



**UE-6003**  
**First Year B. E. (Sem. I) Examination**  
**April/May – 2012**  
**Basic Mechanical System**

Time : Hours]

[Total Marks : 100

**Instructions :**

(1)

<p>नीचे दशांशों के निशानों वाली विंगतों के उत्तरवही पर अवश्य लिखनी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : F. Y. B. E. (SEM. 1)</p> <p>Name of the Subject : BASIC MECHANICAL SYSTEM</p> <p>Subject Code No. : 6 0 0 3 Section No. (1, 2,.....): Nil</p>	<p>Seat No. : □ □ □ □ □ □</p> <p style="text-align: center; border: 1px solid black; border-radius: 15px; padding: 10px;">Student's Signature</p>
--	---

(2) Attempt all questions.

(3) Figure on the right indicate marks.

- 1 A). Explain with neat sketch working of Nuclear Power Plant. [07]  
B). Explain with neat sketch working of Locomotive Boiler. [08]
- 2 Attempt Any Three: [18]  
A). Derive an equation for minimum air requirement for complete combustion of gaseous fuel.  
B). List out any ten merits of forced draft over natural draft.  
C). What are the difference between boiler mountings and its accessories?  
D). What is the purpose of a Steam Stop Valve? Explain its working.
- 3 A). Derive an efficiency equation for Dual cycle in the form of compression [07]  
ratio. Also draw a P – V diagram for the Dual cycle.  
B). What are the merits and demerits of CI Engines over SI Engines? [05]

C). Explain with neat sketch the working of Injector. [05]

**OR**

C). Explain with neat sketch the working of Simple Carburetor. [05]

4 A). Explain with neat sketch working of Domestic Refrigerator. [08]

B). What are the requirements of a good refrigerant? Also write merits and demerits of F – 22 over NH<sub>3</sub>. [07]

5 A). Describe in brief Shaper Machine with diagram. [08]

B). Describe Face Milling and Straddle Milling Processes with neat sketch. [07]

**OR**

B). Explain the Whitworth Quick Return Mechanism of a shaper. Also draw a neat sketch. [07]

6 A). Explain summer air conditioning and winter air conditioning with neat sketch. [08]

B). Write short note on Radial Drilling Machine. [06]

C). Write a short note on Indexing. [06]

**OR**

C). Write a short note on Taper turning methods in Lathe. [06]