No. of Printed Pages : 4 120932

Roll No. .....

3rd Sem. / Electrical PS /E&E / Fire Tech, & Safety

Subject : Electrical & Electronics / Measurements & Instrumentation (EMM - I)

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

Q.1 a) What do you mean by errors ?

b) Name two types of moving Iron instruments.

c) Watt meter measures active / reactive power (T/F)

d) What do you mean by maximum demand indicator.

e) What is meggar.

f) What do you mean by instrument transformer.

g) What is CRO ?

h) Name the bridge used to measure inductance.

i) Kw = Kva X cos f (True / False)

j) What is thermo couple.

k) Multimeter can measure _____

l) Range of ammeter can be extended by using _____

m) A CRO is used to observe frequency of signal. (T/F)

n) Resistance of earthing electrode is low (True/ False)

o) What is the function of LCR meters.

p) What is RTD.

q) What is V.T. V.M

r) What is relation of phase current and line current in case star connections.

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

Q.2 i) Give classification of instruments as per their functions.

ii) Explain with diag. How can you extend range of ammeter

iii) List the errors take place in dynamometer type watt meter

iv) What is creeping error of energy meter and how it is avoided.

v) Draw single phase dynomometer type power factor meter.

vi) List classification of current transformer as per construction

vii) Draw a circuit diagram showing use of ammeter voltmeter and watt meter.

viii) What are the specifications of digital multimeter.

ix) What are the major applications of CRO

x) What are LCR meters ? Discuss their applications.

xi) Explain in brief function of earth tester.

xii) Give difference between star and delta connection.

xiii) What are the basic requirements of a conductor material to be used in RTD

xiv) Explain absolute and secondary instruments.

xv) What do you mean by low, medium and high resistance.

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.3 Draw block of diag of CRO. Also explain function of each block in detail.

Q.4 Explain construction, working principle of meggar. Also state its use.

Q.5 What do you mean by moving iron instruments. Explain with diag. The attraction type moving iron instrument.

Q.6 Explain two watt meter method to measure power in three phase unbalanced load.

Q.7 Explain construction, working of a LVDT with neat sketch.

No. of Printed Pages : 4
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120932

3rd Sem. / Elect / PS Engg. / EE.

Subject : Electrical Measurements & Measuring Instruments

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very Short Answer type questions. Attempt any 15 parts. (15x2=30)

Q.1 a) Mention two examples of integrating instruments.

b) What are absolute instruments?

c) A voltmeter contains a _____ resistance in series.

d) _____ are used for extending the range of ammeter.

e) A PMMC instruments can be used for d.c. only. state True/ False.

f) A watt meter is an essentially inherent combination of ammeter and _____.

g) Energy meters have _____ torque/ weight ratio.

h) Creeping in energy meters can be prevented by providing _____.

i) At high frequencies, the accuracy of all the measuring meter _____.

j) Very very small resistances, can be measured more accurately by _____.

k) The maximum value of power factor is _____.

l) _____ is the heart of CRO.

m) What is LCR meter?

n) LVDT can be used to measure _____.

o) Thermocouple is an _____ transducer.

p) In a phase sequence of a system is RYB, the phase which obtains maximum value of emf, at first will be _____ phase.

q) For same size, the rating of three phase motor will be 1.5 times of a single phase motor. State True/ False.

r) The dielectric loss can be measured by _____ bridge.

SECTION-B

Note: Short answer type questions. Attempt any ten parts 10x4=40

Q.2 i) What are the applications of LCR meters?

ii) Explain two wattmeter method to measure power of a balanced loads.

iii) Why are electrical transducers popular for measuring non electrical quantities?

iv) Write merits and demerits of resistance thermometer.

v) Why are the primary instruments not commonly used?

vi) On what principle is eddy current damping based?

vii) What is the working principle of a moving iron instrument? Explain with neat sketch.

viii) Explain, how the range of an ammeter can be extended.

ix) Explain the merits and demerits of Dynamometer type wattmeter.

x) The moving coil of the wattmeter is made of very thin wire, why?

xi) How braking torque is adjusted in energy meters?

xii) Draw and explain Block diagram of Digital multimeter.

xiii) Explain Wheatstone bridge.

xiv) What are different types of power factor meter?

xv) List main applications of CRO.

SECTION-C

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.3 What is the classification of electrical measuring instruments? Explain in detail.

Q.4 With the help of neat sketch, explain the construction, principle and working of PMMC instruments?

Q.5 What are instrument transformers. Briefly explain current transformer and potential transformer with neat sketch.

Q.6 Draw and explain the Block diagram of a CRO.

Q.7 Write short note on any two :-

(i) Measurement of level.

(ii) Measurement of Displacement.

(iii) Measurement of temperature.