Exam.Code:0941
Sub. Code: 7055

1129
B.E. (Mechanical Engineering)
Fifth Semester
MEC-504: Mechanical Measurement

Time allowed: 3 Hours **Max. Marks: 50**

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) The unit of a measuring system where translation of a measurand takes place is called the _____.

b) The difference between the indicated quantity and the true value of the time varying quantity is the_____.

c) Explain ballast circuit.

d) What do you understand by three elements Rosette gauges?

e) The standard method of calibrating all pressure transducers is to use a _____.

f) Explain primary, secondary and working standard.

g) What is Magnetic Levitation?

h) What is the principle of variable inductance transducers?

i) With stroboscopic method of speed measurement, the flashing frequency would be _____of rotational frequency for a single stationary image.

j) _____is a retardation or delay in the response of an instrument to charges in the measurand, and _____is the degree to which an instrument indicates changes in the measurand without dynamic error. (10x1)

UNIT – I

II. Discuss the importance of time constant in appropriate measuring instruments. A thermometer is initially at a temperature of 20°C and is suddenly plunged into a liquid bath, which is maintained at 150°C. The thermometer indicated 95°C after time interval of 3 seconds. Estimate the time constant for the thermometer. (10)

III. Explain first and second order system. (10)

IV. Explain construction and working of Dead weight pressure gauge tester. (10)

P.T.O.

UNIT – II

V. Explain the working of filament type pyrometer with neat sketch. What are its applications and limitations to use? (10)

VI. A simply supported beam carries a concentrated load P at its centre. The maximum values of deflection x corresponding to different values of P are:

P = 100,120,140,160,180,200; X = 0.45,0.55,0.60,9.60,0.80,0.85

Using method of least squares, plot a linear relationship between P and X. (10)

VII. Explain the principle and working of blood pressure measuring instrument in detail. (10)

x-x-x