BOARD OF TECHNICAL EDUCATION

PORVORIM-GOA

November, 2008 Examinations

Programme: Production Engineering

Course/Subject: Mechanical working of Metals (4072)

Time Duration: 3 Hrs. Max. Marks: 100

INSTRUCTIONS: 1.All Questions are compulsory.
2.Figures to the right indicate full marks.
3.Assume suitable additional data if required.

Q.No.1) Answer any five of the following:- (5x4=20)

a) How does cold rolling differ from the hot rolling in terms of the process and product?

b) What do you understand by the term ingot, bloom and billet?

c) What is upset forging and how it is done.

d) What is short puting?

e) Differentiate between hydraulic press and mechanical press.

f) Define the process of metal forming.

g) What is spring back in bending operation?

Q.No.2) Answer any two of the following:- (2x8=16)

a) Explain the principle of rolling with a neat sketch.

b) With a help of a flow diagram explain the different stages in manufacturing 20mm diameter rodfrom a steel ingot.

c) Explain the advantages and disadvantages of rolling over other manufacturing process.

Q.No.3) Answer any two of the following:- (2x8=16)

a) Explain with a neat sketch how are collapsible tubes of aluminium (such as those used for tooth paste tubes) manufactured.

b) Explain with sketches the difference between direct and indirect extrusion.

c) Distinguish between wire drawing and tube drawing.

Q.No.4) Answer any two of the following:- (2x8=16)

a) Explain how forging improves the mechanical properties of components.

b) Discuss open and clo se die forging in detail.

c) Describe the various methods of heat treatment of steel forging.

Q.No.5) Answer any two of the following:- (2x8=16)

a) Explain the signifiance of recrystallization temperature in metal working.

b) Differentiate between open and closed frame power process.

c) Describe a progressive, combination and a compound die.

Q.No.6) Write short notes on any four. (4x4=16)

a) Hobbing

b) Defect in forging

c) Planetory roll milling

d) Recrystallization and grain growth

e) Drawing process (cold working)

f) Squeezing and bending operations.

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BOARD OF TECHNICAL EDUCATION

PORVORIM-GOA

May/June, 2009 Examinations

Programme: PRODUCTION ENGINEERING

Course/Subject: MECHANICAL WORKING OF METALS (4072)

Time Duration: 3 Hrs. Max. Marks: 75

INSTRUCTIONS: 1.All Questions are compulsory.
2.Figures to the right indicate full marks.
3.Assume suitable additional data if required.

Q.1. Answer any five of the following: (5x3=15)

a) What is angle of bite in rolling ? On what factor does it depend.

b) Give advantages of mechanical working of metal over other manufacturing process.

c) What is the purpose of heat treatment in forging?

d) What is impact extrusion ?

e) Differentiate between coining and Embossing.

f) Draw a neat sketches of the drive mechanison of power presses.

g) What is bending operation ? How is it performed ?

Q.2. Answer any two of the following:- (2x6=12)

a) Explain how cold rolling is done ? What are the benifit obtained from cold rolling?

b) Briefly explain the surface defects and internal structural defect in rolling.

c) Sketch and explain three high rolling and four high rolling mills.

Q.3. Answer any two of the following: (2x6=12)

a) Give advantage of forging a metal ? Why is press forging process. prefered over hammer forging process.

b) Explain the operation that are normally employed in forging.

c) Explain the various stages in drop forging of a lever.

Q.4. Answer any two of the following: (2x6=12)

a) Explain the various defect in extrusion.

b) Discuss cold hydrostatic extrusion process and give its advantages.

c) Explain the common way of extruding metal ?

Q.5. Answer any two of the following: (2x6=12)

a) With a neat sketch explain a punch and die setup for shearing operation.

b) With a neat sketch explain the main parts of a mechanical power press .

c) Explain the process of shot puning.

Q.6. Write short notes on any four: (4x3=12)

a) Squeezing operation

b) Princpal of metal rolling.

c) Recrystallization and grain growth.

d) Impression die forging.

e) Defect in metal forming process.

f) Hot and cold working process