A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 96702

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2022

Sixth Semester

Mechanical Engineering

19UME602 - SMART MANUFACTURING

(Regulations 2019)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. What is the full form of IoT? CO1- U

   (a) Internet of Things (b) Idea of Things

   (c) Integration of Things (d) Institute of Things

2. When did the 3rd industrial revolution prompted? CO1- U

   (a) 1950 (b) 1960 (c) 1970 (d) 1980

3. which of the following is latest technology CO2- R

   (a) Manual Prototyping (b) Virtual Prototyping

   (c) soft prototyping (d) Rapid Prototyping

4. Which one of the process is subtractive prototyping? CO2- R

   (a) CNC (b) AWJM (c) AJM (d) Stereo lithography apparatus

5. Which one of the following is the solid based additive manufacturing system? CO3- U

   (a) Stereo lithography (b) Solid ground curing

   (c) Fused deposition modeling (d) Electron beam melting

6. Processes in which we turn raw materials into standard stock. CO3- U

   (a) secondary process (b) primary process (c) subtractive process (d) Machining

7. Robot is derived from Czech word CO4- U

   (a) Robota (b) Rotor (c) Rotation (d) Revolution

8. Robot is a CO4- U

(a) Programmable (b) zeroth pass (c) Both a & b (d) ALL of the above

9. Which of the following is a contact type of automated inspection method? CO5- U

(a) Inspection probe (b) Laser scanning

(c) Electric field (d) All of the above

10. Artificial Intelligence is about___. CO5- U

(a) Playing a game on Computer

(b) Making a machine Intelligent

(c) Programming on Machine with your Own Intelligence

(d) Putting your intelligence in Machine

PART – B (5 x 2= 10 Marks)

11. Classify drivers of industry 4.0 and explain in detail CO1- U

12. Classify the AM process? CO2- U

13. Write the products of FDM? CO3- U

14. List out the few robot applications area in manufacturing. CO4- U

15. Explain image enhancement CO5- U

PART – C (5 x 16= 80 Marks)

16. (a) Demonstrate Cyber physical systems CO1- U (16)

Or

(b) Illustrate difficult and challenges in adaption of industry 4.0 CO1- U (16)

17. (a) Compare the liquid based and solid based AM systems. CO2- Ana (16)

Or

(b) Investigate the recoating issues in SLA. CO2-App (16)

18. (a) Explain the effect of surface deviation in LENS? CO3- U (16)

Or

(b) Write the working principles, details of process of Electron Beam Melting. CO3- U (16)

19.	(a)	Explain about Artificial Intelligence and Robotics	CO4- App	(16)
		Or		
	(b)	Identify and discuss about social and labor issues related to robotic applications in manufacturing industry number of teeth on all the gears and their speeds.	CO4- App	(16)
20.	(a)	Discuss image segmentation based on various thresholding techniques.	CO5- App	(16)
		Or		
	(b)	Explain histogram and give its equalization	CO5- App	(16)