Reg. No. : | | | | | | | | | | |

Question Paper Code: 92003

B.E./B.Tech. DEGREE EXAMINATION, AUGUST 2021

Second Semester

19UPH203 – MATERIAL PHYSICS

(Common to Mechanical & Chemical Engineering)

(Regulation 2019)

Duration: 1.45 hrs Maximum: 50 Marks

PART A (Answer Any Ten) 10*2 = 20 Marks

1.	Name the four strengthening mechanisms of metals.	CO1 – U
2.	Define work hardening of metals.	CO5 – U
3.	Explain the term Universal Testing Machine.	CO6 – U
4.	What is hardness?	CO6 – U
5.	What is the purpose of tensile test?	CO5 – U
6.	Define coefficient of thermal conductivity and mention its unit.	CO2 – U
7.	What is thermal resistance?	CO2 –U
8.	Explain the concept of heat exchangers?	CO2 – U
9	What are the uses of Newton's law of cooling?	CO2 – U
10	What are the types of metallic glasses?	CO3 – U
11	Define the term shape memory alloys?	CO3 – U
12	What is pseudo elasticity?	CO3 – U
13	Give the structural classification of ceramics.	CO1 – U
14	What are the types of carbon nanotube structure?	CO6 – U
15	Compare Top Down process and Bottom-Up process.	CO2 – U

PART B (Answer Any Three) 3*10 = 30 Marks

16.	Explain tensile test. What are the factors measured from this test.	CO5-U	(10)
17	How hardness of a material is measured using brinell hardness test. Give its advantages and limitations.	CO1-App	(10)
18	Describe Searle's method to determine thermal conductivity of metals with relevant theory .	CO2- Ana	(10)
19	Explain the preparation, types, properties and application of metallic glasses	CO3- U	(10)
20	Explain the carbon nanotubes with properties and Applications.	CO4- U	(10)