

National Testing Agency

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Fluid Flow and Hydraulics

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Fluid Flow and Hydraulics

Section Id : 489994290
Section Number : 1
Section type : Online
Mandatory or Optional: Mandatory
Number of Questions: 120
Number of Questions to be attempted: 120
Section Marks: 120
Display Number Panel: Yes
Group All Questions: No

Sub-Section Number: 1
Sub-Section Id: 489994318
Question Shuffling Allowed : Yes

Question Number : 1 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Newton's Law of viscosity relates

- (a) Pressure, velocity and viscosity.
- (b) Shear stress and rate of angular deformation in a fluid.
- (c) Shear stress, temperature, velocity and viscosity.
- (d) Pressure, viscosity and rate of angular deformation.

Options :

1. 1

2. 2
3. 3
4. 4

Question Number : 2 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Pressure at a point in a static mass of liquid depends upon

- (a) The shape and size of bounding container.
- (b) The depth below the free liquid surface.
- (c) The specific weight of liquid and depth below the free liquid surface.
- (d) The specific weight of liquid, depth below the free liquid surface and the shape and size of bounding container.

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 3 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Continuity equation

- (a) Expresses the relation between energy and work.
- (b) Relates the moment per unit volume for two points on a streamline.
- (c) Relates mass rate of flow along a stream tube.
- (d) Constant discharge through a long, straight tapering pipe.

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 4 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A streamline

- (a) Is the line connecting the mid-points of flow cross section.
- (b) Is defined for uniform flow only.
- (c) Is drawn normal to the velocity vector at every point.
- (d) Is fixed in space in steady flow.

Options :

1. 1
2. 2

3. 3

4. 4

Question Number : 5 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For steady rotational flow of a fluid Bernoulli's equation

- (a) Cannot be derived.
- (b) Can be derived for the entire flow field.
- (c) Can be derived only for the points lying on the same streamline.
- (d) Can be derived only if the fluid is incompressible.

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 6 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Navier-Stokes equation is useful in the analysis of

- (a) Non-viscous flows.
- (b) Turbulent flows.
- (c) Viscous flows.
- (d) Both Viscous and Turbulent flows.

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 7 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Specify which of the following must be fulfilled by the flow of any fluid, real or ideal, laminar or turbulent

- (a) Newton's law of viscosity.
- (b) Velocity at boundary must be zero relative to boundary.
- (c) The continuity equation.
- (d) Velocity normal to a solid boundary is zero.

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 8 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The kinetic energy correction factor

(a) is expressed by $\frac{1}{A} \int \left(\frac{v}{V}\right) dA$

(b) is expressed by $\frac{1}{A} \int \left(\frac{v}{V}\right)^2 dA$

(c) has the units of velocity head.

(d) is expressed by $\frac{1}{A} \int \left(\frac{v}{V}\right)^3 dA$

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 9 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The equation $\sum F_x = \rho Q (\Delta V_x)$ requires the following assumptions for its derivation

(a) The flow is steady and uniform.

(b) The flow is steady and the velocity of flow is constant over the end cross- sections.

(c) The flow is uniform and fluid is frictionless.

(d) The fluid is frictionless and the velocity of flow is constant over the end cross-sections.

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 10 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The loss of head due to sudden enlargement in a pipe is expressed by

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

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

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

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

Options :

1. 1

2. 2

3. 3

4. 4

Question Number : 11 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In laminar flow through a pipe discharge varies

- (a) Linearly as the viscosity.
- (b) As the square of radius.
- (c) Inversely as the pressure drop.
- (d) Inversely as the viscosity.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 12 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In parallel-pipe problems

- (a) The discharge is the same through all the pipes.
- (b) The head losses through all pipe are added to obtain the total head loss.
- (c) The head loss is the same through each pipe.
- (d) A direct solution gives the flow through each pipe when the total flow is known.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 13 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The growth of boundary layer is supported when

- (a) $(\partial p / \partial x)$ is positive.
- (b) $(\partial p / \partial x)$ is zero.
- (c) $(\partial p / \partial x)$ is negative.
- (d) All of the above.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 14 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Turbulent boundary layer thickness is proportional to

- (a) $1/x^{1/5}$
- (b) $x^{1/5}$
- (c) $x^{2/5}$
- (d) $x^{4/5}$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 15 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a uniform laminar flow in a channel with depth of flow D , the point velocity is equal to mean velocity of flow at a depth d below the free surface which is equal to

- (a) $0.5D$
- (b) $0.577D$
- (c) $0.675D$
- (d) $0.707D$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 16 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For laminar flow in a pipe of circular cross-section, the Darcy factor ' f ' is

- (a) Independent of Reynolds number but dependent on pipe wall roughness.
- (b) Inversely proportional to Reynolds number and independent of pipe wall roughness.
- (c) Directly proportional to Reynolds number and independent of pipe wall roughness.
- (d) Inversely proportional to Reynolds number and directly proportional to pipe wall roughness.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 17 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In open-channel flow

- (a) The energy grade line coincides with the free surface.
- (b) The energy and hydraulic grade lines coincide.
- (c) The hydraulic grade line can never rise.
- (d) The hydraulic grade line and free surface coincide.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 18 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Critical depth in a channel is expressed by

- (a) Q^2T/gA^3
- (b) QT^2/gA^3
- (c) QT^2/gA^2
- (d) Q^2A^3/gT^2

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 19 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For most economical triangular channel section the ratio of hydraulic mean radius and depth of flow is equal to

- (a) $1/2$
- (b) $1/2^{1/2}$
- (c) $1/8^{1/2}$
- (d) $1/32^{1/2}$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 20 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Hydraulic jump occurs when

- (a) Flow is supercritical.
- (b) Flow is subcritical.
- (c) Flow is supercritical and downstream depth is adequate.
- (d) All of the above.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 21 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The speed of propagation of a small amplitude wave in quiet water with depth y is

- (a) $(2gy)^{1/2}$
- (b) $(gy^2)^{1/3}$
- (c) $(y/2)$
- (d) $(gy)^{1/2}$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 22 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

When the slope of an open channel changes from steep to mild

- (a) A hydraulic jump is always formed in the steep slope reach.
- (b) A hydraulic jump is always formed in the mild slope reach.
- (c) A hydraulic jump may occur on either the steep slope reach or the mild slope reach depending on the relative values of the sequent depth and the normal depth on the mild slope reach.
- (d) No hydraulic jump is formed in any of the two reaches.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 23 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Reynolds number may be defined as the ratio of

- (a) Viscous forces to inertial forces.
- (b) Elastic forces to pressure forces.
- (c) Inertia forces to viscous forces.
- (d) Gravity forces to inertia forces.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 24 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The scale ratio for acceleration according to Froude model law is

- (a) g_r
- (b) $L_r^{1/2} g_r^{1/2}$
- (c) $\mu_r \rho_r^{-1} L_r^{-1}$
- (d) $L_r g_r$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 25 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Pressure drag result from

- (a) Skin friction.
- (b) Deformation drag.
- (c) Occurrence of a wake.
- (d) Development of stagnation point.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 26 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Body A has twice the submerged weight, twice the projected area and twice the drag coefficient of body B. the ratio of the terminal fall velocities of the two bodies in air would be

- (a) $1/2^{1/2}$
- (b) $2^{1/2}$
- (c) 2
- (d) 8

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 27 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A normal shock wave

- (a) is reversible.
- (b) may occur in a converging tube.
- (c) is irreversible.
- (d) is isentropic.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 28 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Hydraulic jump is expected when slope of a channel

- (a) Changes from mild to steep.
- (b) Changes from steep to steeper.
- (c) Changes from steep to mild.
- (d) Changes from mild to milder.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 29 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The velocity distribution in a pipe is parabolic for

- (a) Uniform turbulent flow.
- (b) Non-uniform turbulent flow.
- (c) Uniform laminar flow.
- (d) Neither laminar nor turbulent flow.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 30 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For laminar flow in a pipe the energy correction factor is

- (a) 1.03
- (b) 1.05
- (c) 1.33
- (d) 2.00

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 31 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The horizontal and vertical scale ratios are L_H and L_V respectively the discharge ratio will be

- (a) $L_H^{1/2}/L_V^2$
- (b) $L_H^2L_V^{3/2}$
- (c) $L_H^2L_V^{1/2}$
- (d) $L_H^3L_V^{-1/2}$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 32 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If coefficient of contraction is C_c and h_1 and h_2 are the velocity heads at sections 1 and 2, the head loss due to sudden contraction is

- (a) $(1/C_c - 1)^2 h_1$
- (b) $(1/C_c - 1)^2 h_2$
- (c) $(1/(C_c^2 - 1)) h_1$
- (d) $(1/C_c^2 - 1) h_2$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 33 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The force scale ratio for Reynold's model law using the Same fluid in model and prototype is

- (a) 1
- (b) L_r^2
- (c) $L_r^{5/2}$
- (d) L_r^3

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 34 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The shear stress in a fluid flowing in a circular pipe

- (a) is constant over the section.
- (b) is zero at the walls and increases linearly to the centre.
- (c) is zero at the centre and varies linearly with the radius.
- (d) Varies parabolic ally across the section.

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 35 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If a sphere of diameter 10 mm falls in castor-oil of kinematics viscosity 10 stokes, with terminal velocity of 15 mm/s, the coefficient of drag on the sphere is

- (a) 10
- (b) 100
- (c) 160
- (d) 200

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 36 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In Coquette flow for the condition of zero discharge the value of dimensionless pressure gradient $P = [B^2/2\mu V (\partial p/\partial x)]$ is

- (a) -1
- (b) -3
- (c) 1
- (d) 3

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 37 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a steady spatially varied flow in an open prismatic channel, the

- (a) Depth does not change along the channel length
- (b) Discharge is constant along its length
- (c) Discharge varies along the length of channel
- (d) Discharge varies with respect to time

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 38 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the uniform flow of in a channel of small bed slope, the hydraulic grade line

- (a) Coincides with the bed
- (b) Is considerably below the free surface
- (c) Is considerably above the free surface
- (d) Essentially coincides with the free surface

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 39 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

One-dimensional method of flow analysis means

- (a) Uniform flow
- (b) Steady uniform flow
- (c) Neglecting the variations in the transverse directions
- (d) Neglecting the variations in the longitudinal direction

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 40 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The velocity distribution in a vertical in a channel gives a rectangular plot when the velocity as abscissa is plotted against the height above the bed as ordinate. The kinetic energy correction for this distribution is

- (a) Greater than zero but less than unity
- (b) Equal to unity
- (c) Less than zero
- (d) Greater than unity

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 41 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A steep chute is inclined at 45° to the horizontal and carries a flow at a depth of 0.75m. The pressure at the bed of the chute in N/m^2 is nearly

- (a) 7360
- (b) 3700
- (c) 5200
- (d) 10,400

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 42 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Flow takes place over a spillway crest, which can be assumed to be an arc of a circle, at a depth of y_0 . The pressure at any point located on the crest will be

- (a) $= wy_0 \cos \theta$
- (b) $< wy_0 \cos \theta$
- (c) Always zero
- (d) Always below atmospheric pressure

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 43 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The velocity and depth of flow in a 3.0 m wide rectangular channel has its width enlarged to 3.5 m at a section, the discharge past that section is

- (a) $10.0 \text{ m}^3/\text{s}$
- (b) $20.0 \text{ m}^3/\text{s}$
- (c) $15.0 \text{ m}^3/\text{s}$
- (d) $17.5 \text{ m}^3/\text{s}$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 44 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For an open channel flow to take place between two sections

- (a) The channel bed must always slope in the direction of the flow
- (b) The upstream depth must be larger than the downstream depth
- (c) The upstream momentum must be larger than the downstream momentum
- (d) The total energy at the upstream end must be larger than the total energy at the downstream end

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 45 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The width of a rectangular channel is reduced from 3.5 m to 2.5 m at a transition structure. The depth of flow upstream of the contraction is 1.5 m. The change in the bottom elevation required to cause zero change in the water surface elevation is

- (a) -2.1m
- (b) -0.6m
- (c) +0.6m
- (d) -0.2m

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 46 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Piezometric head is the sum of

- (a) Pressure head, datum head and velocity head
- (b) Datum head and velocity head
- (c) Pressure head and velocity head
- (d) Pressure head and datum head

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 47 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Normally in a stream the ratio of the surface velocity at a location to the average velocity in the vertical through that location

- (a) Is greater than 1.0
- (b) Will be between 0.8 and 0.95
- (c) is less than or greater than unity depending on the type of flow
- (d) Is equal to 0.6

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 48 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The value of bulk modulus of fluid is require to determine

- (a) Reynold's number
- (b) Froude's number
- (c) Mach number
- (d) Euler's number

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 49 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The kinematic viscosity is the

- (a) ratio of absolute viscosity to the density of the fluid
- (b) ratio of density of the liquid to the absolute viscosity
- (c) product of absolute and density of the liquid
- (d) product of absolute viscosity and mass of the liquid

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 50 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The discharge over a right angled notch is (Where H=Height of liquid above the apex of notch)

- (a) $\frac{8}{15}C_d\sqrt{2g}H$
- (b) $\frac{8}{15}C_d\sqrt{2g}H^{3/2}$
- (c) $\frac{8}{15}C_d\sqrt{2g}H^2$
- (d) $\frac{8}{15}C_d\sqrt{2g}H^{5/2}$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 51 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Euler's equation in differential form for the motion of liquid is given by

- (a) $\frac{dp}{\rho} + g \cdot dz + v \cdot dv = 0$
- (b) $\frac{dp}{\rho} - g \cdot dz + v \cdot dv = 0$
- (c) $\rho \cdot dp + g \cdot dz + v \cdot dv = 0$
- (d) $\rho \cdot dp - g \cdot dz + v \cdot dv = 0$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 52 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The discharge over a rectangular notch is (where b=width of notch and H=Height of liquid above the sill of notch)

- (a) $\frac{2}{3} C_d b \sqrt{2g} H$
- (b) $\frac{2}{3} C_d b \sqrt{2g} H^{1/2}$
- (c) $\frac{2}{3} C_d b \sqrt{2g} H^{3/2}$
- (d) $\frac{2}{3} C_d b \sqrt{2g} H^2$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 53 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is an example of laminar flow?

- (a) Under ground flow
- (b) Flow past tiny bodies
- (c) Flow of oil in measuring instruments
- (d) all of these

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 54 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The maximum efficiency of transmission through a pipe is

- (a) 50%
- (b) 56.7%
- (c) 66.67%
- (d) 76.66

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 55 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The velocity corresponding to Reynold number of 2800, is called

- (a) sub-sonic velocity
- (b) super-sonic velocity
- (c) lower critical velocity
- (d) higher critical velocity

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 56 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Reynold's number is the ratio of inertia force to

- (a) pressure force
- (b) elastic force
- (c) gravity force.
- (d) viscous force

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 57 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A water tank contains 1.3 m deep water. The pressure exerted by the water per meter length of tank is

- (a) 2.89 kN
- (b) 8.29 kN
- (c) 9.28 kN
- (d) 28.9 kN

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 58 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The error in discharge (dQ/Q) to the error in measurement of head (dH/H) over a rectangular notch is given by

- (a) $\frac{dQ}{Q} = \frac{1}{2} \times \frac{dH}{H}$
- (b) $\frac{dQ}{Q} = \frac{3}{4} \times \frac{dH}{H}$
- (c) $\frac{dQ}{Q} = \frac{dH}{H}$
- (d) $\frac{dQ}{Q} = \frac{3}{2} \times \frac{dH}{H}$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 59 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The discharge through an external mouthpiece is given by (where a =Cross-sectional area of the mouthpiece, and H =Height of liquid above the mouthpiece)

- (a) $0.855a\sqrt{2gH}$
- (b) $1.855a\sqrt{2gH}$
- (c) $1.585a\sqrt{2gH}$
- (d) $5.85a\sqrt{2gH}$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 60 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The flow of water through the hole in the bottom of a wash basin is an example of

- (a) steady flow
- (b) uniform flow
- (c) free vortex
- (d) forced vortex

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 61 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is a dimensionless equation?

- (a) Reynold's equation
- (b) Euler's equation
- (c) Weber's equation
- (d) All of the above

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 62 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the formula for determine the size of equivalent pipe for two pipes of lengths L_1, L_2 and diameters d_1, d_2 Where, $L = L_1 + L_2$

- (a) $(L/d) = (L_1 / d_1) + (L_2 / d_2)$
- (b) $(L / d^2) = (L_1 / d_1^2) + (L_2 / d_2^2)$
- (c) $(L/d^3) = (L_1 / d_1^3) + (L_2 / d_2^3)$
- (d) $(L/d^5) = (L_1 / d_1^5) + (L_2 / d_2^5)$

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 63 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The friction factor in fluid flowing through pipe depends upon

- (a) Reynold's number
- (b) Relative roughness of pipe
- (c) Both 'a' and 'b'
- (d) None of the above

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 64 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Kinematic eddy viscosity is the ratio of

- (a) Eddy viscosity (Γ) to dynamic viscosity (μ)
- (b) Eddy viscosity (Γ) to kinematic viscosity (ν)
- (c) Kinematic viscosity to eddy viscosity (Γ)
- (d) Eddy viscosity (Γ) to mass density (ρ)

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 65 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Shear stress in a turbulent flow is given by the formula $\tau = \eta (du / dy)$

Where η (eta) is,

- (a) eddy viscosity
- (b) apparent viscosity
- (c) virtual viscosity
- (d) all of the above

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 66 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Blood circulation through arteries is

- (a) a laminar flow
- (b) a turbulent flow
- (c) both (a) and (b)
- (d) none of these

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 67 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which acceleration has a nonzero value in uniform flow?

- (a) Local acceleration
- (b) Convective acceleration
- (c) Both local as well as convective acceleration
- (d) Unpredictable

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 68 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Newton's law of viscosity states that

- (a) the shear stress applied to the fluid is directly proportional to the velocity gradient (du/dy)
- (b) the shear stress applied to the fluid is inversely proportional to the velocity gradient (du/dy)
- (c) the shear stress applied to the fluid is directly proportional to the specific weight of the fluid
- (d) the shear stress applied to the fluid is inversely proportional to the specific weight of the fluid

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 69 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If viscosity of fluid is more, the thickness of boundary layer is

- (a) More
- (b) Less
- (c) not affected by change in viscosity
- (d) unpredictable

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 70 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The velocity gradients over the boundary layer are

- (a) Small
- (b) large
- (c) sometimes small and sometimes large
- (d) cannot say

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 71 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statements are true for dimensional analysis?

- 1 The functional relationship between dependent and non-dependent variables can be expressed into dimensionless dimensional analysis
- 2 In model testing, it reduces the number of the variables into three numbers
- 3 It is used to change the theoretical equation into dimensionless form
- 4 It helps to convert the units of quantities from one system to another system

- (a) (1),(2), and (3)
(b) (2), (3) and (4)
(c) (1), (3), and (4)
(d) (1), (2), (3) and (4)

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 72 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Minor losses do not make any serious effect in

- (a) short pipes
(b) long pipes
(c) both the short as well as long pipes
(d) cannot say

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 73 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is Darcy-Weisbach formula for head loss due to friction?

- (a) $h_f = (f l v^2 / g d)$
(b) $h_f = (f l v^2 / 2 g d)$
(c) $h_f = 4 f l v^2 / 2 g d)$
(d) $h_f = 16 f l v^2 / 2 g d)$

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 74 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

what is the ration of maximum velocity to average velocity, when the fluid is passing through two parallel plates

- (a) $3/2$
- (b) $2/3$
- (c) $4/3$
- (d) $3/4$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 75 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How should be the viscosity of flowing fluid for laminar flow?

- (a) viscosity of fluid should be as low as possible for laminar flow
- (b) viscosity of fluid should be as high as possible for laminar flow
- (c) change in viscosity of the flowing fluid does not affect its flow
- (d) unpredictable

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 76 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a steady, ideal flow of an incompressible fluid, total energy at any point of the fluid is always constant. This theorem is known as

- (a) Euler's theorem
- (b) Navier-Stoke's theorem
- (c) Reynold's theorem
- (d) Bernoulli's theorem

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 77 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The net force of an ideal flow is equal to the sum of nonzero values of

- (a) pressure force and gravity force
- (b) viscous force and gravity force
- (c) pressure force and viscous force
- (d) pressure force, viscous force and compressibility force

Options :

- 1. 1

2. 2
3. 3
4. 4

Question Number : 78 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The study of force which produces motion in a fluid is called as

- (a) fluid statics
- (b) fluid dynamics
- (c) fluid kinematics
- (d) none of the above

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 79 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The imaginary line drawn in the fluid in such a way that the tangent to any point gives the direction of motion at the point, is called as

- (a) path line
- (b) streak line
- (c) filament line
- (d) stream line

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 80 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A curvilinear flow in a vertical flow has a depth of flow of h and the pressure is found to be uniform at h throughout. The effective piezometric head measured with respect to the bed as the datum is

- (a) $1/2 h$
- (b) $1/3 h$
- (c) $2/3 h$
- (d) $3/2 h$

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 81 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The rate of increase of velocity with respect to change in the position of fluid particle in a flow field is called as

- (a) local acceleration
- (b) temporal acceleration
- (c) convective acceleration
- (d) all of the above

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 82 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which property of the fluid offers resistance to deformation under the action of shear force?

- (a) Density
- (b) Viscosity
- (c) Permeability
- (d) specific gravity

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 83 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Inter molecular cohesive force in the fluids is

- (a) less than that of the solids
- (b) more than that of the solids
- (c) equal to that of the solids
- (d) unpredictable

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 84 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Shear stress in static fluid is

- (a) always zero
- (b) always maximum
- (c) between zero to maximum
- (d) unpredictable

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 85 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a gravel of medium size 11 mm the critical shear stress is about

- (a) 3.2 Pa
- (b) 10 Pa
- (c) 0.62 Pa
- (d) 22 Pa

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 86 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The term wash load refers to

- (a) The satiating part of bed material load
- (b) Suspended load during flood
- (c) Part of suspended load comprising of particles not available in the bed material
- (d) Bed load after the fines have been washed out

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 87 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An alluvium with a medium size of 0.32 mm has Lacey's silt factor 'f' of value

- (a) 1.76
- (b) 1.00
- (c) 0.57
- (d) 0.80

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 88 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A regime channel has a width of 22.2 m and depth of flow of 1.7 m. the discharge in channel is about

- (a) 68 m³/s
- (b) 3.0 m³/s
- (c) 30.0 m³/s
- (d) 7.0 m³/s

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 89 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Lacey's regime formula are in general applicable to a alluvial channel with sediment concentration ppm by weight of less than about

- (a) 10 000
- (b) 1 000
- (c) 500
- (d) 5000

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 90 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A regime channel of longitudinal slope S_0 will have Manning's roughness coefficient n given by n is equal to

- (a) $[S_0^{1/6}/10.8]$
- (b) $[S_0^{1/6}]$
- (c) $[R^{1/6}/10.8]$
- (d) $[1/R^{1/6}]$

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 91 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The standard-step method is

- (a) an unguided trial-and-error method
- (b) a rapidly-converging iterative procedure
- (c) not applicable to natural channels
- (d) not applicable to artificial channels

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 92 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The direct-step method

- (a) is best-suited for natural channels
- (b) is accurate for all step sizes
- (c) is most accurate for calculating supercritical flow profiles
- (d) is none of these

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 93 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the direct-step method and standard-step methods, the calculations

- (a) must proceed upstream in subcritical flow
- (b) must end on a control section
- (c) must always proceed upstream
- (d) must proceed upstream in supercritical flow

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 94 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Bresse's backwater function is applicable to

- (a) Circular channels
- (b) Trapezoidal channels
- (c) Any shape of channel
- (d) Wide rectangular channel

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 95 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The trapezoidal method (TRAP) of numerical integration of GVF involves

- (a) direct solution involving evaluation of the function four times
- (b) iterative procedure
- (c) Simpson's rule
- (d) Graphical procedure

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 96 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The standard-step method aims to solve

- (a) the differential equation of GVF
- (b) the differential-energy equation of GVF
- (c) the Bernoulli equation
- (d) the momentum equation

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 97 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Keifer and Chu varied-flow functions are useful for GVF computations in

- (a) all types of channels
- (b) channels with closing top
- (c) circular channels only
- (d) rectangular channels only

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 98 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Kutta-Merson method of solving the GVF differential equation involves

- (a) evaluation of the function four times for each step
- (b) evaluation of the function five times for each step
- (c) three evaluations of the function per step
- (d) iteration procedure

Options :

- 1. 1
- 2. 2
- 3. 3

4. 4

Question Number : 99 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The hydraulic jump is a phenomenon

- (a) in which the water surface connects the alternate depths
- (b) which occurs only in frictionless channels
- (c) which occurs only in rectangular channels
- (d) none of these

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 100 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A hydraulic jump occurs when there is a break in grade from a

- (a) mild slope to steep slope
- (b) steep slope to mild slope
- (c) steep slope to steeper slope
- (d) mild slope to milder slope

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 101 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the Froude number of a hydraulic jump is 5.50, it can be classified as

- (a) an oscillating jump
- (b) a weak jump
- (c) a strong jump
- (d) a steady jump

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 102 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a hydraulic jump taking place in a horizontal rectangular channel the sequent depths are 0.30 m and 1.50 m respectively. The energy loss in this jump is

- (a) 1.92 m
- (b) 1.50 m
- (c) 0.96 m
- (d) 1.20 m

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 103 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The concept of constancy of specific force at the beginning and the end of a jump

- (a) assumes horizontal frictionless channel
- (b) is valid for jumps in a rectangular sloping floor basin
- (c) is valid for all kinds of channels provided the friction can be assumed to be negligibly small
- (d) assumes constancy of specific energy

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 104 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a hydraulic jump occurring in a horizontal rectangular channel with an initial Froude number of 12, the sequent depth ratio is found to be 13.65. The energy dissipation as a percentage of the initial specific energy is about

- (a) 62%
- (b) 50%
- (c) 87%
- (d) 73%

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 105 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Seventy per cent of the initial energy is lost in a jump taking place in a horizontal rectangular channel. The Froude number of the flow at the toe is

- (a) 4.0
- (b) 9.0
- (c) 20.0
- (d) 15.0

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 106 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The two alternate depths in a 4.0 m wide rectangular channel are 3.86m and 1.0m respectively. The discharge in the channel in m^3/s is

- (a) 15
- (b) 1.5
- (c) 7.76
- (d) 31.0

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 107 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A rectangular channel carries a certain flow for which the alternate depths are found to be 3.0 m and 1.0 m. The critical depth in m for this flow is

- (a) 2.65
- (b) 1.65
- (c) 0.65
- (d) 1.33

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 108 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A triangular channel has a vertex angle of 90° and carries a discharge of $1.90 \text{ m}^3/\text{s}$ at a depth of 0.8 m. The Froude number of the flow is

- (a) 0.68
- (b) 1.06
- (c) 0.75
- (d) 1.50

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 109 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A triangular channel of apex angle of 60° has a critical depth of 0.25 m. The discharge in l/s is

- (a) 60
- (b) 640
- (c) 160
- (d) 40

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 110 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a given open channel carrying a certain discharge, the critical depth depends on

- (a) The geometry of the channel
- (b) The viscosity of water
- (c) The roughness of the channel
- (d) The longitudinal slope of the channel

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 111 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Super critical flow at Froude number of $F_0 = 2.0$ occurs at a depth of 0.63 m in a rectangular channel. The critical depth in m is

- (a) 0.857
- (b) 0.735
- (c) 1.000
- (d) 0.500

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 112 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A trapezoidal channel of bed width of 3.5 m and side slope of 1.5 H: 1 V carries a flow of $9.0 \text{ m}^3/\text{s}$ with a depth of 2.0 m. The Froude number of flow is

- (a) 0.156
- (b) 0.189
- (c) 0.013
- (d) 0.506

Options :

- 1. 1

2. 2
3. 3
4. 4

Question Number : 113 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Flow happens at critical depth of 0.5 m in a rectangular channel of 4.0 m width. What is the value of discharge in m^3/s ?

- (a) 5.42
- (b) 5.13
- (c) 4.82
- (d) 4.43

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 114 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a rectangular channel, at a section M , it is required that the depth of flow is to be 1.4 m and the specific energy is to be 2.8 m. The flow at section M is

- (a) Not possible
- (b) Subcritical
- (c) Supercritical
- (d) Critical

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 115 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a rectangular channel with subcritical flow, the height of a hump to be built to cause subcritical flow over it was calculated by neglecting energy losses. If, after building the hump, it is found that the energy losses in the transition appreciable, the effect of this hump on the flow will be

- (a) To make the flow over the hump subcritical
- (b) To make the flow over the hump supercritical
- (c) To cause the depth of flow upstream of the hump to raise
- (d) To lower the upstream water surface

Options :

1. 1
2. 2
3. 3
4. 4

Question Number : 116 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The flow in a rectangular channel is subcritical. If the width is expanded at a certain section, the water surface

- (a) At a downstream section will drop
- (b) At the downstream section will rise
- (c) At the upstream section will rise
- (d) At the upstream section will drop

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 117 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The flow in a channel is at critical depth. If at a section M a small hump of height ΔZ is built on the bed of the channel, the flow will be

- (a) Supercritical at M
- (b) Critical at M
- (c) Subcritical at M
- (d) Supercritical at M

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 118 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Of the various methods of measuring discharge through a pipe line, the one with the least loss of energy and direct reading is

- (a) By means of a venturimeter
- (b) By means of an orifice meter
- (c) By means of a flow nozzle
- (d) By traversing a pitot-static probe

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 119 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Coefficient of velocity, contraction and discharge arranged in increasing order of value are

- (a) C_{v_1} , C_{c_1} , C_{d_1}
- (b) C_{d_1} , C_{c_1} , C_{v_1}
- (c) C_{v_1} , C_{d_1} , C_{c_1}
- (d) C_{c_1} , C_{d_1} , C_{v_1}

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4

Question Number : 120 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Venturimeter (v), flow nozzle (N) and orifice meter (O) arranged in increasing order of coefficient of discharge are

- (a) V, N, O
- (b) N, O, V
- (c) O, N, V
- (d) O, V, N

Options :

- 1. 1
- 2. 2
- 3. 3
- 4. 4