NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL ENGINEERING

WORKSHOP TECHNOLOGY – TIE 1007

2nd SEMESTER EXAMINATIONS APRIL/MAY 2000

Qu. 1   Give a full description of the following types of sand used in casting:
i)   green sand
ii)   dry sand

Qu. 2   Define the following properties of materials used in manufacturing:
i)   ductility
ii)   malleability
iii)   machinability
iv)   creep

Qu. 3   Briefly outline the advantages and disadvantages of green sand moulds.

Qu. 4   Die-casting is said to be an economic method of casting. Highlight the advantages of this process to justify the statement.

Qu. 5   The diagram below shows a typical two box sand mould.

(sorry the diagram was a hard copy at time of print)

Fig. Qu. 5

Name the parts labelled A to F.

Qu. 6   Wood is the most commonly used material for making patterns. Discuss the favourable properties of wood and methods used to improve its viability as pattern material.

Qu. 7   Briefly describe the following allowances made during pattern making:
        i)   contraction allowance
        ii)   machining allowance
        iii)   draft allowance
        iv)   distortion allowance

Qu. 8   State the causes and method of rectifying the following casting defects:
        i)   shift
        ii)   warpage
        iii)   swell
        iv)   blowholes

Qu. 9   What is meant by hot working? Give at least three advantages and disadvantages of hot working of metals.

Qu. 10   Forging is a hot working process. Suggest two advantages and two disadvantages of this metal working process.

Qu. 11   Describe the extrusion process with reference to direct and indirect extrusion giving examples of products so extruded.