

Indian Air Force Aeronautical Engineering Question Paper 2011 Engineering Knowledge Test (EKT) Papers 2010

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1. What mass of lead (sp gr = 11) will weigh as much as 8 gram of iron (Sp gr = 8) when both are immersed in water

- (A) 7.7 gram (B) 8.8 gram
- (C) 10.0 gram (D) 1.1 gram

2. Which of the two forces are important in floating bodies

- (A) inertial, pressure
- (B) buoyancy, gravity
- (C) gravity, inertial
- (D) pressure, viscous

3. A dimensionless number which is a ratio of kinematics viscosity to thermal diffusivity is known as

- (A) Prandtl Number
- (B) Nusselt Number
- (C) Reynold's Number
- (D) Stanton Number

4. Ozone is an

- (A) isomer of oxygen
- (B) allotrope of oxygen
- (C) isobar of oxygen
- (D) isotope of oxygen

5. Within a carburetor the velocity of air is maximum at

- (A) inlet
- (B) outlet
- (C) venture
- (D) does not change within a carburetor

6. A 50 Kg mass is accelerated from rest to 50 m/s. The force on it is

- (A) 500 N
- (B) 2,500 N
- (C) 512 N
- (D) Can not be determined from the given data

7. In vacuum the velocity of light depends on

- (A) none of the following
- (B) frequency
- (C) temperature
- (D) pressure

8. The source of solar energy is

- (A) nuclear fission / fusion
- (B) electromagnetic radiation
- (C) chemical energy

(D) burning of hydrogen

9. The pressure of a real gas is less than the pressure of an ideal gas because of

(A) increase in the number of intermolecular collisions

(B) higher energy possessed by the molecules than the theoretical estimates

(C) inter-molecular forces

(D) finite size of molecules

10. Which of the following is dimensionless

(A) young's modulus of elasticity

(B) stress (C) strain

(D) shear stress

11. Which of the following relations is incorrect One atmospheric pressure is nearly equal to

(A) 1013 bar

(B) 1013250 dynes/cm²

(C) 1.033kgf/cm²

(D) 735 mm of Hg

12. Which of the following is a scalar quantity

(A) velocity of a gear

(B) acceleration of a car

(C) force in friction

(D) area of a triangle

13. The Mach number at inlet of a gas turbine diffuser is 0.3. The shape of the diffuser would be

(A) converging (B) diverging

(C) diverging - converging

(D) converging - diverging

14. For adiabatic expansion with friction through a nozzle, the following remains constant

(A) entropy (B) static enthalpy

(C) stagnation enthalpy

(D) stagnation pressure

15. Separation of flow is caused by

(A) reduction of pressure in the direction flow

(B) decrease in the boundary layer thickness

(C) increase of pressure in the direction of flow

(D) adverse pressure gradient

16. A pilot tube senses

(A) stagnation pressure

(B) average pressure

(C) maximum pressure

(D) velocity head pressure

17. Which of the following materials has the higher value of Poisson' ratio

(A) rubber (B) copper

(C) steel (D) concrete

18. During forced vertex flow

- (A) velocity increases with radius
- (B) velocity decreases with radius
- (C) fluid rotates as a composite solid
- (D) inertial forces are significant

19. Hooke's law is valid within the limits of proportionality. The limit of proportionality depends on

- (A) type of loading
- (B) area of cross section
- (C) type of material
- (D) hardness of material

20. Euler's equation of fluid motion can be integrated when it is assumed that

- (A) the fluid is incompressible
- (B) Bernoulli's equation is satisfied
- (C) flow is rotational
- (D) velocity potential exists and the density is constant