VHDL synthesis | [8M] |
| 4 | a) Explain in detail about PROM with an example? | [8M] |
| | b) With the help of logic diagram explain the function of PAL with one example? | [8M] |
| 5 | a) Explain the terms: (i) DC noise margin (ii) Fan-out with reference to TTL gate? | [8M] |
| | b) Briefly list out the differences between ECL, TTL and CMOS logic family? | [8M] |
| 6 | a) Design a two bit comparator circuit and explain its operation? | [3M] |
| | b) Design a 32x1 multiplexer by using 74x151 IC and explain its operation? | [8M] |
| 7 | a) With a neat sketch explain the Universal shift register | [8M] |
| | b) Design MOD-16 synchronous counter using T- Flip-Flop? | [8M] |

