

**Gandhi Institute of Engineering and Technology University, Odisha, Gunupur**  
**(GIET University)**

B. Tech (Second Semester - Regular) Examinations, May 2026

**25FYPC12002 - Aircraft Hardware**

**(Aeronautical Engineering)**



Time: 3 hrs

Maximum: 60 Marks

**Answer ALL questions**

**(The figures in the right hand margin indicate marks)**

**PART – A**

**(2 x 5 = 10 Marks)**

Q.1. Answer **ALL** questions

|                                                    | CO # | Blooms Level |
|----------------------------------------------------|------|--------------|
| a. State one limitation of composite materials.    | CO1  | K1           |
| b. Name one application of fiberglass in aircraft. | CO1  | K1           |
| c. What is the purpose of fabric tension?          | CO2  | K2           |
| d. Define solid rivet.                             | CO3  | K1           |
| e. What is a self-tapping screw?                   | CO3  | K1           |

**PART – B**

**(10 x 5 = 50 Marks)**

Answer **ALL** the questions

|                                                                                               | Marks | CO # | Blooms Level |
|-----------------------------------------------------------------------------------------------|-------|------|--------------|
| 2. a. Describe tab washers and their applications.                                            | 05    | CO4  | K2           |
| b. Describe different types of resins used in aircraft composites.                            | 05    | CO2  | K2           |
| (OR)                                                                                          |       |      |              |
| c. Explain differences between natural and synthetic aircraft fabrics.                        | 05    | CO2  | K3           |
| d. Describe methods of maintaining fabric covering.                                           | 05    | CO2  | K2           |
| 3.a. Describe tensile strength requirements of aircraft fabric.                               | 05    | CO2  | K2           |
| b. Explain classification of fasteners used in aircraft structures.                           | 05    | CO3  | K2           |
| (OR)                                                                                          |       |      |              |
| c. Describe corrosion effects on fasteners.                                                   | 05    | CO3  | K2           |
| d. Explain differences between coarse and fine threads.                                       | 05    | CO3  | K3           |
| 4.a. Describe installation of tab washers.                                                    | 05    | CO4  | K3           |
| b. Explain differences between temporary and permanent fasteners.                             | 05    | CO4  | K3           |
| (OR)                                                                                          |       |      |              |
| c. Explain advantages of flush rivets in aircraft design.                                     | 05    | CO4  | K2           |
| d. Describe rivet spacing and edge distance requirements.                                     | 05    | CO4  | K2           |
| 5.a. Describe safety precautions while working with fasteners.                                | 05    | CO3  | K3           |
| b. Describe locking feature of castellated nuts.                                              | 05    | CO3  | K2           |
| (OR)                                                                                          |       |      |              |
| c. Describe the procedure for removal and replacement of a damaged rivet.                     | 05    | CO4  | K3           |
| d. Describe the step-by-step method of installing an aircraft Jo bolt for a structural joint. | 05    | CO4  | K3           |
| 6.a. Describe the type of self-locking bolt in aircraft structure.                            | 05    | CO4  | K3           |
| b. Describe the material composition and application of airlock fastener in aircraft.         | 05    | CO4  | K3           |
| (OR)                                                                                          |       |      |              |
| c. Describe inspection techniques for riveted joints.                                         | 05    | CO4  | K3           |
| d. Describe safety precautions during riveting operations.                                    | 05    | CO4  | K3           |

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