Printed Pages - 3 NME - 301

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2012246 Roll No. | | | | | | | | | |

B.TECH.

Regular Theory Examination (Odd Sem-III), 2016-17

MATERIALSCIENCE

Time : 3 Hours *Max. Marks : 100*

SECTION - A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (10×2=20)

a) Define Crystal structure

b) What do you mean by Miller Indices?

c) Define a alloy.

d) Name some of the methods used for non destructive testing.

e) What are the different types of case hardening?

f) How is cast iron produced?

g) State some applications of dielectric material.

h) What is a semiconductor?

i) Name any two polymers and state their applications

j) State the advantages of nanomaterials.

SECTION - B

Note : Attempt any 5 questions from this section. **(5×10=50)**

2. With the help of neat sketch explain different types of crystal structure.

3. Enumerate the various atomic models proposed by scientist over the last few decades.

4. Draw the Iron-carbon equilibrium diagram and explain the features.

5. Explain the various steps involved in specimen preparation with a help of flow diagram.

6. Give the composition, properties and uses of any three types of cast iron.

7. What is the difference between hard and soft magnetic material? What are the characteristic and application of soft magnetic material?

8. Write note on ceramic material.

9. Classify composite material and explain them briefly.

SECTION - C

Note: Attempt any 2 questions from this section **(2×15=30)**

10. a) Enumerate physical and mechanical properties of copper. **(7)**

b) Why aluminum alloys are so important in modern engineering practices? Justify your answer with suitable example **(8)**

11. a) Explain with necessary formulations, the procedure to be adopted in the impact test. **(8)**

b) How thermoplastic differ from thermosetting plastics ? **(7)**

12. Distinguish between intrinsic and extrinsic semiconductor. Explain Type I and Type II superconductors with their application.