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Unit 1

1. What is the pressure difference between inside and outside of a droplet of water?

12 σ /d

4 σ /d

8 σ /d

2 σ /d

2. substance that deforms continuously by applications of smallest shear force is

Fluid

solid

both solid & Fluid

Vapour

3. The ratio of dynamic viscosity to mass density is termed as

Dynamic viscosity

static viscosity

kinematic viscosity

velocity

4. The unit for pressure

Newton

Joule

Watt

Pascal

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5. Force acts to hold two separate bodies together is termed as

cohesive

viscosity

surface tension

adhesive

6. It is the measure of resistance to shearing motion

surface tension

viscosity

Viscosity and surface tension

capillary rise

7. Continuity equation is

$A_1V_1 = A_2V_2$

Q_1/Q_2

both $Q_1=Q_2$ & $A_1V_1 = A_2V_2$

$Q_1=Q_2$

8. Calculate the density of petrol of specific gravity

0.7

0.7×13.6

$0.7/1000$

700 kg/m^3

700 kg/m^3

9. The Bernoulli's equation is based on the assumption that

there is no loss of energy of the liquid flowing

the velocity of flow is uniform across any cross-section of the pipe

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no force except gravity acts on the fluid

all of these there is no loss of energy of the liquid flowing, no force except gravity acts on the fluid & the velocity of flow is uniform across any cross-section of the pipe

10. Decrease in temperature, in general, results in

An increase in the viscosity of liquids and a decrease in that of gases

An increase in viscosities of both gases and liquids

A decrease in the viscosities of both liquids and gases

A decrease in the viscosity of liquids and an increase in that of gases

11. The rate at which the particles of fluid can spread is called

Diffusivity

Surface tension

Viscosity

Kinetics

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Unit 2

1. Energy gradient line takes into consideration
potential and pressure heads only
kinetic and pressure heads only
potential, kinetic and pressure heads
potential and kinetic heads only
2. With the boundary layer separation, displacement thickness_____
Decreases
Increases
Remains Same
Independent
3. Which among the following is not a loss that is developed in the pipe?
Liquid velocity
Exit
Connection between two pipes
viscosity
4. What is the unit of flow rate?
kg.m
kg/m
kg/s
m³/s
5. Energy Loss due to friction of the pipe is given by the Darcy's formula is
(V₁-V₂)²/g
4fLV/2dg

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$$2v^2/2g$$

$$\underline{4fLV^2/2dg}$$

6. The friction factor for laminar flow

$$4fLV^2/2dg$$

$$(V_1 - V_2)^2/g$$

$$4fLV/2dg$$

$$\underline{16/Re}$$

Unit 3

1. The dimension of the dynamic viscosity is

$$ML^{-1}T^{-2}$$

$$ML^{-2}T^{-2}$$

$$\underline{ML^{-1}T^{-1}}$$

$$MLT$$

2. The square root of the ratio of inertia force to gravity force is called

Mach number

Euler number

Froude number

Reynolds number

3. Euler number is defined as the ratio of inertia force to:

Gravity force

Pressure force

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Viscous force

Elastic force

4. Surface tension is a phenomenon due to

viscous force

adhesion and cohesion between the liquid molecules

cohesion between the liquid molecules

adhesion between the liquid molecules

5. How can we determine whether the flow is laminar or turbulent?

Mach number

Froude number

Knudsen number

Reynold's number

6. What is a prototype?

Adopted structure

Actual structure

A small-scale replica

Theory structure.

7. Which among the following is the main application for Similitude?

Ships

Cars

Train

Hydraulics

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8. Which among the following is not a criteria to achieve similitude?

Dynamic similarity

Conditional similarity

Kinematic similarity

Geometric similarity

9. Which of the following number is applicable in open hydraulic structure such as spillways, where gravitational force is predominant?

Weber's Number

Euler's Number

Froude's Number

Reynold's Number

10. Ratio of inertia force to viscous force is known as

Grashof number

Peclet number

Stanton number

Reynolds number

11. What is a model analysis?

A small-scale replica

Actual structure

Theory structure.

Adopted structure

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12. The repeated variables in the dimensional analysis should
not include the dependent variables
have two variables with the same dimensions
form the dimensional parameters among themselves
must contain jointly all the fundamental dimensions involved in the phenomenon

13. It is observed in a flow problem that total pressure, inertia and gravity forces are important.
Then, similarity requires that
Reynolds and Weber numbers be equal
Mach and Froude numbers be equal
Euler and Froude numbers be equal
Reynolds and Mach numbers be equal

14. If the number of fundamental dimensions equals 'm', then the repeating variables shall be
equal to:
m and none of the repeating variables shall represent the dependent variable
m + 1 and one of the repeating variables shall represent the dependent variable
m and one of the repeating variables shall represent the dependent variable
m + 1 and none of the repeating variables shall represent the dependent variable

15. The fundamental dimensional quantities are related by_____

Avagadro's law
Newton's first law
Newton's second law
Newton's third law

16. Which among the following is not a criteria to achieve similitude?

Geometric similarity
Kinematic similarity

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Dynamic similarity

Conditional similarity

17. Webber number deals about

Interface between two different fluids

Fluid flow over the plate

Flowing fluid viscosity variation

Pressure gradient of the flowing fluid

18. Why do we need a model analysis?

For determining the dimensions

To check the shear stress

To check the thermal diffusivity

To provide a safe design

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Unit 4

1. Pump is said to be

Power producing and absorbing machine

Power absorbing machine

Power producing machine

Mechanical machine

2. Which component of fluid velocity is responsible for transmission of power through rotodynamic machine?

Radial

Tangential

Axial

stream

3. Centrifugal pump is a

Flow regulating device

Drafting device

Intercooling device

Turbomachinery

4. Reciprocating pump is a

Positive displacement pump

Negative displacement pump

Diaphragm pump

Emulsion pump

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5. Rotary pumps

Are positive displacement pumps

Are low-pressure pumps

Must be primed before each use

Must use mechanical seals

6. Hydraulic energy is converted into another form of energy by hydraulic machines. What form of energy is that

Electrical Energy

Nuclear Energy

Mechanical Energy

Elastic Energy

7. Centrifugal pumps transport fluids by converting _____

Hydrodynamic energy to kinetic energy

Mechanical energy to kinetic energy

Mechanical energy to Hydrodynamic energy

Kinetic energy to hydrodynamic energy

8. When a cylinder has inlet and outlet ports at each end, then it is called as _____

Double acting

Air lift pumps

Reciprocating pumps

Centrifugal pumps

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9. The characteristic curves of a centrifugal pump, plots _____ required by the pump.

NPSH

Velocity

Pressure

Velocity and pressure

10. Indicator diagram used to find the

Temperature acting outside the pump

Pressure acting inside a closed chamber

P-V curve to find the temperature

Flow velocity inside the diagram

11. In a centrifugal pump casing, the flow of water leaving the impeller, is

radial flow

free vortex motion

rectilinear flow

forced vortex

12. Internal cavitation in reciprocating pumps occurs due to

Flow speed

Drag force

Shock waves

Cyclic stress

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Unit 5

1. Which energy generated in a turbine is used to run electric power generator linked to the turbine shaft?

Potential Energy

Mechanical Energy

Elastic Energy

Kinetic Energy

2. Which among the following which is not an efficiency of turbine?

Mechanical efficiency

Volumetric efficiency

Hydraulic efficiency

Electrical efficiency

3. Velocity triangles are used to analyze _____

Angle of deflection of jet

Measure discharge of flow

Flow of water along blades of turbine

Flow of water, measure of discharge, angle of deflection.

4. What is the water flow direction in the runner in a Francis turbine?

Axial and then radial

Radial and then axial

Axial and then tangential

Tangential and then axial

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5. Kaplan turbine is an _____ reaction turbine

Outward flow

Radial

Axial

Inward flow

6. Power of a turbine is measured _____

Mechanically

Electrically

Chemically

Thermally

7. _____ is ratio of volume of water actually striking the runner and volume of water supplied to turbine?

Volumetric efficiency

Hydraulic efficiency

Mechanical efficiency

Overall efficiency

8. To obtain maximum hydraulic efficiency of pelton turbine, blade velocity should be _____ Times the inlet velocity of jet.

One quarter

Twice

Thrice

Half

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9. Hydraulic Machines fall under the category :

Roto-dynamic machinery

Condensers

Pulverizers

Kinetic machinery

10. Which among the following is not an important parameter to determine the performance of the turbine?

Volume of tank

Speed

Discharge

Head

11. Which kind of turbines changes the pressure of the water entered through it?

Impulse turbines

Kinetic turbines

Reactive turbines

Reaction turbines

12. Which of the following efficiencies for Kaplan Turbine is defined as the ratio between the power available at the shaft of the turbine to the power produced by the runner?

Hydraulic efficiency

Mechanical efficiency

Volumetric efficiency

Overall efficiency