Code No. : 5190/ S

FACULTY OF ENGINEERING
B.E. 3/4 (Prod.) I Sem. (Suppl.) Examination, July 2012
METAL FORMING TECHNOLOGY

Time: 3 Hours] [Max. Marks: 75

Note : *Answer **all** questions from Part **A**. Answer **any five** questions from Part **B**.*

PART – A **(25 Marks)**

1. What is flow stress in metal forming and how it can be expressed ? **3**
2. Explain about Plane stress and Plane strain. **3**
3. What is spring back in sheet metal bending ? **2**
4. What is the cutoff operation and parting operation in sheet metal ? **3**
5. Distinguish between redrawing and reverse drawing. **2**
6. List out the defects in drawing. **3**
7. How is upsetting different from fullering in forging ? **3**
8. In rolling metal velocity at the exit is higher than that of the surface speed of the rolls (True/False). **1**
9. What is roll separating force ? **3**
10. Match the following : **2**

A	B
a) Notching	i) Extrusion
b) Tooth Paste tube	ii) Coining
c) Medals	iii) Metal removal from side of sheet
d) Connecting rod	iv) Cutting a slot
	v) Forging

PART – B (50 Marks)

11. a) Discuss the Vonmise criteria and Tresca criteria for yielding of metals. 6
    b) What are the specific merits of coldworking over hot working. 4

12. a) An alluminium cup of 160 mm depth and 60 mm inside diameter to be deep drawing from a 6 mm thick sheet metal. Determine the blank size required neglecting the punch and die corner radii. 6
    b) How the cutting force can be reduced in sheet metal operation ? 4

13. a) Explain the difference between direct and indirect extrusion. 6
    b) How the lubrication done in hot extrusion ? 4

14. a) Explain the difference between open die and impression die forging. 6
    b) How is forgeability defined and discuss. 4

15. a) Discuss different roll stand arrangements. 6
    b) How the cold rolling differ from Hot rolling interms of the process and product ? 4

16. Write short notes on **any two** of the following : (2×5=10)
    a) Strain hardening co-efficient and strength coefficient.
    b) Forging defects
    c) Hydrostatic extrusion
    d) Coining and embossing

17. Write a short notes on **any two** of the following : (2×5=10)
    a) Isothermal Forging
    b) Impact extrusion
    c) Stretch forming.