**[Total No. of Printed Pages:2]** **CODE NO:- Z-62**

**FACULTY OF ENGINEERING & TECHNOLOGY**

**B.E (Mech) Year Examination - May – 2015**

**Metrology and Quality Control**

**(Revised)**

**[Time: Three *Hours*]** **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

i) Attempt three questions from each section.
ii) Figures to the right indicate full marks.
iii) Assume suitable data wherever necessary.
iv) Draw neat sketches wherever necessary.

SECTION-A

Q.1 a) Define the term 'Metrology' and explain the need of standards of measurements in the modern industrial system. 06

b) Distinguish between 'line standard' and 'End Standard'. Give their examples. 06

OR

a) Explain the term traceability in connection with standards 06

b) State the uses of 06

1) Angle plate
2) V-block
3) Straight edge
4) Feeler gauge
5) Screw pitch gauge
6) Planer gauge

Q.2 a) Why the slip gauges are termed as "End Standard"? state the meaning of wringing and write down the essential conditions for wringing of slip gauges. 06

b) Differentiate between 06

1) Mechanical comparator and electrical comparator
2) Comparator and measuring instrument.

OR

Enlist the different types of comparators and explain the construction and working of sigma comparator along with its advantages and disadvantages. 12

Q.3 Write short notes on any four 16

a) CMM
b) Terminology for limits and fits
c) Gear tooth vernier
d) Use of laser in metrology.
e) Indian standared (IS 1919-1963)

SECTION-B

Q.4 a) Define the term 'Quality' and differentiate between cost of quality and value of Quality. 06

b) What do you understand by the terms 'on-line' and 'off line' in the context of quality management? Give examples of each type of quality control. 06

OR

a) What is QFD? Explain using suitable example. 06
b) Explain how cause and effect diagram is useful in maintaining quality. 06

Q.5 a) Enlist and explain the goals and key elements of JIT approch to manufacturing system design and operation. 06
b) Explain how kanban system helps to control the production activity. 06

OR

a) What is SQC? Explain. 06
b) With help of suitable example explain the concept of variance analysis. 06

Q.6 Write short notes 16

a) Process capability
b) Sampling methods
c) Value engineering
d) Standardization and its importance.