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Question Paper Code: 55702

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2020

Fifth Semester

Mechanical Engineering

15UME502 – ENGINEERING MATERIALS AND METALLURGY

(Regulation 2015)

Duration: One hour

Maximum: 30Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. First material known to be used by man CO1- R
(a) Cotton (b) Bronze (c) Iron (d) Rock
2. Pearlite is a combination of CO1- U
(a) 6.6.%carbon & 93.33% iron (b) 13% ferrite & 87% cementite
(c) 13% cementite & 87% ferrite (d) 13%carbon & 87% ferrite
3. The process of providing zinc coating on steel pipes is known as CO2-R
(a) Pickling (b) Spheroid sing (c) Cold working (d) Galvanizing
4. In, Carburizing process diffusing element is CO2- R
(a) Nitrogen (b) Boron (c) Carbon (d) All of the above
5. Tensile test can be performed on CO3- U
(a) Impact testing machine (b) Universal testing machine
(C) Rockwell tester (d) Brignell tester
6. Which one of the following is mechanical property of material? CO3- R
(a) Stiffness (b) Coercive force (c) Conductivity (d) Molecular weight
7. In white cast irons, carbon present as _____ CO4- U
(a) Graphite flakes (b) Graphite nodules
(c) Cementite (d) Carbon does not exist
8. Which one of the following is the nonferrous metal? CO4- R
(a) Iron (b) Zinc (c) Steel (d) Wood

9. Natural polymer is CO5- U
(a) Glucose (b) Teflon (c) PVC (d) Polyamide

10. Phenol and formaldehyde are polymerized to produce CO5- U
(a) Bakelite (b) Polyester (c) PVC (d) Polyethylene

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Classify peritectic and peritectoid reactions with neat sketch CO1- Ana (8)
12. Distinguish isothermal diagram (TTT diagram) with CCT diagram CO2- U (8)
relevant sketch.
13. Explain the mechanism of plastic deformation by slip and twinning CO3- U (8)
with neat sketch.
14. Discuss the composition, properties, application of different types of CO4- U (8)
cast irons.
15. Discuss the properties and application of the following polymeric CO5- U (8)
materials PMMA,ABS,PPO and PVC polymers.