Reg. No.															

B.Tech/ M.Tech (Integrated) DEGREE EXAMINATION, MAY 2024
Third Semester

21ASC207T – AIRCRAFT MATERIALS AND PRODUCTION TECHNIQUES
(For the candidates admitted from the academic year 2022-2023 onwards)

Note:
(i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
(ii) **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours Max. Marks: 75

PART – A (20 × 1 = 20Marks)
Answer **ALL** Questions

	Marks	BL	CO
1. The main structural member of the wing is known as _____. (A) Skin (B) Spar (C) Rib (D) Longerons	1	1	1
2. Which alloys have excellent mechanical properties and high resistance to corrosion and oxidation? (A) Aluminium alloy (B) Magnesium alloy (C) Super alloy (D) Cymbal alloy	1	1	1
3. In _____ construction, the entire skin can resist loads. (A) Semimonocoque (B) Monocoque (C) Truss structure (D) Framed structure	1	1	1
4. Which one of the following materials is not a fibre-metal laminates? (A) GLARE (B) ARALL (C) GFRP (D) CARALL	1	1	1
5. The duration of a time of a material is held at the proper temperature is known as (A) Marinating period (B) Quenching period (C) Soaking period (D) Heating period	1	1	2
6. _____ is a type of heat treatment applicable to ferrous metals only. (A) Normalizing (B) Annealing (C) Quenching (D) Hardening	1	1	2
7. Case hardening is also known as _____. (A) Strain hardening (B) Surface hardening (C) Core hardening (D) Age hardening	1	1	2
8. _____ is also called as gas-cyaniding. (A) Carburising (B) Nitriding (C) Carbonitriding (D) Cyaniding	1	1	2

9. In a split pattern, two parts are assembled together in correct position by _____. 1 1 3

(A) Dowel pins (B) Safety pins
(C) Pin head (D) Mount pins

10. The purpose of riser system is to _____. 1 1 3

(A) Avoid shrinkage (B) Induce shrinkage
(C) Induce turbulence (D) Trap gases

11. _____ is required in centrifugal casting. 1 1 3

(A) Plastic core (B) Hollow core
(C) No core (D) Solid core

12. Cereal, resins, drying oils, molasses are examples of _____. 1 1 3

(A) Organic binder (B) Inorganic binder
(C) Molding sand (D) Pattern

13. After impression-die forging, the flash is removed by _____ process. 1 1 4

(A) Fullering (B) Scissoring
(C) Trimming (D) Cogging

14. _____ is a special type of closed die forging process. 1 1 4

(A) Coining (B) Cogging
(C) Fullering (D) Swagging

15. In which forging process, heading of bolts and nails are performed? 1 1 4

(A) Piercing (B) Embossing
(C) Upsetting (D) Coining

16. The edge of the sheet metal is bent into the cavity of a die is known as _____. 1 1 4

(A) Embossing (B) Beading
(C) Trimming (D) Flanging

17. Which type of surface is created in facing operation. 1 1 5

(A) Taper (B) Cylindrical
(C) Contour (D) Flat

18. _____ is the angle between the tool face and a line perpendicular to the cutting point of the work piece surface. 1 1 5

(A) Rake angle (B) Flank angle
(C) Release angle (D) Shear angle

19. The grooves in a twist, drill, which provides lip or cutting edges is known as _____. 1 1 5

(A) Body (B) Knee
(C) Flutes (D) Neck

20. Slotted link of crank and slotted lever mechanism is known as _____. 1 1 5

(A) Crank (B) Lever
(C) Rocker (D) Roller

PART – B (5 × 8 = 40 Marks)

Answer **ALL** Questions

		Marks	BL	CO
21. a.	Explain the properties and uses of fibre metal laminates and super alloys.	8	2	1
	(OR)			
b.	Explain the materials used in jet engines with neat sketch.	8	2	1
22. a.	Explain the stages of heat treatment in detail.	8	2	2
	(OR)			
b.	Explain the heat treatment process of titanium alloy in detail.	8	2	2
23. a.	Explain the types of extrusion in detail with a neat sketch.	8	2	4
	(OR)			
b.	Explain the types of shearing dies in sheet metal processing in detail with a neat sketch.	8	2	4
24. a.	Explain investment casting in detail with a neat sketch.	8	2	3
	(OR)			
b.	Explain centrifugal casting in detail with a neat sketch.	8	2	3
25. a.	Explain the components of slotter machine in detail with a neat sketch.	8	2	5
	(OR)			
b.	Explain quick return mechanism in detail with a neat sketch.	8	2	5

PART – C (1 × 15 = 15 Marks)

Answer **ANY ONE** Question

		Marks	BL	CO
26.	Explain the materials used in Helicopter structures in detail with a neat sketch.	15	3	1
27.	Explain various sheet metal operations in detail with a neat sketch.	15	3	1

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