Roll No. ☐☐☐☐☐☐☐☐☐☐☐☐   **Total No. of Pages : 02**

Total No. of Questions : 09

B.Tech.(Aerospace Engg.) (2012 Batch)   (Sem.–7,8)

AEROELASTICITY
Subject Code : ASPE-402
M.Code : 72565

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

Q1. Write briefly :

a) Control effectiveness

b) Influence coefficients

c) Aileron reversal

d) Single degree of freedom system

e) Aeroelasticity

f) Critical flutter speed

g) Model scale factors

h) Buffeting

i) Wing torsional divergence

j) Stall flutter

SECTION-B

Q2   Explain flutter model similarity laws.

Q3   Explain the phenomenon of aileron reversal for two-dimensional case.

Q4   How can you prevent and control flutter?

Q5   Explain the determination of critical flutter speed.

Q6   Explain dynamic aeroelastic model testing.

SECTION-C

Q7   What do you mean by influence functions? Explain the properties of influence functions. Explain 'simplified elastic airplane'.   (3,4,3)

Q8   Explain the following :   (4,3,3)

    a) Destabilizing effects of geometric incidences

    b) Supersonic panel flutter

    c) Swept wing divergence

Q9   Write notes on the following :   (2 × 5)

    a) Strip theory

    b) Measurement of structural flexibility

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.