Q.17 Describe the basic steps involved in additive manufacturing (AM) from uploading CAD files to producing a 3D-printed object. (CO3)

Q.18 Mention limitations or challenges associated with Direct Energy Deposition. (CO4)

Q.19 Explain the principle of Material Jetting in additive manufacturing. (CO4)

Q.20 List three key parameters that influence the Vat Photo-polymerization process. (CO4)

Q.21 What are the inspection and testing used to inspect 3D printing? Explain any two. (CO5)

Q.22 Why is visual inspection important in assessing the quality of 3D-printed parts? (CO5)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Compare the advantages and limitations of Additive Manufacturing with conventional manufacturing methods. (CO3)

Q.24 Describe the principle, technologies, and potential benefits of Material Extrusion in additive manufacturing. (CO4)

Q.25 Write short notes on (CO5)

a) 3D printing Simulation

b) Surface roughness measurement

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3rd Sem / Automation & Robotics
Subject : Auto CAD and 3 D Printing

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 What does UCS stand for in Auto CAD? (CO2)

a) User Coordinate System

b) Universal Coordinate System

c) User control System

d) Universal control System

Q.2 Which command is used to create a solid model from a 2D drawing in AutoCAD? (CO1)

a) EXTRUDE b) LINE

c) SPLINE d) FILLET

Q.3 What is the core process of Additive Manufacturing? (CO3)

a) Subtractive material removal

b) Layer-by-layer addition of material

c) Injection molding

d) Casting

Q.4 What is the principle behind Vat Photo-polymerization in additive manufacturing? (CO4)

a) Layering powdered material

b) Solidifying liquid resin with UV light

c) Melting and fusing metal powders

d) Extruding molten plastic

Q.5 What is the primary principle of Direct Energy Deposition in additive manufacturing? (CO4)

a) Layering powdered material

b) Extruding molten plastic

c) Sintering powdered materials

d) Melting and fusing metal powders with a focused energy source

Q.6 In terms of material waste, how does Additive Manufacturing compare to conventional manufacturing? (CO3)

a) It generates more waste

b) It generates less waste

c) Both generate similar amounts of waste

d) It depends on the material used

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Direct Energy Deposition involves melting and fusing metal powders with a focused _____ source. (CO4)

Q.8 Full form of STL is_____ (CO2)

Q.9 Additive manufacturing uses much less material than other subtractive manufacturing processes. (T/F) (CO3)

Q.10 The binding material used in inkjet 3D printing is in the form of _____ (CO3)

Q.11 Write any two defects in 3D printing. (CO5)

Q.12 Write full form of SLA technology. (CO2)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Explain the difference between the UCS and WCS in CAD. (CO2)

Q.14 Describe the key components of the AutoCAD user interface. (CO1)

Q.15 Name any four applications of 3D printing? (CO3)

Q.16 Differentiate between commercial and open-source 3D printing software. (CO3)