

University of Mumbai
Examination 2020 under cluster- PCOE

Program: ___CHEMICAL_____ Engineering
Curriculum Scheme: REV2012

Examination: First/**Second**/Third/Final Year Semester I/II/III/IV/V/VI/VII/VIII

Course Code: _CHC303___ and Course Name: __FLUID FLOW__

Time: 1 hour **SAMPLE PAPER**

Max. Marks: 50

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NOTE to the Question Paper Setter: (To be deleted before submitting the paper to Semester Coordinator)

1. The question bank consists of 25 MCQ questions with each question carrying a maximum of 2 marks. It should cover all the modules with appropriate weightages.
2. You need to check the questions and their answers for their correctness. There should not be any ambiguity in the questions and the options. Only one option should be the Correct Answer.
3. You must ensure that the same question is not repeated again in this question paper.
4. Among 25 questions, 13 questions can be under the 'Simple' category, 7 questions can be under the 'Moderate' category, and the remaining 5 questions can be under the 'Difficult' category.
5. Please do not reveal answer on this Question Paper.
6. Use another template provided to enter the correct answers.
7. Please save this file with file name as per the sample format given below:

File Name: "Date of Examination_Scheme_Program_Semester_Subject Code_QP Set Number"

For example:

QP set number 1 of first core course of Mechanical Engineering Semester V for Rev2016 scheme and scheduled on 2/12/2020 has to have the file name as

0212_R16_Mech_V_MEC501_QP1

QP set number 3 of Department Level Optional Course of Computer Engineering Semester VI for Rev2012 scheme and scheduled on 12/12/2020 has to have the file name as

1212_R12_Comp_VI_CSDLO6021_QP3

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

Q1.	1-Bernoulli's equation cannot be applied when the flow is
Option A:	rotational
Option B:	turbulent
Option C:	unsteady
Option D:	all of the above
Q2.	Relative density of mercury is
Option A:	1
Option B:	9.81
Option C:	13.6
Option D:	1000
Q3.	A flow is called super-sonic if the
Option A:	velocity of flow is very high
Option B:	discharge is difficult to measure
Option C:	Mach number is between 1 and 5

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Option D:	Mach number is less than 1
Q4.	The dynamic viscosity of a liquid is 1.2×10^{-4} Ns/m ² , whereas, the density is 600 kg/m ³ . The kinematic viscosity in m ² /s is
Option A:	72×10^{-3}
Option B:	20×10^{-8}
Option C:	7.2×10^3
Option D:	70×10^6
Q5.	The continuity equation is the result of application of the following law to the flow field
Option A:	First law of thermodynamics
Option B:	Conservation of energy
Option C:	Newton's second law of motion
Option D:	Conservation of mass
Q6.	In pipe flow the critical Reynolds number is about
Option A:	640
Option B:	5×10^5
Option C:	2000
Option D:	64000
Q7.	Which fluid does not experience shearing stress during flow?
Option A:	Pseudoplastic
Option B:	Dilatant
Option C:	Newtonian
Option D:	Inviscid
Q8.	The fluid flow in which the fluid particles in one layer do not mix with the fluid particles in the other layer is called as
Option A:	laminar flow
Option B:	turbulent flow
Option C:	Viscous sub. layer flow
Option D:	. none of the above
Q9.	When the flow in an open channel is gradually varied, the flow is said to be
Option A:	Steady uniform flow
Option B:	Steady non-uniform flow
Option C:	Unsteady uniform flow
Option D:	Unsteady non-uniform flow

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Q10.	The theoretical velocity of jet at vena contracta is (where H = Head of water at vena contracta)
Option A:	$2gH$
Option B:	$H \times \sqrt{2g}$
Option C:	$2g \times \sqrt{H}$
Option D:	$\sqrt{2gh}$
Q11.	A manometer is used to measure
Option A:	Atmospheric pressure
Option B:	Pressure in pipes and channels
Option C:	Pressure in Venturimeter
Option D:	Difference of pressures between two points in a pipe
Q12.	During the opening of a valve in a pipe line, the flow is
Option A:	Laminar
Option B:	Unsteady
Option C:	Steady
Option D:	Uniform
Q13.	A rheopectic fluid is one in which the viscosity
Option A:	is constant regardless of the stirrer speed or mixing time
Option B:	changes during mixing but returns to its original state after mixing
Option C:	decreases with mixing time
Option D:	changes during mixing but returns to its original state after
Q14.	Which pattern of mixing is preferred in stirred tank reactors during the culture of aerobic microorganisms?
Option A:	Laminar flow
Option B:	Transient flow
Option C:	turbulent flow
Option D:	None of above
Q15.	Centrifugal pump is a _____
Option A:	Turbomachinery
Option B:	Flow regulating device
Option C:	Drafting device
Option D:	Intercooling device

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Q16.	The main function of nozzle is to
Option A:	Varying temperatures
Option B:	Pressure variations
Option C:	Load variations
Option D:	Heat variations
Q17.	Centrifugal pumps transfer energy from _____
Option A:	Rotor to fluid
Option B:	Fluid to rotor
Option C:	Draft to rotor
Option D:	Rotor to draft
Q18.	Which of the following impellers will provide radial flow?
Option A:	Paddles
Option B:	Flat blade turbines
Option C:	Disk flat blade turbines
Option D:	All of above
Q19.	Power number is ratio of
Option A:	imposed force to inertial force
Option B:	buoyant force to inertial force
Option C:	gravitation force to inertial force
Option D:	imposed force to gravitational force
Q20.	Which of the following(s) is/are non-mechanically agitated reactors?
Option A:	stirred tank reactor
Option B:	Bubble column
Option C:	Air lift reactor
Option D:	Both Band C
Q21.	When a valve is installed in a process with where the differential pressure (drop) across the valve decreases with increasing flow, the best trim characteristic to choose for the valve would be:
Option A:	Ported
Option B:	Quick-opening
Option C:	Equal percentage
Option D:	linear
Q22.	The main purpose of a control valve positioner is to:

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Option A:	Alter the fail-safe status of the valve
Option B:	Improve the precision of the valve
Option C:	Alter the characterization of the valve
Option D:	Increase transmitter accuracy
Q23.	Which among the following is the formula for continuity equation?
Option A:	$\rho(x)V(x)A(x) = \text{Constant}$
Option B:	$A(x) = \text{Constant}$
Option C:	$\rho(x)V(x) = \text{constant}$
Option D:	$P(x)V(x) = \text{constant}$
Q24.	For an isentropic flow
Option A:	Enthalpy = 0
Option B:	Entropy = 0
Option C:	Pressure = 0
Option D:	Temperature = 0
Q25.	Define Stagnation temperature.
Option A:	The temperature at zero velocity
Option B:	The temperature at zero pressure
Option C:	The temperature at zero heat transfer
Option D:	The temperature at zero volume