**MSCI03**

**MTEE16A3/MTETE16B3**

**MODEL QUE PAPERS**

**M.TECH**

**IV Semester**

**SPE: (CONTROL AND INSTRUMENTATION ENGINEERING)**

**ELECTRONIC INSTRUMENTS AND SYSTEM**

Time: 3 Hours Max. Marks: 75

 ***INSTRUCTIONS:***

* *Question paper is divided into three groups.*
* *Each group is of 25 marks.*
* *Figure to the right in bracket indicates mark.*
* *Assume suitable data if necessary.*

**GROUP A : Answer any three questions. (Question No. 1 is compulsory)**

Q.1 Why is temperature control necessary in soldering process? (05)

Q.2 Explain the following troubleshooting techniques with examples.

 i) Isolation technique and

 ii) Split –half method (10)

Q.3 What are the methods of identifying faults and the stages. (10)

Q.4 Write down the soldering procedure. (10)

Q.5 What are the factors on which capacitance depends. (10)

**GROUP B : Answer any three questions. (Question No. 6 is compulsory)**

Q.6 Write a note on ma*i*ntenance logbook. Explain its importance. (05)

Q.7 Explain with an example why is it necessary to determine cause of the fault detected. (10)

Q.8 Explain the principle of a frequency counter and explain how it is used for

 measurement of frequency and time period? (10)

Q.9 Explain the principle of operation of a Cathode Ray Oscilloscope. (10)

 Differentiate between the duel trace and duel beam oscilloscope

Q.10. Explain the principle of PMMC multimeter. (10)

**GROUP C: All Questions are Compulsory.**

**Q.11 Fill in the blanks (Each question carries 2 marks)**

(i) The bridge used for precision measurement of capacitance \_\_\_\_\_\_\_\_\_.

(ii) Typical failure rate of a good solder joint is \_\_\_\_\_\_\_\_\_\_\_ FIT.

(iii) In an ideal op-amp, the open loop gain is \_\_\_\_\_\_\_\_\_\_\_.

(iv) Inverting terminal is marked with minus sign. A high negative signal at it will make the output stuck at \_\_\_\_\_\_\_\_\_.

(v) Typical voltage across a LED is \_\_\_\_\_\_\_\_\_\_\_\_.

**Q.12 Multiple choice question. (Each question carries 2 marks)**

(i) Noise margin in TTL gates is \_\_\_\_\_\_\_\_\_\_Volt.

 (a) 0.4

 (b) 0.8

 (c) 1

 (d) 5

(ii) Drying of clothes takes place in spinning drum by using the principle of \_\_\_\_\_\_\_\_\_\_.

 (a) Gravity

 (b) Centrifugal force

 (c) Evaporation

 (d) None of them

(iii) The instrument used for measuring insulation between the core and the shield in a coaxial lead is

(a) Multimeter

(b) Electronic voltmeter

(c) Sensitive ammeter

(d) Megger

(iv) The highest speed and lowest dissipation are attributed to the logic families

(a) CMOS

(b) TTL

(c) ECL

(d) Both (a) and (c)

(v) Which type of FET does not draw any current when gate voltage is zero or less

(a) JFET

(b) DMOSFET

(c) EMOSFET

(d) No type

**Q.13 True or false (Each question carries 1 marks)**

(i) Time constant of a RC circuit is always RC second.

(ii) Loading effect of a meter is the highest in the highest voltage range.

(iii) DC voltage can be connected to an electrolytic capacitor in any way.

(iv) In a low power FET, resistance between drain and gate, or gate and source are equal.

(v) Although gain of an OP-amp in very high, it disegiminates between the interference signal and the derived signal.

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