VEER SURENDRA SAI UNIVERSITY OF TECHNOLOGY, BURLA, ODISHA

Department of Production Engineering

Mid Semester Examination-September 2015

Semester -3rd | Time-2hrs

Subject-Basic Manufacturing Process | Full Marks-20

(Answer any four including Q NO.1.)

Q NO.1 [1×5]

(a) What are the functions of flux?

(b) What are the functions of coating?

(c) Write down different types of defects in welding.

(d) What is the necessity of Non-Fusion welding?

(e) Explain direct current straight polarity & direct current reverse polarity in arc welding.

Q NO.2 [2.5×2]

(a) Explain oxy-acetylene gas welding process.

(b) Discuss different types of flame in oxy-acetylene gas welding process.

Q NO.3 [2.5×2]

(a) What is weldability? Discuss the factors that affect weldability.

(b) Write basic principle of resistance spot welding.

Q NO.4 [2.5×2]

(a) Write a short note on Thermit welding.

(b) Explain the process of friction welding. What are the advantages of this process?

Q NO.5 [2.5×2]

(a) Explain principle of TIG welding and its limitation.

(b) Write down advantages & limitations of MIG welding.

Q NO.6 [2.5×2]

(a) Explain sub-merged arc welding process and its advantages.

(b) Discuss soldering and brazing operation.

B.Tech-3

BMP

Set-4

Full Marks : 70

Time : 3 hours

Answer **Q. No. 1** and any **five** from the rest

The figures in the right-hand margin indicate marks

1. Answer in brief the following : 2×10

(*i*) Effects of moisture and clay on the green strength and permeability of moulds.

(*ii*) Why both jolting and squeezing are preferred rather than only jolting or squeezing for making a mould ?

(*iii*) Principle of induction melting.

(*iv*) Speed of rotation in a centrifugal casting process.

(*v*) Principle of vacuum degasification of liquid metals.

(*vi*) Principle of oxy-fuel cutting of metals.

(vii) Principle and application of thermit welding.

(viii) Furnace brazing.

(ix) Tool layout in a capstan lathe.

(x) Methods of taper turning in a lathe.

2. (a) Discuss with the help of a flow diagram the steps involved in making a product by the casting process. 5

(b) What are the differences between a pattern and the final casting ? Justify your answer. 5

3. (a) Name the various zones that are found in a cupola furnace. What are the functions of the oxidation and reduction zones ? 2 + 3

(b) What constitutes the 'charge material in cupola' ? In which sequence are they charged ? 3 + 2

4. (a) What is meant by 'investment casting' ? Discuss the basic steps of the process. 2 + 3

(b) Compare shell moulding with dry sand moulding. 5

5. (a) Define 'arc welding'. Can arc welding be done under water ? Explain your answer. 2 + 3

(b) Compare the functions of the following types of welding power sources :

(i) ac versus dc 2

(ii) Constant voltage versus constant current. 3

6. (a) Enumerate submerged arc welding process. 5

(b) Discuss the reasons for the popularity of laser beam welding process. 5

7. (a) Write a short note of ultrasonic welding. 5

(b) Describe the principle of indexing used in a milling machine. 5

8. (a) How are grinding wheels specified ? 5

(b) Describe a process for finishing a through hole made by a drilling process.
