H.T.No. | | | | | | | | | | |

Code No: ME1531 **GEC-R14**

III B. Tech II Semester Regular Examinations, April 2017

METROLOGY AND INSTRUMENTATION

(Mechanical Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: All Questions from **PART-A** are to be answered at one place.
Answer any **FOUR** questions from **PART-B.** All Questions carry equal Marks.

PART-A

6 × 2 = 12M

1. Define and sketch the progressive plug gauge.
2. How to determine the tapers by using spheres?
3. Indicate the different elements of surface finish.
4. Explain the term transducer with suitable example.
5. List out different pressure measurement devices.
6. Mention different types of torque measuring instruments

PART-B

4 × 12 = 48M

1. A hole and shafting system has the following dimensions 60H7/m6.The standard tolerance is i = 0.45 $\sqrt[3]{D}$ +0.001D, fundamental deviation of shaft is equal to IT7-IT6, the diameter range is 50 and 80. (12M)
   i) What is the nature of fit.
   ii) Sketch the fit & show them on the actual dimensions of the hole & shaft.
2. a) Explain the working of tool makers microscope with sketch. (7M)
   b) Write short notes on sine bar along with a neat sketch. (5M)
3. a) Discuss the various methods of amplitude and spacing measurements. (6M)
   b) Why surface finish is important in engineering applications? (6M)
4. a) Explain the types of errors. Also explain the sources and remedies. (6M)
   b) Briefly describe the dynamic characteristics of a measuring system. (6M)
5. a) Explain the construction and working of Magnetic flow meter. (6M)
   b) Describe the construction and working of a Bourdon tube with a neat sketch. (6M)
6. a) Explain the working principle of Hydraulic dynamometer with neat sketch. (6M)
   b) Explain the working principle of photo electric tachometer with neat sketch. (6M)

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