

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****II B.Tech. II Sem., II Mid-Term Examinations, April – 2014****FLIGHT MECHANICS-I****Objective Exam**Name: \_\_\_\_\_ Hall Ticket No. 

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**Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.****I Choose the correct alternative:**

1. The minimum control speed ,airborne, will be \_\_\_\_\_ than the minimum control speed, ground,  $V_{mcg}$  since the aircraft is not restrained in roll by the contact between the landing gear and the run way [      ]  
(A) Greater                      (B) lesser                      (C) pull up                      (D) equal
2. The distance between the lift – off point and the point at which the screen height is cleared is known as the \_\_\_\_\_ [      ]  
(A) Ground roll              (B) Airborne distance (C) Flare distance              (D) Take off distance
3. \_\_\_\_\_ is defined as the excess power per unit weight [      ]  
(A) Energy height              (B) specific energy              (C) specific excess power              (D) level turn
4. Any change in the specific excess power arising from an increment in either the thrust or the drag will produce either a \_\_\_\_\_ or an acceleration of the aircraft [      ]  
(A) Rate of climb              (B) cruise              (C) take – off              (D) service ceiling
5. An alternative form of data analysis is the power –equivalent weight ,\_\_\_\_\_ method Which is more applicable to aircraft with power – producing engines during propellers [      ]  
(A) True airspeed              (B) speed equivalent weight (C) airspeed                      (D) power producing
6. A dimensional analysis of the forces acting on a body moving through a fluid leads to the well – known group of non- dimensional expressions based on either the velocity or the \_\_\_\_\_ of the flow [      ]  
(A) Reynolds number (B) specific air range (C) specific endurance                      (D) mach number
7. The fuel required for the missions consists of the \_\_\_\_\_ and the reserves [      ]  
(A) Trip fuel                      (B) diversion                      (C) payload                      (D) WAT conditions
8. Flight planning concerns the \_\_\_\_\_ of the aircraft on a particular route at a particular time, under actual WAT conditions [      ]  
(A) Performance estimation                      (B) performance measurement  
(C) performance analysis                      (D) block performance
9. The ratio  $L/W$  is an important factor in turning performance it is defined as the \_\_\_\_\_ [      ]  
(A) Pull up maneuver              (B) thrust to weight ratio              (C) load factor (D) wing loading
10. In the landing phase of the flight the aircraft is on a \_\_\_\_\_ path towards the runway [      ]  
(A) Descending flight              (B) climbing flight              (C) cruising flight              (D) maximum rate of climb

**Cont.....2**

**II Fill in the blanks:**

11. An aircraft can be said to be in \_\_\_\_\_ flight when its flight path is in a continuous change of state and in which there is an inertial force due to acceleration
12. Any method of performance measurement must enable data measured under arbitrary test conditions of weight, altitude (pressure), and temperature (WAT), to be corrected to correspond to the preferred, standard \_\_\_\_\_
13. The two performance characteristics of greatest importance in turning flight are \_\_\_\_\_ and \_\_\_\_\_
14. The climb performance of an aircraft generally needs to be optimized for maximum climb gradient or for maximum climb rate since these criteria are used in the \_\_\_\_\_
15. All conventional aircraft flights start at the point of departure with a take-off and end at the destination with a landing these are known as the \_\_\_\_\_ of the flight.
16. Flight planning concerns the analysis of the performance of the individual aircraft for a particular flight in which the \_\_\_\_\_ and \_\_\_\_\_ are known and the probable operating conditions are well forecast
17. The principle objective of the flight planning is to determine the maximum permissible \_\_\_\_\_
18. The fuel required for each element of the intended flight is derived from \_\_\_\_\_
19. The \_\_\_\_\_ of the aircraft is based on the energy that needs to be absorbed by the landing gear at the maximum design rate of descent at touch down
20. For RTOL, the thrust –to- weight ratio at take-off is usually increased by installing larger engines to provide a greater \_\_\_\_\_

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**Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.****I Choose the correct alternative:**

1. Any change in the specific excess power arising from an increment in either the thrust or the drag will produce either a \_\_\_\_\_ or an acceleration of the aircraft [     ]  
(A) Rate of climb      (B) cruise      (C) take – off      (D) service ceiling
2. An alternative form of data analysis is the power –equivalent weight , \_\_\_\_\_ method Which is more applicable to aircraft with power – producing engines during propellers [     ]  
(A) True airspeed      (B) speed equivalent weight      (C) airspeed      (D) power producing
3. A dimensional analysis of the forces acting on a body moving through a fluid leads to the well – known group of non- dimensional expressions based on either the velocity or the \_\_\_\_\_ of the flow [     ]  
(A) Reynolds number      (B) specific air range      (C) specific endurance      (D) mach number
4. The fuel required for the missions consists of the \_\_\_\_\_ and the reserves [     ]  
(A) Trip fuel      (B) diversion      (C) payload      (D) WAT conditions
5. Flight planning concerns the \_\_\_\_\_ of the aircraft on a particular route at a particular time, under actual WAT conditions [     ]  
(A) Performance estimation      (B) performance measurement  
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6. The ratio  $L/W$  is an important factor in turning performance it is defined as the \_\_\_\_\_ [     ]  
(A) Pull up maneuver      (B) thrust to weight ratio      (C) load factor      (D) wing loading
7. In the landing phase of the flight the aircraft is on a \_\_\_\_\_ path towards the runway [     ]  
(A) Descending flight      (B) climbing flight      (C) cruising flight      (D) maximum rate of climb
8. The minimum control speed ,airborne, will be \_\_\_\_\_ than the minimum control speed, ground,  $V_{mcg}$  since the aircraft is not restrained in roll by the contact between the landing gear and the run way [     ]  
(A) Greater      (B) lesser      (C) pull up      (D) equal
9. The distance between the lift – off point and the point at which the screen height is cleared is known as the \_\_\_\_\_ [     ]  
(A) Ground roll      (B) Airborne distance      (C) Flare distance      (D) Take off distance
10. \_\_\_\_\_ is defined as the excess power per unit weight [     ]  
(A) Energy height      (B) specific energy      (C) specific excess power      (D) level turn

**II Fill in the blanks:**

11. The climb performance of an aircraft generally needs to be optimized for maximum climb gradient or for maximum climb rate since these criteria are used in the \_\_\_\_\_
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17. For RTOL, the thrust –to- weight ratio at take-off is usually increased by installing larger engines to provide a greater \_\_\_\_\_
18. An aircraft can be said to be in \_\_\_\_\_ flight when its flight path is in a continuous change of state and in which there is an inertial force due to acceleration
19. Any method of performance measurement must enable data measured under arbitrary test conditions of weight, altitude (pressure), and temperature (WAT), to be corrected to correspond to the preferred, standard \_\_\_\_\_
20. The two performance characteristics of greatest importance in turning flight are \_\_\_\_\_ and \_\_\_\_\_

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**Answer All Questions. All Questions Carry Equal Marks. Time: 20 Min. Marks: 10.****I Choose the correct alternative:**

1. A dimensional analysis of the forces acting on a body moving through a fluid leads to the well – known group of non- dimensional expressions based on either the velocity or the \_\_\_\_\_ of the flow [      ]  
(A) Reynolds number (B) specific air range (C) specific endurance (D) mach number
2. The fuel required for the missions consists of the \_\_\_\_\_ and the reserves [      ]  
(A) Trip fuel (B) diversion (C) payload (D) WAT conditions
3. Flight planning concerns the \_\_\_\_\_ of the aircraft on a particular route at a particular time, under actual WAT conditions [      ]  
(A) Performance estimation (B) performance measurement  
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4. The ratio L/W is an important factor in turning performance it is defined as the \_\_\_\_\_ [      ]  
(A) Pull up maneuver (B) thrust to weight ratio (C) load factor (D) wing loading
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