

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.	As per Moment of momentum principle, the rate of change of moment of momentum is equal to resulting:
Option A:	Inertia acting on rotating fluid
Option B:	Flow acting on rotating fluid
Option C:	Velocity acting on rotating fluid
Option D:	Torque acting on rotating fluid
Q2.	Working period is defined as the ratio of the height of the lift to the...
Option A:	acceleration of the lift
Option B:	pressure of the lift
Option C:	velocity of the lift
Option D:	displacement of the lift
Q3.	Which of the following equations is known as momentum principle
Option A:	$F = \frac{d(mv)}{dt}$
Option B:	$F = \frac{d(amv)}{dt}$
Option C:	$F = m \frac{d(mv)}{dt^2}$

Option D:	$F = \frac{d(m v)}{dt}$
Q4.	Who invented the compressed air accumulator
Option A:	Reynold
Option B:	Bramah
Option C:	pascal
Option D:	Jean Mercier
Q5.	The hydraulic press is also known as
Option A:	pascal press
Option B:	toricelli press
Option C:	bernouille press
Option D:	bramah press
Q6.	The Quantity is the mass flow per second and is called as:
Option A:	mass flux
Option B:	electric flux
Option C:	energy flux
Option D:	inertia flux
Q7.	If velocity of flow of a centrifugal pump is 2.14m/s and area of flow is 0.07m ² then what is the discharge at outlet of the pump.
Option A:	0.15m ³ /s
Option B:	0.12m ³ /s
Option C:	1.5m ³ /s
Option D:	0.21m ³ /s

Q8.	Which among the following is the correct format for Rayleigh's method?
Option A:	$D = f(l^a \rho^b \mu^c V^d)$
Option B:	$D = f(l \rho \mu V)$
Option C:	$D = f(l \rho \mu V)$
Option D:	$D = f(l \rho \mu V)$
Q9.	If a centrifugal pump has a total head of 107.94m, and discharge through pump is 0.05m ³ /sec then power output of the pump is
Option A:	A.61.11KW
Option B:	B.52.94 KW
Option C:	C.100.01KW
Option D:	D.35.67KW
Q10.	As compared to reciprocating pump , the discharging capacity of centrifugal pump is more where as its pressure head will be
Option A:	Too much
Option B:	Same
Option C:	Less
Option D:	Zero
Q11.	Which among the following have the similarity in forces acting on them?
Option A:	Geometric similarity
Option B:	Kinematic similarity
Option C:	Dynamic similarity
Option D:	Conditional similarity
Q12.	The discharge through centrifugal pump is given by
Option A:	Area x velocity of flow

Option B:	Area x tangential velocity at inlet
Option C:	Area x tangential velocity at outlet
Option D:	Area x rotating speed of the pump
Q13.	Which term refers to the theory and art of predicting prototype conditions from model observations?
Option A:	Nusselt number
Option B:	Dimensional homogeneity
Option C:	Thermal boundary layer
Option D:	Similitude
Q14.	Force exerted by the jet on a stationary vertical plate is given by
Option A:	$\rho av/4$
Option B:	ρav^2
Option C:	ρav
Option D:	$\rho av^2/4$
Q15.	Mechanical efficiency of a centrifugal pump is equal to
Option A:	Power at the impeller/power at shaft
Option B:	Power at shaft/power at impeller
Option C:	Power at shaft/water power
Option D:	Water power/power of shaft
Q16.	If diameter of jet is 85mm and diameter of runner is 1.5 meter then calculate width of buckets.
Option A:	400 mm

Option B:	500 mm
Option C:	420 mm
Option D:	425 mm
Q17.	The ratio of normal force of jet of water on the plate inclined at an angle θ as compare to that when the plate is normal to the jet is given by
Option A:	1 4
Option B:	1 2
Option C:	1 3
Option D:	1 4
Q18.	find the propelling force acting on a ship which takes water through inlet orifices which are at right angles to the direction of motion of ship, and the discharged at the back through orifices having effective areas of 0.04m^2 . the water is flowing at the rate of 1000 lit/s and the ship is moving with a velocity of 8 m/s.
Option A:	16999.94
Option B:	26999.94
Option C:	6994.99
Option D:	5994.99
Q19.	Which of the following efficiencies for Kaplan Turbine is described as the ratio between total quantity of water over runner blades to total quantity of water supplied to turbine?
Option A:	Hydraulic efficiency
Option B:	Volumetric efficiency
Option C:	Mechanical efficiency
Option D:	Overall efficiency

Q20.	A nozzle of 50mm diameter delivers a stream of water at 20 m/s perpendicular to the plate that moves away from the jet at 5m/s. find the work done if force on the plate is 441.78N
Option A:	100.9 Nm/s
Option B:	200.9 Nm/s
Option C:	3308.9 Nm/s
Option D:	2208.9Nm/s
Q21.	Which Pipe of largest diameter which carry water from reservoir to the turbines?
Option A:	Head stock
Option B:	Tail race
Option C:	Tail stock
Option D:	Pen stock
Q22.	A water in a jet propelled drawn through inlet openings facing the directing of motion Of the ship. The boat is moving in sea water with a speed of 30 km/hour. The absolute velocity of the jet of water discharged at the back is 20m/s and the area of the jet of water is 0.03 m ² . find the efficiency of propulsion if the propelling force is 16997.98N
Option A:	45.44%
Option B:	50.44%
Option C:	55.44%
Option D:	60.44%
Q23.	Which among the following is not a unit quantity of turbine?
Option A:	Unit speed
Option B:	Unit discharge
Option C:	Unit power

Option D:	Unit temperature
Q24.	What is the Total head of turbines ?
Option A:	Pressure head + Static head
Option B:	Kinetic head + Static head
Option C:	Static head + Pressure head
Option D:	Pressure head + Kinetic head + Static head
Q25.	Which power is the electric power obtained from the energy of the water?
Option A:	Roto dynamic power
Option B:	Thermal power
Option C:	Nuclear power
Option D:	Hydroelectric power

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	D
Q2.	C
Q3.	A
Q4	D
Q5	D
Q6	A
Q7	A
Q8.	A
Q9.	B
Q10.	C
Q11.	C
Q12.	A
Q13.	D
Q14.	B
Q15.	A
Q16.	D

Q17.	B
Q18.	A
Q19.	B
Q20.	D
Q21.	D
Q22.	A
Q23.	D
Q24.	D
Q25.	D