

PROPULSION

1. Jet propulsion engine are classified into _____
(a) 5 (b) 4
(c) 3 (d) 2
2. _____ bypass turbo fan engines are used in subsonic flights.
(a) Medium (b) Low
(c) High (d) None
3. Jet engines works from Newton's law of motion.
(a) True (b) False
4. Turbofans give more efficiency when the speed is _____
(a) Greater (b) Less
(c) Equal (d) None
5. Jet engines have _____ shafts.
(a) Single (b) Multiple
(c) Both (d) None
6. The propulsive efficiency is given by
(a) Work done / propulsive power (b) Propulsive power / work done
(c) Energy input / propulsive power (d) propulsive power / energy input
7. In aircraft propulsion the most widely used engine is _____
(a) Turbojet (b) Turbofan
(c) Turboprop (d) All the mentioned
8. In working condition of turbojet engines, velocity of air entering the engine
(a) Higher than the velocity (b) Lower than the velocity
(c) Equal to the velocity (d) cannot say
9. Gas turbines are used in aircraft propulsion because
(a) They are light (b) They are compact
(c) They have high power (d) All of the mentioned
10. Increasing the bypass ratio of turbofan engines _____ thrust.
(a) Does not affect (b) Decreases
(c) Increase (d) none of the mentioned
11. Which of the following statement is true?
(a) Mass flow rates of gases (b) The pressure at inlet and exit
(c) Both of the mentioned (d) none of the mentioned

12. The thrust developed in turbojet engine is the _____
 (a) Unbalanced force (b) Balanced force
 (c) Both of the mentioned (d) none of the mentioned
13. Rocket propulsion engine are classified into _____
 (a) 7 (b) 3
 (c) 1 (d) 5
14. The effective jet exit velocity from a rocket is 2700m/s. The forward flight velocity is 1350m/s and the propellant consumption is 78.6kg/s. Calculate thrust.
 (a) 212.22 KN (b) 286.43 KN
 (c) 167.89 KN (d) 345.67 KN
15. Propellant flow rate to nozzle exit diameter is 10cm, nozzle exit pressure = 10.02bar, Ambient pressure = 1.013bar, thrust chamber pressure = 20bar, thrust power = 7KN. Determine the jet velocity.
 (a) 3200m/s (b) 1300m/s
 (c) 1400m/s (d) 2400m/s
16. What are the main parts of the rocket engine?
 (a) Thrust chamber, exhaust (b) Valve, motor
 (c) Reflector, nozzle (d) Propellant, valve
17. Rocket propellant are classified into _____
 (a) 2 (b) 3
 (c) 6 (d) 8
18. A rocket flies at 10,080kmph with an effective exhaust jet velocity of 1400m/s and Propellant flow rate of 5.0kg/s. Determine
 (a) 5600N (b) 6800N
 (c) 7400N (d) 2300N
19. What are the air fuel ratios in gas turbine?
 (a) 60:1 to 100:1 (b) 30:1 to 60:1
 (c) 40:1 to 50:1 (d) 20:1 to 100:1
20. What types of compressor used in turbo jet?
 (a) Axial flow (b) Radial flow
 (c) Both (d) None
21. Liquid propellants are used two types of feed system
 (a) Liquid, gas pressure (b) Gas pressure, pump
 (c) Valve, pump (d) solid, liquid
22. What are the different types of combustion chamber used in gas turbines?
 (a) 5 (b) 4

(c) 3

(d) 2

23. Internal energy in the fuel is converted into _____ of the exhausting turbojet.

(a) Kinetic energy

(b) Pressure energy

(c) Both

(d) None

24. Gas generator core is used in turbo fans.

(a) True

(b) False

25. Propulsion engines are classified into _____

(a) 1

(b) 4

(c) 3

(d) 2

Answers:

1.(a)	2.(c)	3.(a)	4.(b)	5.(b)	6.(d)	7.(d)	8.(b)	9.(d)	10.(c)
11.(b)	12.(a)	13.(d)	14.(a)	15.(c)	16.(a)	17.(b)	18.(c)	19.(a)	20.(a)
21.(b)	22.(c)	23.(a)	24.(a)	25.(d)					

FLUID MECHANICS

1. Stress concentration in cycle loading is more serious in _____

(a) Ductile material

(b) Brittle material

(c) Both

(d) Depends on other factor

2. The rankine theory of failure is applicable in _____

(a) Ductile

(b) Brittle

(c) Plastic

(d) Elastic

3. Dust theory of failure is applicable for _____

(a) Ductile

(b) Brittle

(c) Plastic

(d) Elastic

4. The fatigue life of part can be improved by _____

(a) Casting

(b) Electro plating

(c) Polishing

(d) shot peen

5. Stress concentration in static loading is more serious in _____

(a) Ductile material

(b) Brittle material

(c) Both

(d) Depends on other factor

6. IS specifies which of the following total of grades of tolerance _____
 (a) 18 (b) 16
 (c) 20 (d) 22
7. B.S.W threads have the angle equal to _____
 (a) 55° (b) 60°
 (c) 20° (d) 58°
8. American standard thread has the angle equal to _____
 (a) 55° (b) 60°
 (c) 20° (d) 58°
9. The shock absorbing the capacity of bolt can be increased by _____
 (a) Tightening properly (b) Increasing shock diameter
 (c) Grinding the shock (d) Using washer
10. Butress thread is used to transmit the power in _____
 (a) None direction (b) Two direction
 (c) Both (d) None of the above
11. Stud bolts is _____
 (a) Thread on both end (b) Thread on one end
 (c) Screwed into a tapered hole (d) none of the above
12. For self locking which of the following conditions is satisfied in _____?
 (a) $\phi \geq \alpha$ (b) $\phi \leq \alpha$
 (c) Both (d) None of the above
13. Shaft is subjected to which of the following stress
 (a) Bending (b) Twisting
 (c) Both (d) None of these
14. Tangent key transmit the force in _____
 (a) One directional (b) Two directional
 (c) Both (d) None of the above
15. Which of the following is a positive locking device?
 (a) Castle nut (b) Locking by ping
 (c) Locking by threaded pin (d) Split nut
16. Which key transmit power through frictional resistance only
 (a) Saddle key (b) Barth key
 (c) Tangent key (d) Kennedy
17. The efficiency of self locking screw
 (a) More than 50 (b) Less than 50
 (c) Equal to 50 (d) None

18. The key will fail in following manner
 (a) Shearing (b) Crushing
 (c) Both (d) None of the above
19. For over hauling which of the following condition is satisfied
 (a) $\phi \geq \alpha$ (b) $\phi < \alpha$
 (c) Both (d) None of the above
20. The efficiency of over hauling screw
 (a) More than 50 (b) Less than 50
 (c) Equal to 50 (d) None
21. In hydrostatic bearing the static friction is _____
 (a) More (b) Very low
 (c) Neither more or less (d) Uncertain
22. Which of the following trapezoidal thread
 (a) Acme (b) Square
 (c) Buttress (d) All of these
23. Which of the following self aligning bearing
 (a) Conical (b) Spherical
 (c) Rectangle (d) None
24. the most suitable bearing for carrying in very heavy load with slow speed
 (a) Hydrodynamic bear (b) Ball bearing
 (c) Roller bearing (d) Hydrostatic bearing
25. Which of the following bearing suitable of fluctuating demands
 (a) Needle roller bearing (b) Ball bearing
 (c) Cylinder bearing (d) Tapered bearing

Answer:

1.(a)	2.(b)	3.(a)	4.(d)	5.(b)	6.(a)	7.(a)	8.(b)	9.(c)	10.(a)
11.(c)	12.(a)	13. (c)	14.(a)	15.(a)	16.(a)	17.(b)	18.(c)	19.(c)	20.(a)
21.(b)	22.(a)	23.(b)	24.(d)	25.(a)					

- (c) Double cover plate lap joint (d) Double cover plate butt joint

23. Distance between center lines of two rows of rivets is called _____

- (a) Pitch diameter (b) Back pitch
(c) Side pitch (d) Pitch length

24. Diameter of cold rivets measured before driving is called _____

- (a) Nominal diameter (b) Pitch diameter
(c) Nominal line (d) Pitch line

25. This series of preferred numbers are designed

- (a) R 4 (b) R 8
(c) R 5 (d) 6

Answer:

1.(b)	2.(a)	3.(c)	4.(d)	5.(b)	6.(a)	7.(c)	8.(b)	9.(d)	10.(a)
11.(c)	12.(b)	13.(a)	14.(c)	15.(d)	16.(b)	17.(a)	18.(c)	19.(a)	20.(b)
21.(a)	22.(d)	23.(b)	24.(a)	25.(c)					

STRENGTH OF MATERIALS

ROWS AND COLUMNS

1. The External and Internal diameter of Hollow pipe is 40mm; 20mm respectively what is the moment of inertia

- (a) 117809.7mm^4 (b) 123890mm^4
(c) 14500mm^2 (d) 350002mm^2

2. The Hollow pipe has length of 4m when the pipe is supported to its ends and carry on a point load of 80N at its center what is the maximum bending moment of that pipe is

- (a) 40000Nmm (b) 80000Nmm
(c) 12000Nmm (d) 42000Nmm

3. Consider a hollow pipe has internal and external diameter of 10&12mm respectively the bending moment is 80000Nmm and moment of inertia is 120000mm^4 what its maximum stress induced on pipe

- (a) 46N/mm^2 (b) 22N/mm^2
(c) 4N/mm^2 (d) 6N/mm^2

4. What is the formula for moment of inertia rectangular section?
 (a) $I=bd^3/12$ (b) $I=bd/4$
 (c) $I=bd^2/12$ (d) $I=bd^3/6$
5. The rectangular beam is 20mm deep and 30mm wide find the section module of that rectangular beam
 (a) 3000mm^3 (b) 2000mm^3
 (c) 3000mm^2 (d) 2000mm^2
6. The simply supported beam subjected to UDL load of 3KN/m and length of the beam is 4m find the bending moment of beam
 (a) 2000Nmm (b) 3000Nmm
 (c) 6000Nmm (d) 4000Nmm
7. The stress produced due to constant bending moment is known as
 (a) Compressive stress (b) Tensile stress
 (c) Shear stress (d) Bending stress
8. The section module of circular section is
 (a) $\pi d^3/32$ (b) $\pi d^2/32$
 (c) $\pi d/32$ (d) $\pi d^4/32$
9. The section module of rectangular section is
 (a) bd (b) $bd/3$
 (c) $bd^2/6$ (d) $bd^2/3$
10. The bending stress value on neutral axis is
 (a) One (b) Three
 (c) Two (d) Zero
11. The shear stress at a fiber in a section of beam is
 (a) $F \times A/I$ (b) $F \times A/I \times B$
 (c) F/I (d) $F \times AY/I \times B$
12. Write the formula for the shear stress distribution across a circular section is
 (a) $F(R^2-Y^2)/3I$ (b) F/I
 (c) $F/3I$ (d) $F \times A/3I$
13. How much types of methods used to determining slope and deflection at a loaded beam
 (a) 2 (b) 3
 (c) 1 (d) 6
14. What equation used in double integration method
 (a) $M=EI$ (b) $M=EI (d^2y/dx^2)$
 (c) $M=E$ (d) $M=EIA$

15. A beam 6m long simply supported at its end carry a point load of 50KN at its center the moment of inertia of beam is $78 \times 10^6 \text{mm}^4$ if E for the material of beam is $2.1 \times 10^5 \text{ N/mm}^2$ what is the deflection of beam at center

- (a) 12.4mm (b) 13.73mm
(c) 11.23mm (d) 43.3mm

16. A beam 6m long simply supported at its end carry a point load of 50KN at its center the moment of inertia of beam is $78 \times 10^6 \text{ mm}^4$ if E for the material of beam is $2.1 \times 10^5 \text{ N/mm}^2$ what is slope at the support

- (a) 0.06345 rad (b) 0.02345rad
(c) 0.05643 rad (d) 0.6868 rad

17. for the maximum deflection the slope dy/dx value of is

- (a) One (b) Four
(c) Two (d) Zero

18. The deflection by moment area method is

- (a) $Y=AX/EI$ (b) $Y=A/E$
(c) $Y=A/EI$ (d) $Y=AX/I$

19. The solid round bar 3m long and 5cm in diameter is used as a strut with both ends hinged determine the gripping load take $E=2 \times 10^5 \text{ N/mm}^2$ & moment of inertia is $30.68 \times 10^4 \text{ mm}^4$

- (a) 243343N (b) 256234N
(c) 67285N (d) 14565N

20. A column of timber section has gripping load of 1000N and its factor of safety is 3 find safe loads

- (a) 666.6N (b) 444.4N
(c) 555.5N (d) 333.3N

21. The moment of inertia column is 5.7cm^4 and 225mm^2 find the radius of gyration

- (a) 0.23 (b) 0.159
(c) 0.32 (d) 0.656

22. The crippling load for a column by Euler formula for the column one end fixed and other end is hinged

- (a) $P=2 \times \pi EI/l^2$ (b) $P=2 \times E/l$
(c) $P=2 \times \pi^2 EI/l^2$ (d) $P=2 \times EI/l$

23. The crippling load for a column by Euler formula for the column both ends are fixe

- (a) $P=4 \times \pi^2 EI/l^2$ (b) $P=4 \times \pi EI/l^2$
(c) $P=2 \times EI/l$ (d) $P=2 \times E/l$

24. The ratio of the effective length of the column to the least radius of gyration is called as

- (a) Euler's ratio (b) Crippling ratio
(c) Rankin ratio (d) Slenderness ratio

25. The load at which the column just buckles is called as
 (a) Axial load (b) Buckling load
 (c) Tensile load (d) Crippling load

Answer:

1.(a)	2.(b)	3.(c)	4.(a)	5.(b)	6.(c)	7.(d)	8.(a)	9.(c)	10.(d)
11.(d)	12.(a)	13.(b)	14.(b)	15.(b)	16.(d)	17.(d)	18.(a)	19.(c)	20.(d)
21.(b)	22.(c)	23.(a)	24.(d)	25.(b)					

FLUID MECHANICS

- The ratio between mass of a fluid to its volume is called as
 (a) Density (b) weight density
 (c) Specific volume (d) specific weight
- The ratio between weights of the fluid to its volume is called as
 (a) Density (b) weight density
 (c) Specific gravity (d) specific weight
- The ratio between weight density of the fluid to the weight density of standard fluid is called
 (a) Density (b) weight density
 (c) Specific volume (d) specific gravity
- Calculate the density of 1litre of a liquid weighs 7N
 (a) 713.5 kg/m³ (b) 234.5 kg/m³
 (c) 713.5 kg/m² (d) 234.5 kg/m²
- Calculate the specific weight of 1litre of a liquid weighs 7N
 (a) 3000 N/m³ (b) 7000N/m³
 (c) 2300N/m³ (d) 4500N/m³
- Calculate the specific gravity of 1litre of a liquid weighs 7N
 (a)0.7135 (b)0.4536
 (c)0.2315 (d)0.4532
- The fluid which offers resistance to the movement of one layer of fluid over another adjacent layer of fluid this property is called

- (a) Density (b) resistance
(c) Viscosity (d) force
8. The ratio between dynamic viscosity and density of the fluid is called
(a) Density (b) resistance
(c) Viscosity (d) kinematic viscosity
9. The fluid may be classified in to
(a) 3 types (b) 6 types
(c) 2 types (d) 5 types
10. The ratio between increases of pressure to volumetric strain is called
(a) Compressibility (b) bulk modulus
(c) Viscosity (d) density
11. The reciprocal of bulk modulus is called as
(a) Density (b) viscosity
(c) Compressibility (d) volume
12. Surface tension on liquid droplet is
(a) $p=4\sigma/d$ (b) $p=8\sigma/d$
(c) $p=2\sigma/d$ (d) $p=5\sigma/d$
13. Surface tension on liquid jet is
(a) $p=4\sigma/d$ (b) $p=8\sigma/d$
(c) $p=2\sigma/d$ (d) $p=5\sigma/d$
14. Surface tension on hollow bubble is
(a) $p=4\sigma/d$ (b) $p=8\sigma/d$
(c) $p=2\sigma/d$ (d) $p=5\sigma/d$
15. Find surface tension in a soap bubble of 40mm dia when the pressure is 2.5N.m^2
(a) 0.0125N/m (b) 0.0245N/m
(c) 0.0452N/m (d) 0.0156N/m
16. Formula for capillary rise
(a) $h=4 \sigma/\rho g d$ (b) $h=4 \sigma/\rho d$
(c) $h=4 \sigma/\rho g$ (d) $h=8 \sigma/\rho g d$
17. Formula for capillary fall
(a) $h=4 \sigma \cos \theta / \rho g d$ (b) $h=4 \sigma \cos \theta / \rho d$
(c) $h=4 \sigma \cos \theta / \rho g$ (d) $h=8 \sigma \cos \theta / \rho g d$
18. Formula for power in case of SI unit
(a) $p=2\pi NT/60$ (b) $p=2\pi T/60$
(c) $p=2\pi NT/3600$ (d) $p=2\pi N/60$

19. Formula for angular velocity
 (a) $\omega=2\pi NT/60$ (b) $\omega=2\pi T/60$
 (c) $\omega=2\pi N/3600$ (d) $\omega=2\pi N/60$
20. The pressure which is measured with reference to absolute vacuum pressure is called
 (a) Atmospheric pressure (b) reference pressure
 (c) Absolute pressure (d) gauge pressure
21. The pressure which is measured with the help of a pressure measuring instrument In which the atmospheric pressure is taken as datum is called as
 (a) Atmospheric pressure (b) reference pressure
 (c) Absolute pressure (d) gauge pressure
22. The pressure below the atmospheric pressure is called
 (a) Vacuum pressure (b) reference pressure
 (c) Absolute pressure (d) gauge pressure
23. The atmospheric pressure on sea level is
 (a) 234KN/m² (b) 101.3KN/m²
 (c) 278.2KN/m² (d) 103.3KN/m²
24. The atmosphere pressure of head is
 (a) 420mm of mercury (b) 760mm of mercury
 (c) 860mm of mercury (d) 260mm of mercury
25. The atmosphere pressure of head is
 (a) 12.33mm of water (b) 33.3mm of water
 (c) 80.33mm of water (d) 10.33mm of water

Answer:

1.(a)	2.(b)	3.(d)	4.(a)	5.(b)	6.(a)	7.(c)	8.(d)	9.(d)	10.(b)
11.(c)	12.(a)	13. (c)	14.(b)	15.(a)	16.(a)	17.(a)	18.(a)	19.(d)	20.(c)
21.(d)	22.(a)	23.(b)	24.(b)	25.(d)					

FLUID MECHANICS

1. Monometer is a device used for measuring
 - (a) Fluid pressure
 - (b) Fluid velocity
 - (c) Fluid viscosity
 - (d) Fluid density

2. $P_{abs} =$
 - (a) P_{atm}
 - (b) $P_{atm} + P_{gauge}$
 - (c) P_{gauge}
 - (d) $P_{atm} - P_{gauge}$

3. Which law states that intensity of pressure for a fluid at rest is equal in all direction?
 - (a) Newton law
 - (b) Weisbach law
 - (c) Pascal law
 - (d) Fluid law

4. When the fluid at rest the shear stress is
 - (a) 0
 - (b) Equal
 - (c) More than 1
 - (d) Less than 1

5. Pressure =
 - (a) $F/2A$
 - (b) F/D
 - (c) $F/4A$
 - (d) F/A

6. The point about which the body starts oscillating when the body is tilted is known as
 - (a) Meta height
 - (b) Meta center
 - (c) Meta center height
 - (d) Buoyancy

7. The distance between Meta center and center of gravity is known as
 - (a) Meta height
 - (b) Meta center
 - (c) Meta center height
 - (d) Buoyancy

8. The upward force exerted by a liquid on a body when the body is immersed in a liquid is
 - (a) Meta height
 - (b) Meta center
 - (c) Meta center height
 - (d) Buoyancy

9. The point through which force of buoyancy is supposed to act is called
 - (a) Meta height
 - (b) Meta center
 - (c) Meta center height
 - (d) Centre of buoyancy

10. The flow in which the characteristics of fluid is does not change then the flow of fluid is
 - (a) Unsteady flow
 - (b) Study flow
 - (c) Laminar flow
 - (d) Turbulent flow

11. Formula for Rate of discharge of water in pipe
 - (a) $Q = AD$
 - (b) $Q = VD$
 - (c) $Q = AV$
 - (d) $Q = PV$

12. The Reynolds number in a pipe is less than 2000 then the flow is called
 (a) Unsteady flow (b) Study flow
 (c) Laminar flow (d) Turbulent flow
13. The Reynolds number in a pipe is more than 4000 then the flow is called
 (a) Unsteady flow (b) Study flow
 (c) Laminar flow (d) Turbulent flow
14. $\rho \neq \text{constant}$ when the flow of fluid is called
 (a) Compressible flow (b) Study flow
 (c) Laminar flow (d) Turbulent flow
15. $\rho = \text{constant}$ when the flow of fluid is called
 (a) Compressible flow (b) Axial flow
 (c) Incompressible flow (d) None
16. Which statement is correct for assumptions of Bernoulli Equation?
 (a) The flow is compressible (b) The flow is incompressible
 (c) The flow is steady (d) The flow is irrotational
17. Venturimeter is used for measuring
 (a) Density of fluid (b) Flow of fluid
 (c) Flow of fluid (d) None
18. In below which one is correct
 (a) $P_1/\rho g + V_1^2/2g + Z_1 = P_2/\rho g + V_2^2/2g + Z_2$ (b) $P_1/g + V_1^2/2g + Z_1 = P_2/g + V_2^2/2g + Z_2$
 (c) $P_1 + V_1^2/2g + Z_1 = P_2 + V_2^2/2g + Z_2$ (d) $P_1/\rho g + V_1 + Z_1 = P_2/\rho g + V_2 + Z_2$
19. The ratio between actual velocity and theoretical velocity is called as
 (a) Co-efficient of concentration (b) Co-efficient of discharge
 (c) Co-efficient of velocity (d) Co-efficient of viscosity
20. The ratio between area of jet and area of orifice is called as
 (a) Co-efficient of concentration (b) Co-efficient of discharge
 (c) Co-efficient of velocity (d) Co-efficient of viscosity
21. The ratio between actual discharge and theoretical discharge is called as
 (a) Co-efficient of concentration (b) Co-efficient of discharge
 (c) Co-efficient of velocity (d) Co-efficient of viscosity
22. Formula for Reynolds number is
 (a) VD (b) $\rho D/\mu$
 (c) $\rho VD/\mu$ (d) $\rho V/\mu$
23. Darcy weisbach equation
 (a) $h_f = 2flv^2/2gd$ (b) $h_f = 8flv^2/2gd$

(c) $hf=3flv^2/2gd$

(d) $hf=4flv^2/2gd$

24. Chezys formula

(a) $hf=f^2pLV^2/\rho gA$

(b) $hf=2f^2pLV^2/\rho gA$

(c) $hf=6f^2pLV^2/\rho gA$

(d) $hf=4f^2pLV^2/\rho gA$

25. The Reynolds number for laminar flow is

(a) More than 2000

(b) More then 4000

(c) Less than 4000

(d) Less than 2000

Answer:

1.(a)	2.(b)	3.(c)	4.(a)	5.(d)	6.(b)	7.(c)	8.(d)	9.(d)	10.(b)
11.(c)	12.(c)	13. (d)	14.(a)	15.(b)	16.(c)	17.(c)	18.(a)	19.(c)	20.(a)
21.(b)	22.(c)	23.(d)	24.(a)	25.(d)					

ENGINE COMPONENTS

1. The materials used for cylinder block are

(a) Cast iron and steel

(b) Cast iron and aluminum alloy

(c) Steel and aluminum alloy

(d) Brass and steel

2. The cylinder bores of aluminium alloy cylinder blocks are usually plated with

(a) Steel

(b) Brass

(c) Chromium

(d) Molybdenum

3. Most difficult gasket sealing problem occurs at the

(a) Head

(b) Oil pan

(c) Timing cover

(d) Intake manifold

4. Camshaft in an engine is always mounted

(a) Parallel to the crankshaft

(b) Perpendicular to the crankshaft

(c) Inclined to the crankshaft

(d) None of these

5. The oil pan in an engine may be made of

(a) Steel or aluminium

(b) Steel or cast iron

(c) Cast iron or brass

(d) Cast iron or zinc

6. A dish in the piston head is employed to

- (a) Decrease piston weight (b) Provide valve clearance
(c) Control compression ratio (d) Adjust piston displacement
7. The largest diameter of a camground piston is
(a) Along piston pin axis (b) At the piston land
(c) At 45° to the piston pin axis (d) At 90° to the piston pin axis
8. The piston skirt clearance at room temperature is about
(a) 0.004 mm (b) 0.04 mm
(c) 0.4 mm (d) 1 mm
9. Piston pins of some engines are offset to the
(a) Right side (b) Left side
(c) Major thrust side (d) Minor thrust side
10. The purpose of piston rings is to control
(a) Combustion pressure (b) Cylinder wall lubrication
(c) Oil consumption (d) All the above
11. The minimum number of compression rings in an automotive engine is
(a) One (b) Two
(c) Three (d) Four
12. Compression rings are generally made of
(a) Low carbon steel (b) High carbon steel
(c) Aluminium (d) Chromium
13. The uppermost ring on a piston is usually plated with
(a) Steel (b) Cast iron
(c) Carbon (d) Chromium
14. On the compression stroke the rings are pressed against
(a) Top of groove (b) Bottom of groove
(c) Inner side of groove (d) All of these
15. The primary purpose of a ring expander is to
(a) Make up for cylinder wear (b) Increase static ring tension
(c) Decrease dynamic ring tension (d) Reduce ring vibrations
16. Connecting rod connects the crankshaft and the
(a) Cylinder head (b) Cylinder block
(c) Piston (d) Camshaft
17. The piston rings in the modern automobile engines are usually
(a) Semi-floating (b) Fully-floating

- (c) Three-quarter floating (d) Fixed to both piston
18. The counter weights on a crankshaft are located opposite the
 (a) Main bearings (b) Big-end bearings
 (c) Small-end bearings (d) Vibration damper
19. On the front end of a crankshaft is mounted
 (a) Timing gear (b) Vibration damper
 (c) Fan pulley (d) All of these
20. The most commonly used valve in an automobile engine is
 (a) Poppet valve (b) Sleeve valve
 (c) Rotary valve (d) None of these
21. The material used for inlet valve is
 (a) Silico-chrome steel (b) Austenitic steel
 (c) Precipitation-hardening steel (d) Atomic alloy
22. The engine valves are closed by
 (a) Crankshaft (b) Camshaft
 (c) Timing device (d) Valve springs
23. The exhaust valve usually starts opening
 (a) At bdc (b) At tdc
 (c) Before bdc (d) Before tdc
24. Valve overlap occurs between
 (a) Intake and compression strokes (b) Compression and power
 (c) Power and exhaust strokes (d) Exhaust and intake strokes
25. The vibration damper on a crankshaft reduces the
 (a) Longitudinal vibrations (b) Transverse vibrations
 (c) Torsional vibrations (d) All of these

Answer:

1.(b)	2.(c)	3.(a)	4.(a)	5.(a)	6.(c)	7.(a)	8.(b)	9.(b)	10.(d)
11.(b)	12.(d)	13.(d)	14.(b)	15.(a)	16.(c)	17.(b)	18.(b)	19.(d)	20.(a)
21.(a)	22.(d)	23.(c)	24.(d)	25.(c)					

ENGINE SYSTEMS

1. Percentage of fuel energy lost to the cylinder walls in an automobile engine is approximately.
(a) 1 per cent (b) 10 per cent
(c) 30 per cent (d) 80 per cent
2. Sequence of coolant circulation is
(a) Pump-radiator-block-head (b) Pump-block-head-radiator
(c) Pump-block-radiator-head (d) Pump-radiator-head-block
3. On leaving the engine the coolant goes to
(a) Pump inlet (b) Header tank
(c) Collector tank (d) None of the above
4. The radiator core is made of
(a) Brass (b) Steel
(c) Cast iron (d) Plastic
5. A pressure cap contains a
(a) Pressure valve (b) Thermostat valve
(c) Blow-off valve (d) Pressure and vacuum valve
6. The purpose of the thermostat is to keep the engine
(a) Hot (b) Cool
(c) At desired temperature (d) None of the above
7. The thermostat valve starts to open at about
(a) 90 °C (b) 80 °C
(c) 50 °C (d) 20 °C
8. Coolant pumps are of
(a) Vane type (b) Reciprocating type
(c) Centrifugal type (d) All the above types
9. The purpose of the fan is to
(a) Increase flow of coolant (b) Draw air through the radiator
(c) Cool the engine by blowing air over it (d) Provide drive to the coolant pump
10. Cooling fans are driven by
(a) Electricity (b) Gear and belts
(c) Chains and gears (d) By all of the above
11. The fan in the maruti car is controlled
(a) Electrically (b) Mechanically
(c) Hydraulically (d) Magnetically

12. Engine overheating may result due to
 (a) Radiator pressure cap stuck closed (b) Thermostat stuck open
 (c) Broken fan belt (d) Excess coolant in the system
13. The friction that occurs between the layers of oil in an oil film called
 (a) Viscous friction (b) Solid friction
 (c) Boundary friction (d) Greasy friction
14. The primary function of lubrication is to
 (a) Provide cooling effect (b) Provide sealing action
 (c) Provide cleaning action (d) Reduce wear
15. The most important characteristic of a lubricating oil is
 (a) Viscosity (b) Physical stability
 (c) Chemical stability (d) Resistance against corrosion
16. Most commonly used lubricants in automobiles are the
 (a) Animal oils (b) Mineral oils
 (c) Vegetable oils (d) Synthetic oils
17. The approximate oil pressure in the lubrication system in modern cars are
 (a) 40-50kpa (b) 200-400kpa
 (c) 1-5mpa (d) More than 10mpa
18. Maximum oil pressure in the lubrication system is controlled by
 (a) Oil filter (b) Pump rotor
 (c) Pressure relief valve (d) Pressure switch
19. The lubrication system in all modern cars has
 (a) Gear type pump (b) Rotor type pump
 (c) Oil filter (d) Oil cooler
20. From the oil pump the oil directly to
 (a) Oil gallery (b) Oil strainer
 (c) Oil filter (d) Main bearings
21. End play of gears of an oil pump may be checked by using
 (a) Inside caliper (b) Outside caliper
 (c) Elastic (d) None
22. The most widely used fuel supply system for car engine is the
 (a) Gravity system (b) Pressure system
 (c) Vacuum system (d) Pump system
23. The drive for the mechanical fuel pump is taken from the

- (a) Crankshaft
- (b) Cam shaft
- (c) Distributor shaft
- (d) Any of these

24. Small holes in the pump body provide a vent for
- (a) Air
 - (b) Water
 - (c) Fuel
 - (d) Oil

25. Fuel pump outlet pressure should be approximately
- (a) 40 kpa
 - (b) 30 kpa
 - (c) 60 kpa
 - (d) 300 kpa

Answer:

1.(c)	2.(b)	3.(b)	4.(a)	5.(d)	6.(c)	7.(b)	8.(c)	9.(b)	10.(a)
11.(a)	12.(c)	13.(a)	14.(d)	15.(a)	16.(b)	17.(c)	18.(b)	19.(c)	20.(c)
21.(c)	22.(d)	23.(d)	24.(b)	25.(a)					

ENGINE SYSTEMS

1. Lean air-fuel mixture is required for
 - (a) Starting
 - (b) Idling
 - (c) crossing
 - (d) joining
2. The carburetor provide the correct quality of air-fuel mixture during
 - (a) Starting
 - (b) Idling
 - (c) Acceleration
 - (d) All conditions
3. The venture in the carburetor causes the
 - (a) Increase of air velocity
 - (b) Decrease of air velocity
 - (c) Decrease of fuel flow
 - (d) Decrease of manifold vacuum
4. The throttle valve controls the supply of
 - (a) Air only
 - (b) Fuel only
 - (c) Air fuel mixture
 - (d) None of these
5. A single jet carburetor tends to supply richer mixture during
 - (a) Starting
 - (b) Idling
 - (c) Low speed operation
 - (d) High speed operation

6. The choke is usually closed when the engine is
 - (a) Hot
 - (b) Cold
 - (c) Idling
 - (d) Accelerating
7. When the choke is applied the fuel come out from the
 - (a) Main jet
 - (b) Idle port
 - (c) Transfer port
 - (d) Progression hole
8. In a single jet carburetor the mixture tends to become richer
 - (a) During winter
 - (b) At low altitudes
 - (c) At high altitude
 - (d) During idling
9. At very low temperatures the ice tends to form in the carburetor in the
 - (a) Air cleaner
 - (b) Venture
 - (c) Idle jet
 - (d) Float
10. The example of a 'variable venturi' type carburetor is the
 - (a) Carter carburetor
 - (b) Solex carburetor
 - (c) S.U. Carburetor
 - (d) Zenith carburetor
11. Anti-dieseling device is incorporated in the carburetor used in the
 - (a) Ambassador car
 - (b) Premier padmini car
 - (c) Maruti 800 car
 - (d) All of these
12. The carburetor in which air-fuel mixture is controlled automatically by a computer are called the
 - (a) Downdraft carburetors
 - (b) Updraft carburetors
 - (c) Feedback carburetors
 - (d) Automatic carburetors
13. The most accurate petrol injection system is the
 - (a) Direct injection
 - (b) Port injection
 - (c) Manifold injector
 - (d) Throttle body injection
14. The cheapest yet reasonably precise gasoline injection system is the
 - (a) Direct injection
 - (b) Port injection
 - (c) Sequential injection
 - (d) Throttle body injection
15. The amount of fuel delivered by the injector depends upon the
 - (a) Size of the injector nozzle
 - (b) Pressure pushing fuel through the
 - (c) Length of time the injector
 - (d) All the above factors
16. The compression ratio in an automotive diesel engine is usually
 - (a) 7:1
 - (b) 10:1
 - (c) 15:1
 - (d) 22:1
17. The cranking compression pressure in a diesel engine is about

