BIME-027

DIPLOMA – VIEP – MECHANICAL ENGINEERING (DMEVI)

Term-End Examination

June, 2017

00354

BIME-027 : METROLOGY AND QUALITY CONTROL

Time : 2 hours   *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Use of scientific calculator is permitted.*

1. (a) Name the various types of fits used for the purpose of assembly of machine parts. Describe interference fit in detail.   7

   (b) Define the following terms :   7

      (i) Visual Inspection

      (ii) Allowance

      (iii) Tolerance

      (iv) Sampling Plan

2. (a) Briefly discuss about the pneumatic comparators. Explain flow velocity type pneumatic comparators.   7

(b) What is the speciality of a tool maker's microscope as compared to an ordinary laboratory microscope ? Describe its features. 7

3. (a) What is meant by gear tooth thickness ? How do you measure it with the help of a gear tooth vernier ? 7

(b) Define the terms primary texture and secondary texture. Describe the instrument used for obtaining a graphical record of primary texture. 7

4. (a) Explain the principle of pneumatic gauging by the back pressure system and state the range of pressure over which it is normally used. 7

(b) What are the various methods of specifying pitch of a gear ? Why is the base of a spur gear so important ? 7

5. (a) Define the term quality control. Explain its objectives. 7

(b) Differentiate between defect and defective. Outline the theory underlying control charts for defects. 7

6. (a) What do you understand by quality assurance ? State its advantages. 7

(b) Define TQM. State the important requirements for the implementation of a TQM programme in an individual organization. 7

7. (a) Differentiate between chance causes and assignable causes of variation. State the objectives of $\overline{X}$ and R charts. 7

(b) What is meant by a sequential sampling plan ? List out its applications. 7

8. Write short notes on any *four* of the following : $4 \times 3\frac{1}{2} = 14$

(a) Six Sigma

(b) Quality Standards

(c) Mechanical Comparator

(d) Waviness

(e) Angular Measurement

(f) Zero Defect