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

Question Paper Code: 59G51

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

Interdisciplinary

Mechanical Engineering

15UGM951 – SMART MANUFACTURING

(Common to Information Technology)

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Industry 1.0 related with _____ CO1- R

   (a) Electrical drives (b) Steam engine

   (c) Cloud computing (d) All of the above

2. Steam engine related with_____ CO1- R

   (a) Industry 1.0 (b) Industry 2.0 (c) Industry 3.0 (d) Industry 4.0

3. Advantages of Material Jetting is the ability to produce, CO2- R

   (a) Multi-material products (b) Multi-color products

   (c) Both (a) and (b) (d) None of the above

4. Melting source of additive manufacturing is/are _____. CO2- R

   (a) Electron Beam (b) Laser Beam (c) Both (a) and (b) (d) None of the above

5. The main objective(s) of Industrial robot is to CO3- R

   (a) To minimize the labour requirement (b) To increase productivity

   (c) To enhance the life of production machines (d) All of the above

6. Industrial Robots are generally designed to carry which of the following coordinate system(s). CO3- R

(a) Cartesian coordinate systems (b) Polar coordinate systems

(c) Cylindrical coordinate system (d) All of the above

7. What is the size of the IPv6 addressed? CO4- R

(a) 32 bits (b) 64 bits (c) 128 bits (d) 256 bits

8. The application of Lights controlled by your Smartphone is CO4- R

(a) Yes are IoT (b) Not IoT (c) Sensor (d) None of these

9. Which cloud supports specific workloads ____ CO5- R

(a) Private cloud (b) Public cloud (c) Hybrid cloud (d) All of the above

10. In Amazon EC2 cloud service is based on _____ hypervisor CO5- R

(a) VMware (b) Exsi (c) Xend (d) None of the above

PART – B (5 x 2= 10Marks)

11. List the elements of smart factory. CO1- R

12. List the advantages of additive manufacturing. CO2- U

13. Write about robot applications in modern manufacturing industry. CO3- U

14. List the IoT Manufacturing applications. CO4- R

15. What are stages involved in evolution of cloud computing? CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Classify drivers of industry 4.0 and explain in detail. CO1-U (16)

Or

(b) List the new technologies for future manufacturing and explain any two in detail. CO1-U (16)

17. (a) Explain about additive manufacturing process and discuss about any one of AM process with its application. CO2-U (16)

Or

(b) Describe about 'Powder fusion mechanism' with neat sketch and mention its advantages and disadvantages. CO2-U (16)

18.	(a)	Explain about Artificial Intelligence and Robotics.	CO3-U	(16)
		Or		
	(b)	Describe about robotic applications in manufacturing industry and discuss in detail.	CO3-U	(16)
19.	(a)	What effect will the internet of things (IoT) have on our daily lives? Explain with any one example of smart device.	CO4- U	(16)
		Or		
	(b)	What effect will the internet of things (IoT) have in healthcare? Explain with any one example of smart device.	CO4- U	(16)
20.	(a)	Explain in detail about the architecture of workflow management systems for cloud.	CO5- Ana	(16)
		Or		
	(b)	Briefly explain about how the cloud can be utilized for workflow execution.	CO5- Ana	(16)