Register Number:……..

KUMARAGURU
college of technology
character is life

GENERAL INSTRUCTIONS TO THE CANDIDATES

1. Candidates are instructed to answer the questions as per Bloom's Taxonomy knowledge level (K_1 to K_6)
2. Candidates are strictly instructed not to write anything in the question paper other than their roll number.
3. Candidates should search their pockets, desks and benches and handover to the Hall Superintendent/ Invigilator if any paper, book or note which they may find therein as soon as they enter the examination hall.
4. Candidates are not permitted to bring electronic watches with memory, laptop computers, personal systems, walkie-talkie sets, paging devices, mobile phones, cameras, recording systems or any other gadget / device /object that would be of unfair assistance to him / her.
5. Corrective measures as per KCT examination policies will be imposed for malpractice in the hall like copying from any papers, books or notes and attempting to elicit the answer from neighbours.

B.E DEGREE EXAMINATIONS: DEC 2015

(Regulation 2014)

Third Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

U14EET304: Measurements and Instrumentation

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. In a moving coil Instrument at steady state is CO1 [K1]
   a) Deflection torque and controlling torque are not relevant to instrument
   b) Deflection torque is equal to controlling torque
   c) Deflection torque is greater than controlling torque
   d) Deflection torque is less than controlling torque
2. Andersons bridge used for measurement of CO1 [K_1]
   a) Self inductance in terms of standard fixed capacitor
   b) Self inductance in terms of standard variable capacitor
   c) Mutual inductance
   d) Self as well as mutual inductance
3. Assertion (A) : Weins bridge is used for measuring frequency CO1 [K_1]
   Reason (R): The frequency is appearing in the balance equation of Weins bridge

a) A and R are true but not related b) A and R are true and related

c) A is true and R is false d) R is true and A is false

4. Match the following CO2 [K_2]

	Options		Answers
A	Frequency meter	1	No parallax error
B	Harmonic analyzer	2	Transistor testing
C	Multimeter	3	To analyze 3rd, 5th, 7th order of sine wave
D	Digital measurements	4	To measure number of cycles per second

a) A1,B2.C3.D4 b) A2,B1,C4,D3

c) A2,B3,C1,D4 d) A4,B3,C2,D1

5. In digital measurement the display is CO2 [K1]

a) LED matrix b) LCD

c) 7 segment display d) Above all

6. Which of the following statements are correct? CO3 [K2]

A. Digital instrument are free from environment temperature.

B. Digital instrument are less accuracy.

C. Digital instrument has no parallax error.

D. Megger are used to find earth resistance

a) A&B b) C&D

c) B&C d) D&A

7. Data acquisition system consists of the sequence of the following process 1) display 2) acquire the data through sensors 3) multiplexing/processing 4) signal condition unit CO3 [K_2]

a) 1-2-3-4 b) 2-4--3-1

c) 3-4-2-1 d) 1-3-2-4

8. Assertion (A) : LVDT is working as a secondary transducer. CO2 [K1]
Reason (R): LVDT is also used to measure pressure.

a) A and R are true and related b) A and R are true but not related

c) R is true and A is false d) A is true and R is false

9. The scale of nano devices are CO3 [K_1]

a) 10^{-8} b) 10^{-6}

c) 10^{-9} d) 10^{-3}

10. Match the following items. CO1 [K_2]

	OPTIONS		Answers
A	Laminated core	1	Ammeter
B	Gravity control	2	Wattmeter
C	Current coil and voltage coil present in	3	Reduce the eddy current loss
D	Low resistance shunt in moving coil of PM instrument	4	Through a weight attached to pointer

	A	B	C	D
a)	2	4	1	3
b)	3	4	2	1
c)	1	2	3	4
d)	2	4	3	1

PART B (10 x 2 = 20 Marks)
(Answer not more than 40 words)

11.	Differentiate between moving coil and moving iron instruments	CO1	[K_1]
12.	Define creeping in energy meter.	CO1	[K_2]
13.	What is the need for bridges to measure the electrical parameters?	CO1	[K1]
14.	List the application of megger	CO1	[K_2]
15.	List the application of power analyzer.	CO3	[K_1]
16.	List the merits of digital multimeter.	CO3	[K_1]
17.	What is hall effect sensor? Also mention its applications.	CO3	[K_2]
18.	List the types of transducer.	CO2	[K_1]
19.	List the applications of data acquisition system.	CO3	[K_2]
20.	List the applications of nano sensors.	CO3	[K_2]

Answer any FIVE Questions:-
PART C (5 x 14 = 70 Marks)
(Answer not more than 300 words)

Q.No. 21 is Compulsory

21.	Explain the principle and construction details of induction type energy meter; also derive its expression for deflection torque.	CO1	[K_2]

22.	(i)	Explain the working of Maxwells inductance bridge and also derive the unknown inductance	(7)	CO1	[K_2]
	(ii)	Explain the Kelvin's double bridge to find unknown resistance and derive the bridge sensitivity	(7)	CO1	[k2]
23.	(i)	Enumerate the harmonic analyzer with neat diagram.	(10)	CO3	[K_2]
	(ii)	List the advantages of digital instruments	(4)	CO3	[k1]
24.	(i)	Explain the construction and working temperature transducer. Also mention its applications	(8)	CO2	[K2]
	(ii)	Explain any one type of displacement transducer in detail	(6)	CO2	[k2]
25.	(i)	Explain the construction and working temperature transducer. Also mention its applications	(8)	CO2	[K_2]
	(ii)	Explain the construction and working principle of flow measurement. Also mention its applications	(6)	CO2	[k2]
26.		Develop a case study of microcomputer based data acquisition with a suitable application		CO3	[K3]

****