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Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Aerospace Engg.) (2012 Onwards) (Sem.-3)

**INTRODUCTION TO AEROSPACE ENGINEERING**

Subject Code : ASPE-202

M.Code : 70904

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A**

1. Answer briefly : (2×10=20)

- (a) Explain the salient features of troposphere.
- (b) Explain briefly the early development of biplanes.
- (c) Explain the phenomenon of lift generation.
- (d) Define geometric angle of attack and absolute angle of attack using sketches.
- (e) List basic navigation instruments of a typical medium range transport aircraft.
- (f) List and explain the function of primary control surfaces.
- (g) Classify aircrafts based on wing planforms.
- (h) List the uses of stainless steel in aviation.
- (i) What do you mean by 'geodesic' construction?
- (j) Write the functions of wing ribs. Sketch a typical wing rib.



**SECTION-B**

2. Explain the differences between 'monocoque' and 'semi-monocoque' structures using sketches. (5)
3. Write a note on 'rocket propulsion' with the help of sketch. (5)
4. Define chord line, camber, camber line and zero lift line of an unsymmetrical airfoil with the help of a neat and labelled diagram. (5)
5. What do you mean by space vehicles? Explain the development of space vehicles. (2,3)
6. What are metallic and non-metallic materials? Distinguish between the two. (2,3)

**SECTION-C**

7. (a) Explain V-N diagram for a typical fighter aircraft with the help of a neat & labelled diagram. (4)  
(b) Write a short note on 'Reinforced & Honeycomb Structures'. (6)
8. (a) Discuss the usage of electronics in aviation. (6)  
(b) Distinguish between 'Bluff bodies' and 'Stream-lined body'. (4)
9. (a) Explain the principles of navigation. (4)  
(b) Explain the requirements for orbital, planetary and atmospheric entry missions. (6)

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**