**21AU383**

USN ☐☐☐☐☐☐☐☐☐☐ | **Question Paper Version : A**

## Third Semester B.E./B.Tech. Degree Examination, Dec.2023/Jan.2024
## Additive Manufacturing

Time: 1 hr.]　　　　　　　　　　　　　　　　　　　　　　　[Max. Marks: 50

### INSTRUCTIONS TO THE CANDIDATES

1. Answer all the **fifty** questions, each question carries one mark.

2. Use only **Black ball point pen** for writing / darkening the circles.

3. **For each question, after selecting your answer, darken the appropriate circle corresponding to the same question number on the OMR sheet.**

4. Darkening two circles for the same question makes the answer invalid.

5. **Damaging/overwriting, using whiteners** on the **OMR** sheets are strictly prohibited.

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1.　SLS stands for _____
   a) Selective Laser sintering
   b) Selective lithographic sintering
   c) Separated light sintering
   d) None of the above

2.　Which file type is most commonly exported from CAD software
   a) SLDRT　　　　b) JPG　　　　c) STL　　　　d) X3G

3.　The alternative name for rapid prototype is _____
   a) Additive manufacturing　　　　b) Layer manufacturing
   c) Direct CAD manufacturing　　　　d) All of these

4.　Choose the correct sequence to generate prototype _____
   a) 3D CAD data – CAD solid model - STL file – RP prototype
   b) CAD solid model – 3D CAD data – RP prototype – STL file
   c) STL file – 3D CAD data – CAD solid model – RP prototype
   d) 3D CAD data – STL file – CAD solid model – RP prototype

5.　STL is elaborated as _____
   a) Straight – lithography　　　　b) Streto – lithography
   c) Stereo – lithography　　　　d) Straight – lipsography

6.　Which of the following is not a subtractive process
   a) Milling　　　　b) Stereo – lithography
   c) Sawing　　　　d) EDM

7. Which of the following is least important in design during rapid prototyping?
   a) Machine size      b) Tolerance      c) Material      d) CAD software

8. A computer Module of a part design on a CAD system is called _____
   a) Computer prototype      b) Geometric prototype
   c) Solid prototype      d) Virtual prototype

9. Which of the following is not an example of additive manufacturing
   a) FDM      b) SLS      c) EMB      d) Injection moulding

10. Which of the following is one of the design process steps
    a) Build      b) Concept
    c) Pre-processing      d) Transfer to machine

11. STL file format is represented by interaction of _____
    a) Lines and hexagons      b) Lines and rectangles
    c) Lines and triangles      d) Lines and circles

12. What is the format for the prototyping machine file
    a) .prt      b) .slt      c) .stL      d) .iges

13. STL files contains _____
    a) Mass properties of the model      b) Geometrical data
    c) drawing data      d) All of these

14. Which file format cannot be converted into STL file format
    a) .prt      b) .slt      c) .dwg      d) .stp

15. Process of converting STL file model into layers is called _____
    a) Chopping      b) Slicing      c) Cutting      d) Trimming

16. Which of the following is not liquid – based rapid prototype system
    a) SLA      b) LOM      c) SGC      d) SOUP

17. In the _____ process, one starts with a single block of solid material larger than the final size of the desired object and material is removed until the desired shape is reached
    a) Subtractive process      b) Additive process
    c) Formative process      d) All of these

18. Which of the following is the first step of the rapid prototyping process
    a) 3D Modeling      b) Data conversion      c) Building      d) Post - processing

19. The STL files translate the part geometry from a CAD system to _____
    a) CNC machine      b) CMM machine      c) RP machine      d) CAPP machine

20. Which CAD software cannot be used to create data for the prototyping machine _____
    a) CRED      b) CATIA
    c) NX unigraphics      d) Adobe illustrator

21. Which of the following is typically the most expensive type of 3D printer
    a) SLA      b) SLM      c) FDM      d) None of these

22. Which of the process, the input material is in powder form
    a) LOM      b) SLS      c) FDM      d) MJM

23. Which one of the rapid prototyping process uses a photosensitive liquid polymer as the starting material
a) Droplet Deposition Manufacturing
b) Used – deposition Modeling
c) Laminated-object-Manufacturing
d) Stereolithography

24. LENS stands for _____
a) Laser – Engineered Net Shaping
b) Laser – Emitted Net Shaping
c) Laser – Elicited Net Shaping
d) None of these

25. LENS builds components in an additive manner from _____
a) Photo – polymer liquid
b) Sheet of paper
c) Powdered metals
d) Metal wires

26. Stereolithography is also called photopolymerization
a) True
b) False

27. Most widely used, rapid prototyping technology in the current material addition is _____
a) Ballistic particle manufacturing
b) Selective Laser sintering
c) Solid ground curing
d) Stereo-lithography

28. Which one of the following rapid prototype technologies uses molten materials the starting material
a) Three-Dimensional Printing
b) Fused –Deposition Modelling
c) Stereo-lithography
d) Selective Laser Sintering

29. What material is not used in 3D printing
a) Nylon
b) ABS
c) PLA
d) PVC

30. Which of the following process is suitable for making injection modeling tools
a) SL
b) SLS
c) EBM
d) FDM

31. Full form FDM is _____
a) Fixed Development Modelling
b) Fusion Development Modelling
c) Fused Deposition Modelling
d) Focused Deposition Modelling

32. What printer melts metal _____
a) SLS
b) SLM
c) SLA
d) FDM

33. Which of the following is typically the cheapest type of 3D printer
a) FDM
b) SLA
c) Power-based
d) SLM

34. Which material is not available for LOM process
a) Paper
b) Plastic
c) Metal
d) Glass

35. In fused deposition modelling the raw material is used in the form of
a) Wax
b) Wire
c) Powder
d) All of these

36. Following RP technologies uses solid sheet stock as the starting material
    a) Droplet Deposition manufacturing
    b) Fused-deposition modelling
    c) Laminated object manufacturing
    d) Selective Laser Sintering

37. Which of the process uses extrusion concept
    a) SLA      b) SLS      c) FDM      d) MJM

38. In FDM, molten material inside a hot chamber does not extrude through a nozzle
    a) True      b) False

39. Which of the following RP system is not developed by 3D systems _____
    a) SLS      b) MJM      c) PLT      d) SLA

40. Which one of the processes is not using a Laser _____
    a) LOM      b) SLA      c) SLS      d) FDM

41. Electron beam generation is a much more efficient process than laser beam generation _____
    a) True      b) False

42. Direct Metal Deposition (DMD) process uses _____
    a) Metallic powders      b) Metal wires      c) Either A or B      d) Neither A and B

43. Electron Beam Melting (EBM) was developed by _____
    a) Chalmers University of Technology, Sweden
    b) Optomec Inc.
    c) University of Texas, Austin
    d) None of the above

44. Direct metal deposition uses _____
    a) Lasers      b) Sensors      c) Power metallurgy      d) All of these

45. EBM is not very accurate compared to SLA, SGC _____
    a) True      b) False

46. Which one of the following is not extrusion based RP systems
    a) FDM      b) 3D printing      c) LOM      d) EBM

47. Direct metal deposition uses _____
    a) Two-axis tables      b) Three-axis tables      c) Four-axis tables      d) Five-axis tables

48. The process suitable for the production of parts, molds and dies that are made out of tool steel is _____
    a) SLS      b) FDM      c) MDM      d) LOM

49. Ballistic-particle manufacturing is another name for one of the following RP technologies __
    a) Droplet Deposition Manufacturing
    b) Fused-deposition manufacturing
    c) Laminated-object manufacturing
    d) Selective Laser sintering

50. Rapid prototyping technologies one never used to make production parts
    a) True      b) False

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