1. (a) Explain the following terms with the help of sketches:
   (i) Fundamental deviation
   (ii) Allowance
   (iii) Zero line

   (b) With the help of a sketch, explain the shaft basis system of designating fits.

   (c) What is selective assembly?
2. (a) How does a template jig differ from a plate jig? 3
(b) What are the reasons of using jigs and fixtures? 3
(c) Classify the drilling jig with an example. 2

3. (a) Describe the uses of limit gauges with suitable sketches. 2
(b) What are the advantages and limitations of a micrometer? 3
(c) With the help of sketches, distinguish between a vernier calliper and a vernier depth gauge. 3

4. (a) What is inspection? What is the difference between inspection and quality control? 3
(b) What is the difference between double sampling and multiple sampling plan? 2
(c) Explain normal distribution with reference to inspection and quality control activities of a factory. 3

5. (a) Estimate the actual cutting speed to turn a 100 mm diameter and 300 mm long mild steel bar down to 92 mm diameter in two cuts, at constant cutting speed, with a high speed steel tool. The first cut feed is 1 mm/rev, and second cut feed is 0.5 mm/rev. The machining time is 20 minutes. 4
(b) Differentiate between the following:
   (i) Factory Overhead Cost and Factory Cost
   (ii) Fixed Cost and Variable Cost
(क) एक 300 मिमि तम्बो मूल इस्पात की छड़, जिसका व्यास 100 मिमि है को दो कटों में 92 मिमि व्यास तक एक हाई स्पीड इस्पात ओज़ार से, स्थायी कर्तन गति रखते हुए, खराबन करके ले जाना है। इसकी वास्तविक कर्तन गति ज्ञात कीजिए। प्रथम कट के लिए, धरण 1 मिमि/च. और द्वितीय कट के लिए, धरण 0.5 मिमि/च. है। इसका कर्तन समय 20 मिनट है।

(ख) निम्नलिखित के बीच अन्तर स्पष्ट कीजिए:

(i) कारखाना उपरिलागत व कारखाना लागत

(ii) निश्चित (फ़िज़्ज़र्ड) लागत व परिवर्ती (वेरिएबल) लागत