

**University of Mumbai**  
**Examination 2020- Inter Cluster**

Program: BE Instrumentation Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code: ISC504 and Course Name: Control System Components

Time: 1hour

Max. Marks: 50

=====

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

Q1.	In pneumatic instrumentation systems the pressure of compressed air used is around
Option A:	1 bar
Option B:	1.4 bar
Option C:	2.5 bar
Option D:	5.5 bar
Q2.	Which type of compressor requires a reservoir for compressed air-
Option A:	rotary compressor to avoid pulsating effect
Option B:	both rotary and reciprocating compressors to avoid pulsating effect
Option C:	reciprocating compressor to avoid pulsating effect
Option D:	Piston type
Q3.	Which of the following factors is considered while selecting a compressor?
Option A:	volumetric efficiency
Option B:	type of oil filter required
Option C:	viscosity of the liquids used
Option D:	speed of turbine
Q4.	What is a pressure sequence valve?
Option A:	it is a combination of nonadjustable pressure relief valve and directional control valve
Option B:	it is a combination of adjustable pressure reducing valve and check valve
Option C:	it is a combination of adjustable pressure reducing valve and flow control valve
Option D:	it is a combination of adjustable pressure relief valve and directional control valve
Q5.	Which of the following systems generate more energy when used in industrial applications?
Option A:	pneumatic systems
Option B:	both systems generate same energy
Option C:	cannot say
Option D:	hydraulic systems

**University of Mumbai**  
**Examination 2020- Inter Cluster**

Q6.	Pump converts-
Option A:	Electrical power into pneumatic
Option B:	Pneumatic power into hydraulic
Option C:	Mechanical power into hydraulic
Option D:	Electrical power into displacement
Q7.	Why is an ac power not required in the remote areas or locations for operation purpose of two-wire transmitter?
Option A:	transmission power is lowered upto 1-4 mA current output signal
Option B:	transmission power is lowered upto 1-10 mA current output signal
Option C:	two-wire transmitters do not operate in remote areas
Option D:	transmission power is lowered upto 4-20mA current output signal
Q8.	How does the appearance of any noise rather than the electrical noise that intrude in the current output signal of two-wire transmitter get eliminated?
Option A:	by common-mode rejection of transmitting device
Option B:	by common-mode rejection of interfacing device
Option C:	by common-mode rejection of receiving device
Option D:	none of the above
Q9.	The most common analog signal standard for industrial process instruments is:
Option A:	10 to 50 milliamps DC
Option B:	4 to 20 milliamps DC
Option C:	0 to 5 amps AC
Option D:	0 to 10 volts
Q10.	When calibrating an instrument, you may detect the presence of hysteresis error by:
Option A:	Comparing accuracy at certain points both going up and down the calibration scale
Option B:	Comparing the instrument against a known standard that is free from any hysteresis
Option C:	Measuring error before and after turning the “deadband” adjustment screw
Option D:	Checking for calibration drift at certain points over long periods of time
Q11.	An error tolerance of +/- 0.4% is for a 4-20 mA instrument signal.
Option A:	+/- 0.04 Ma
Option B:	+/- 0.08 Ma
Option C:	+/- 0.064 mA
Option D:	+/- 0.4 Ma
Q12.	A pressure transmitter has a calibrated measurement range of 200 to 300 PSIG, and an output range of 4-20 mA. What is the expected output if the input pressure is 235 PSIG?
Option A:	1.6 mA
Option B:	16.5 mA
Option C:	5.6 mA

**University of Mumbai**  
**Examination 2020- Inter Cluster**

Option D:	9.6 mA
Q13.	When the percentage of flow through a valve equals the percentage of plug movement, a valve
Option A:	Equal percentage flow characteristic
Option B:	Linear flow characteristic
Option C:	Quick opening flow characteristic
Option D:	Curved flow characteristic
Q14.	What is the function of a butterfly valve?
Option A:	On/ off control
Option B:	Flow regulation
Option C:	Pressure control
Option D:	Hydraulic control
Q15.	Which of the following valves is better for on/ off control?
Option A:	Butterfly valve
Option B:	Plug valve
Option C:	Knife valve
Option D:	Ball valve
Q16.	Check valve is also called as _____
Option A:	Gate valve
Option B:	Knife valve
Option C:	Non-return valve
Option D:	Choke valve
Q17.	What is the purpose of pinch valve?
Option A:	Hydraulic control
Option B:	Slurry flow regulation
Option C:	Flow control
Option D:	Regulate fluids
Q18.	In globe valves, the flow rate control is determined by _____
Option A:	Lift of the valve plug
Option B:	Size of the opening
Option C:	Pressure difference
Option D:	Gravity
Q19.	Of the below mentioned valves which of these are used to control the flow of liquid in a single direction?
Option A:	Butterfly valve
Option B:	Ball valve
Option C:	Check valve
Option D:	Plug valve
Q20.	What is the best tool available to us that can prevent a fire from creating victims?

**University of Mumbai**  
**Examination 2020- Inter Cluster**

Option A:	a fire hydrant
Option B:	a smoke alarm
Option C:	a telephone
Option D:	an extinguisher
Q21.	In pressure regulators load flow is _____ proportional to regulator flow.
Option A:	Directly
Option B:	Indirectly
Option C:	Depends
Option D:	None
Q22.	Which one of the following is a difference between a typical relief valve and a typical safety valve?
Option A:	Relief valves are capable of being gagged whereas safety valves are not.
Option B:	A relief valve gradually opens as pressure increases above the setpoint pressure whereas a safety valve pops open at the setpoint pressure.
Option C:	The blowdown of a relief valve is greater than the blowdown of a safety valve.
Option D:	The actuator closing spring on a relief valve is in a compressed state whereas the actuator closing spring on a safety valve acts in tension.
Q23.	Which one of these is not a manually operated switch?
Option A:	Thumbwheel switch
Option B:	Rotary selector switch
Option C:	Crossbar switch
Option D:	Toggle switch
Q24.	A Thumbwheel switch
Option A:	Has an operating wheel which has numbers on it
Option B:	Is an alternative form of rotary switch
Option C:	Requires half the operating torque required in a rotary switch
Option D:	Supports the features A, B and C
Q25.	Plug setting of a electromagnetic relay can be altered by varying
Option A:	Number of ampere turns
Option B:	Air gap of magnetic path
Option C:	Adjustable back stop
Option D:	None of these