

Q. 1 The value of bulk modulus of a fluid is required to determine

- [A]. Reynold's number
- [B]. Froude's number
- [C]. Mach number
- [D]. Euler's number

Answer: Option C

Q.2 In one dimensional flow, the flow

- A. is steady and uniform
- B. takes place in straight line
- C. takes place in curve
- D. takes place in one direction

Answer: Option B

Q.3 The kinematic viscosity is the

- A. ratio of absolute viscosity to the density of the liquid
- B. ratio of density of the liquid to the absolute viscosity
- C. product of absolute viscosity and density of the liquid
- D. product of absolute viscosity and mass of the liquid

Answer: Option A

Q.4 One poise is equal to

- A. 0.1 N-s/m^2
- B. 1 N-s/m^2
- C. 10 N-s/m^2

D. 100 N-s/m^2

Answer: Option A

Q .5 The magnitude of water hammer depends upon the

- A.** elastic properties of the pipe material
- B.** elastic properties of the liquid flowing through the pipe
- C.** speed at which the valve is closed
- D.** all of the above

Answer: Option D

Q .6 A flow in which the quantity of liquid flowing per second is constant, is called _____ flow.

- A.** steady
- B.** streamline
- C.** turbulent
- D.** unsteady

Answer: Option A

Q .7 Venturimeter is used to

- A.** measure the velocity of a flowing liquid
- B.** measure the pressure of a flowing liquid
- C.** measure the discharge of liquid flowing in a pipe
- D.** measure the pressure difference of liquid flowing between two points in a pipe line

Answer: Option C

Q.8 The force present in a moving liquid is

- A. inertia force
- B. viscous force
- C. gravity force
- D. all of these

Answer: Option D

Q.9 Power required to drive a centrifugal pump is directly proportional to _____ of its impeller.

- A. diameter
- B. square of diameter
- C. cube of diameter
- D. fourth power of diameter

Answer: Option D

Q.10 The mechanical efficiency of an impulse turbine is

- A. ratio of the actual power produced by the turbine to the energy actually supplied by the turbine
- B. ratio of the actual work available at the turbine to the energy imparted to the wheel
- C. ratio of the Work done on the wheel to the energy of the jet

D. none of the above

Answer: Option B

Q.11 The overshot water wheels are those in which the wheel runs entirely by the _____ of water.

A. weight

B. impulse

Answer: Option A

Q.12 In a Kaplan turbine runner, the number of blades are generally between

A. 2 to 4

B. 4 to 8

C. 8 to 16

D. 16 to 24

Answer: Option B

Q.13 If H_g is the gross or total head and h_f is the head lost due to friction, then net or effective head (H) is given by

A. $H = H_g/h_f$

B. $H = H_g \times h_f$

C. $H = H_g + h_f$

D. $H = H_g - h_f$

Answer: Option D

Q.14 Discharge of a centrifugal pump is

- A. directly proportional to diameter of its impeller
- B. inversely proportional to diameter of its impeller
- C. directly proportional to (diameter)² of its impeller
- D. inversely proportional to (diameter)² of its impeller

Answer: Option D

Q.15 A Pelton wheel develops 1750 kW under a head of 100 metres while running at 200 r.p.m. and discharging 2500 litres of water per second. The unit power of the wheel is

- A. 0.25 kW
- B. 0.75 kW
- C. 1.75 kW
- D. 3.75 kW

Answer: Option C

Q.16 The static head of a centrifugal pump is equal to the _____ of suction head and delivery head.

- A. product
- B. difference
- C. sum

Answer: Option C

Q.17 Geometric similarity is said to exist between the model and the prototype, if both of them

- A. have identical velocities
- B. are equal in size and shape
- C. are identical in shape, but differ only in size
- D. have identical forces

Answer: Option C

Q.18 The speed of a turbine runner is

- A. directly proportional to $H^{1/2}$
- B. inversely proportional to $H^{1/2}$
- C. directly proportional to $H^{3/2}$
- D. inversely proportional to $H^{3/2}$

Answer: Option A

Q.19 A ship with jet propulsion draws water through inlet orifices at right angles to the direction of its motion. The propelling force of the jet is (where a = Area of the jet, V_r = Relative velocity of the jet and ship = $V + v$, v = Velocity of the ship, and V = Velocity of the jet issuing from the ship)

- A. $\frac{waV_r}{g} (V_r + v)$
- B. $\frac{waV_r}{g} (V_r - v)$
- C. $\frac{waV_r}{g} (V_r + v)^2$
- D. $\frac{waV_r}{g} (V_r - v)^2$

Answer: Option B

Q.20 Discharge of a centrifugal pump is (where N = Speed of the pump impeller)

- A. directly proportional to N
- B. inversely proportional to N
- C. directly proportional to N^2
- D. inversely proportional to N^2

Answer: Option A

Q.21 In a reaction turbine, the draft tube is used

- A. to run the turbine full
- B. to prevent air to enter the turbine
- C. to increase the head of water by an amount equal to the height of the runner outlet above the tail race
- D. to transport water to downstream

Answer: Option C

Q.22 The power produced by the reaction turbine is _____ to the head of water.

- A. directly proportional
- B. inversely proportional

Answer: Option A

Q.23 Multi-stage centrifugal pumps are used to

- A. give high discharge
- B. produce high heads

C. pump viscous fluids

D. all of these

Answer: Option B

Q.24 The specific speed of a centrifugal pump, delivering 750 litres of water per second against a head of 15 metres at 725 r.p.m., is

A. 24.8 r.p.m.

B. 48.2 r.p.m

C. 82.4 r.p.m.

D. 248 r.p.m

Answer: Option C

Q.25 Theoretical power required (in watts) to drive a reciprocating pump is (where w = Specific weight of liquid to be pumped in N/m^3 , Q = Discharge of the pump in m^3/s , H_s = Suction head in metres, and H_d = Delivery head in metres)

A. wQH_s

B. wQH_d

C. $wQ(H_s - H_d)$

D. $wQ(H_s + H_d)$

Answer: Option D

Q.26 Which of the following pump is preferred for flood control and irrigation applications?

A. Centrifugal pump

- B.** Axial flow pump
- C.** Mixed flow pump
- D.** Reciprocating pump

Answer: Option B

Q.27 The efficiency of a Pelton wheel working under constant head _____ with the increase in power.

- A.** remains same
- B.** increases
- C.** decreases

Answer: Option B

Q.28 The unit discharge through the turbine is

- A.** $\frac{Q}{\sqrt{H}}$
- B.** $\frac{Q}{H}$
- C.** $\frac{Q}{H^{3/2}}$
- D.** $\frac{Q}{H^2}$

Answer: Option A

Q.29 Delivery head of water of a centrifugal pump is inversely proportional to diameter of its impeller.

- A.** Yes

B. No

Answer: Option **B**

Q.30 The discharge of a double acting reciprocating pump is (where L = Length of stroke, A = Cross-sectional area of piston, and N = Speed of crank in r.p.m.)

A. $L.A.N$

B. $2 L.A.N$

C. $\frac{L.A.N}{60}$

D. $\frac{2 L.A.N}{60}$

Answer: Option **D**

Q.31 Which of the following turbine is preferred for 0 to 25 m head of water?

A. Pelton wheel

B. Kaplan turbine

C. Francis turbine

D. none of these

Answer: Option **B**

Q.32 The speed ratio of a Francis turbine is defined as the ratio of the theoretical jet velocity to the peripheral speed at inlet.

A. Yes

B. No

Answer: Option B

Q.33 The overall efficiency of a reaction turbine is the ratio of

- A. power produced by the turbine to the energy actually supplied by the turbine
- B. actual work available at the turbine to the energy imparted to the wheel**
- C. work done on the wheel to the energy (or head of water) actually supplied to the turbine
- D. none of the above

Answer: Option A

Q.34 The maximum number of jets, generally, employed in an impulse turbine without jet interference are

- A. two
- B. four**
- C. six
- D. eight

Answer: Option C

Q.35 In a reciprocating pump, air vessels are fitted to the suction pipe and delivery pipe close to the cylinder of the pump.

- A. True**
- B. False

Answer: Option A

Q.36. Discharge (Q) of a centrifugal pump is given by (where D = Diameter of impeller at inlet, b = Width of impeller at inlet, and V_f = Velocity of flow at inlet)

- A. $Q = \pi.D.V_f$
- B. $Q = \pi.b.V_f$
- C. $Q = \pi.D.b.V_f$
- D. $Q = D.b.V_f$

Answer: Option C

Q.37 A centrifugal pump will start delivering liquid only when the pressure rise in the impeller is equal to the

- A. kinetic head
- B. velocity head
- C. manometric head
- D. static head

Answer: Option C

Q.38 When the speed of the pump increases, its net positive suction head ($NPSH$) requirement decreases.

- A. Agree
- B. Disagree

Answer: Option B

Q.39 A Francis turbine is used when the available head of water is

- A. 0 to 25 m
- B. 25 m to 250 m
- C. above 250 m
- D. none of these

Answer: Option B

Q.40 The specific speed from 160 to 500 r.p.m. of a centrifugal pump indicates that the pump is

- A. slow speed with radial flow at outlet
- B. medium speed with radial flow at outlet
- C. high speed with radial flow at outlet
- D. high speed with axial flow at outlet

Answer: Option D

Q.41 A hydraulic coupling belongs to the category of

- A. power absorbing machines
- B. power developing machines
- C. energy transfer machines
- D. energy generating machines

Answer: Option C

Q.42 The principle of jet propulsion is used in driving the ships and aero planes.

A. Correct

B. Incorrect

Answer: Option A

Q.43 In the casing of a centrifugal pump, the kinetic energy of the water is converted into pressure energy before the water leaves the casing.

A. True

B. False

Answer: Option A

Q.44 The speed of an imaginary turbine, identical with the given turbine, which will develop a unit power under a unit head, is known as

A. normal speed

B. unit speed

C. specific speed

D. none of these

Answer: Option C

Q.45 For centrifugal pump impeller, the maximum value of the vane exit angle is

- A. 10° to 15°
- B. 15° to 20°
- C. 20° to 25°
- D. 25° to 30°

Answer: Option C

q.46 In a reaction turbine, the pressure head of water, while flowing over the vanes, is converted into kinetic head before leaving the wheel.

- A. Agree
- B. Disagree

Answer: Option B

q.47 A rocket works with maximum overall efficiency when air-craft velocity is _____ the jet velocity.

- A. equal to

B. one-half

C. double

Answer: Option **B**