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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 :**

- (a) List various layers of Earth's atmosphere.
- (b) What do you mean by 'Biplanes'? In which type of aircraft are they used?
- (c) What do you mean by reusable space vehicles? Give example.
- (d) Define geometric angle of attack and absolute angle of attack using sketches.
- (e) What do you mean by navigation? Give four examples.
- (f) What are primary control surfaces and about which axis the motion is produced when these control surfaces are deflected?
- (g) Classify aircraft based on wing configuration.
- (h) Explain the salient features of Wright Flyer.
- (i) What do you mean by 'monocoque' construction? Which is the main load bearing component in case of monocoque construction?
- (j) Explain the functions of stringers and longirons.

SECTION-B

2. Define lift and drag. Explain the significance of L/D ratio with the help of sketch. (3, 2)
3. What do you mean by advanced propulsion? List various applications. (2, 3)
4. Define chord line, camber, camber line and zero lift line of an unsymmetrical airfoil with the help of a neat and labeled diagram. (5)
5. Give a brief historical review of space flights. (5)
6. Define composites. Distinguish composites from metallic materials. (2, 3)

SECTION-C

7.
 - a) Classify and discuss essential features of propulsion systems for aviation. (6)
 - b) Write a short note on 'Honeycomb Structures'. (4)
8. Write notes on the following :
 - a) V- n diagram with the help of a neat & labeled sketch. (5)
 - b) Bluff bodies v/s Stream-lined body. (5)
9. What do you mean by navigation and guidance? Explain the requirements for orbital, planetary and atmospheric entry missions. (4, 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.