

562**April 2018**

Time – Three hours
(Maximum Marks: 75)

*[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory.
Answer any FOUR questions from the remaining in each PART – A
and PART – B*

(2) Answer division (a) or division (b) of each question in PART – C.

*(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and
10 marks in PART – C.]*

PART – A

1. What is meant by ISA?
2. Define thrust.
3. State the use of leading edge devices.
4. List out the types of wind tunnel.
5. State mach number.
6. Define up wash.
7. What is the importance of spoilers?
8. What is meant by subsonic flight?

PART – B

9. State angle of attack.
10. Define the importance of load factor.
11. State the term mass balance.
12. What is meant by fire measurements?
13. List out the factors affecting air flow in engine intake of high speed aircraft.
14. Write the operation and effect of trim tabs.
15. How stall occur in steady flight?
16. Write a short note on lift co-efficient.

[Turn over.....

PART – C

17. (a) Discuss about ISA in detail.
(Or)
(b) (i) List different types of lift augmentation. Explain any one.
(ii) Explain laminar flow and turbulent flow with neat sketch.
18. (a) Discuss in detail about load factor in flight.
(Or)
(b) Derive the equation for lift, drag and thrust for an aircraft.
19. (a) Explain the drag inducing devices in aircraft.
(Or)
(b) Discuss the roll control devices in details with neat sketch.
20. (a) Explain the working principle of open jet wind tunnel.
(Or)
(b) Explain the working method of supersonic wind tunnel.
21. (a) Derive the expression for speed of sound.
(Or)
(b) (i) Discuss about Area rule.
(ii) Write a short note about Transonic flight and Super sonic flight.
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