Program: BE Civil Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester V

Course Code: CEC504 and Course Name: APPLIED HYDRAULICS-I

Time: 1 hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	The equation for impulse is_____
Option A:	F Δt = m Δv
Option B:	F Δt = m u
Option C:	F Δt = m T
Option D:	F Δt = mRT
Q2.	Moment of momentum equation is not applicable for
Option A:	Turbines
Option B:	Pumps
Option C:	Pipe bends problems
Option D:	Sprinkler problem
Q3.	A 45° reducing bend is connected in a pipe line, the diameters at the inlet and outlet of the bend being 600 mm and 300 mm respectively. Find the force exerted by water on the bend if the intensity of pressure at inlet to bend is 8.829 N/cm^2 and rate of flow of water is 600 liter/s
Option A:	2089.09 N
Option B:	20890.9 N
Option C:	2.08909 N
Option D:	208.909 N
Q4.	Which among the following method is used to find a functional relationship with respect to a parameter?
Option A:	Rayleigh's method
Option B:	Rutherford's method
Option C:	Newton's laws
Option D:	Doppler effect
Q5.	Which among the following is not a criterion to achieve similitude?
Option A:	Geometric similarity

Option B:	Kinematic similarity
Option C:	Dynamic similarity
Option D:	Conditional similarity
Q6.	Dimensions of Specific weight (w)
Option A:	$ML^{-1}T^{-1}$
Option B:	$ML^{-2}T^{-2}$
Option C:	ML^{-3}
Option D:	$L^{3}T^{-1}$
Q7.	Velocity scale ratios for Reynold's model law
Option A:	$\frac{\mu_r}{\rho_r L_r}$
Option B:	$\frac{\rho_r {L_r}^2}{\mu_r}$
Option C:	$\frac{\mu_r L_r}{\rho_r}$
Option D:	$\frac{{\mu_r}^2}{\rho_r}$
Q8.	Which among the following is the formula for relative velocity of ships?
Option A:	V + u
Option B:	Vu
Option C:	V-u
Option D:	V/u
Q9.	The force exerted by a jet of water having velocity V on a vertical plate, moving with a velocity u is given by
Option A:	ρa $(V-u)^2$ *$\sin^2$ θ
Option B:	ρa $(V-u)^2$
Option C:	ρa $(V-u)^2$ [1 + cos θ]
Option D:	ρa $(V-u)^2$ [1 - cos θ]
Q10.	In a stationery vertical plate, the jet after striking the plate will move _____
Option A:	In opposite direction
Option B:	Along the plate
Option C:	Perpendicular to the plate
Option D:	Parallel to the plate
Q11.	A jet of diameter 7.5cm strikes a curved plate at its centre with a velocity of 20m/s. The curved plate is moving with a velocity of 8m/s in the direction of the

	jet. The Jet is deflected through an angle of 165 degree. If the plate to be smooth, what will be the power of the jet.
Option A:	15 kW
Option B:	20 kW
Option C:	10 kW
Option D:	18 kW
Q12.	If the velocity of curved vane is equal to the velocity of jet, then the efficiency of the wheel will be
Option A:	50%
Option B:	100%
Option C:	59.2%
Option D:	Zero
Q13.	In what type of turbine water enters in radial direction and leaves axial direction?
Option A:	Tangential flow turbine
Option B:	Axial flow turbine
Option C:	Outward flow turbine
Option D:	Mixed flow turbine
Q14.	The hydraulic efficiency of Pelton turbine will be maximum when blade velocity is equal to _____
Option A:	V/2
Option B:	V/3
Option C:	V/4
Option D:	V/5
Q15.	In Inward radial flow reaction turbine if angle made by absolute velocity with its tangent is 90 degrees and component of whirl is zero at outlet is _____
Option A:	Radial inlet discharge
Option B:	Radial outlet discharge
Option C:	Flow ratio
Option D:	Speed ratio
Q16.	The velocity of the flow through the Kaplan turbine is 25m/s. The available head of the turbine is 60m. Find the flow ratio of the turbine (take g= 10m/s2).
Option A:	0.65
Option B:	0.72
Option C:	0.69
Option D:	0.23
Q17.	Power developed by Francis turbine is calculated for a certain set of conditions. Now, the inlet whirl velocity is doubled, the blade velocity at inlet is doubled and the flow velocity is quartered. The power developed
Option A:	Is 4 times the original value

Option B:	Is 2 times the original value
Option C:	Is ½ times the original value
Option D:	Is same as the original value
Q18.	The specific speed of a hydraulic turbine is 40, What is the type of that turbine?
Option A:	Single jet pelton turbine
Option B:	Multiple pelton turbine
Option C:	Francis turbine
Option D:	Kaplan turbine
Q19.	Which among the following is not an important parameter to determine the performance of the turbine?
Option A:	Speed
Option B:	Discharge
Option C:	Head
Option D:	Volume of tank
Q20.	The maximum permissible suction lift for centrifugal pump in practice (at sea level and at 30°C) is
Option A:	12 m
Option B:	6 m
Option C:	10 m
Option D:	3 m
Q21.	Centrifugal pump is a_____
Option A:	Turbomachinery
Option B:	Flow regulating device
Option C:	Drafting device
Option D:	Intercooling device
Q22.	Reciprocating pumps works on the principle of _____
Option A:	Drag force
Option B:	Liquid flow push
Option C:	Shock waves
Option D:	Flow speed
Q23.	A combination of centrifugal pumps of specific speed 20 and overall efficiency 80%, running at 800 rpm is to be used to pump 40 lps of water to a height of 75 m. What should be the arrangement
Option A:	3 pumps in series
Option B:	3 pumps in parallel
Option C:	4 pumps in series
Option D:	4 pumps in parallel
Q24.	Hydraulic energy is converted into another form of energy by hydraulic machines. What form of energy is that?

Option A:	Mechanical Energy
Option B:	Electrical Energy
Option C:	Nuclear Energy
Option D:	Elastic Energy
Q25.	In fluid machinery, the relationship between saturation temperature and pressure decides the process of
Option A:	Flow separation
Option B:	Turbulent mixing
Option C:	Cavitation
Option D:	Water hammer