Registration No: | | | | | | | | | | |

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M.TECH
EIPE101

1st Semester Regular/Back Examination -- 2014
DIGITAL INSTRUMENTATION
BRANCH(S): ELECTRONICS & INSTRUMENTATION ENGINEERING,APPLIED ELECTRONICS & INSTRUMENTATION ENGINEERING

Time: 3 Hours
Max Marks: 70

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: (2x10)

a) The sum of weights in a self complementing BCD code is how much?
b) What is race around condition and how it is over come?
c) What are the inherent errors in a digital meter?
d) What is the disadvantage of binary weighted DAC?
e) What is the need of sampling and state sampling theorem?
f) Suppose a given rms voltmeter has a 100% overrange facility, permitting readings upto 200% of the specified full scale.Its crest factor is specified at full range(100 %).With a 200% readout,the maximum permissible crest factor of the signal is the specified crest factor multiplied by what factor?
g) What is automatic handshake mode?
h) What is CASE Tools?
i) An ac coupled rms voltmeter displays which component of the signal?
j) What is the error in the measurement of 0.1 V in the 10V range of a 4 ½ -digit voltmeter having an accuracy of ± 0.1 % of the reading ± 1?

Q2 a) Explain the construction and principle of operation of LCD. (5)
b) Explain the principle of operation of all the kinds of digital printers and give a comparison among them. (5)

Q3 a) Give a brief comparison of digital input card and isolated digital input card with simplified block diagram. (5)
b) Give some low frequency measurement techniques with neat diagram. (5)

Q4 a) Explain a master- slave JK flip-flop with neat timing diagram. (5)
b) Construct a synchronous counter which will count the sequence 2,5,6,8,10 and repeats. (5)

Q5 a) Explain the digital phase meter briefly. (5)
b) Explain the different digital recording techniques briefly with the circuitry involved (5)

Q6 a) Explain the block diagram of programmable timer card and also give the operation of different operating modes. (5)
b) Explain the synchronous and asynchronous sampling briefly. (5)

Q7 a) Give some techniques of V/F conversion. (5)
b) Give some techniques of A/D conversion (5)

Q8 Describe any TWO from the following (5+5)

a) DAS
b) Digital Tachometer
c) Digital magnetic tapes
d) Colour monitor
e) Digital multimeter.