## University of Mumbai

Sample Question paper Program: Electronics Engineering

Curriculum Scheme: Rev2016

Examination: BESemesterVII

Course Code: ELX701and Course Name:Instrumentation System Design m Max. Marks: 80

Time: 2 hour

| Q1.<br>(40 Marks ) | Choose the correct option for following questions. All the Questions are<br>compulsory and carry equal marks |
|--------------------|--------------------------------------------------------------------------------------------------------------|
| 1.                 | Poor flow control is the major disadvantage ofvalve                                                          |
| Option A:          | Gate                                                                                                         |
| Option B:          | Globe                                                                                                        |
| Option C:          | Needle                                                                                                       |
| Option D:          | Check                                                                                                        |
|                    |                                                                                                              |
| 2.                 | Fail safe operation is an important advantage of                                                             |
| Option A:          | Electrical actuators                                                                                         |
| Option B:          | Electronic actuators                                                                                         |
| Option C:          | Hydraulic actuators                                                                                          |
| Option D:          | Pneumatic actuators.                                                                                         |
|                    |                                                                                                              |
| 3.                 | A disc attached to the shaft is used in the construction of                                                  |
| Option A:          | Butterfly valve                                                                                              |
| Option B:          | Ball valve                                                                                                   |
| Option C:          | Gate valve                                                                                                   |
| Option D:          | Needle valve                                                                                                 |
|                    |                                                                                                              |
| 4.                 | The function of telemetry system is                                                                          |
| Option A:          | Amplification of received data.                                                                              |
| Option B:          | Attenuation of received data                                                                                 |
| Option C:          | Measurement of data                                                                                          |
| Option D:          | Removal of noise and distortion.                                                                             |
| 5.                 | Data transmission format in telemetry is                                                                     |
| Option A:          | 4-20 mA                                                                                                      |
| Option B:          | 4-20 mA<br>4-30 mA                                                                                           |
| Option D:          | 4-30 MA<br>4-20 A                                                                                            |
| Option D:          | 4-20 A<br>4-20 micro A                                                                                       |
| Option D.          |                                                                                                              |
| 6.                 | Main Advantage of 2 wire transmitter is -                                                                    |
| Option A:          | Low power consumption                                                                                        |
| Option B:          | Low cost                                                                                                     |
| Option C:          | Less effect of noise and distortion                                                                          |
| Option D:          | Simple circuit.                                                                                              |
|                    |                                                                                                              |
| 7.                 | By addition of LVDT assembly to flapper nozzle, complete system can act as                                   |
| Option A:          | Pressure to current converter                                                                                |
| Option B:          | Pressure to power converter.                                                                                 |

| Option D:   Pressure to displacement converter.     8.   Which type of system belongs to ON-OFF CONTROLLER?     Option A:   Continuous     Option D:   Discontinuous     Option D:   Digital     Option A:   10 elements     Option C:   Celements     Option D:   2 elements     Option D:   4 elements     Option D:   2 elements     Option C:   2 elements     Option C:   Control lag     Option D:   4 elements     Option C:   Dead Time     Option D:   Frocess lag     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called                                                                                                                                                                                                                                                                                                                                                                                                                                               | Option C: | Pressure to voltage converter                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------|
| 8.   Which type of system belongs to ON-OFF CONTROLLER?     Option A.   Continuous     Option B.   Discontinuous     Option C.   Digital     Option D.   Composite     9.   A process control system consists of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | -         |                                                                                  |
| Option A:   Continuous     Option B:   Discontinuous     Option C:   Digital     Option A:   10 elements     Option A:   10 elements     Option C:   2 elements     Option D:   4 elements     Option A:   6 elements     Option D:   4 elements     Option A:   6 elements     Option A:   6 elements     Option B:   4 elements     10.   Which refers to the time for the process control loop to make necessary<br>adjustments to the final control element?     Option C:   Dead Time     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called                                                                                                                                                                                                                                                                                                                                                                                                                                | Option D. |                                                                                  |
| Option A:   Continuous     Option B:   Discontinuous     Option C:   Digital     Option A:   10 elements     Option A:   10 elements     Option C:   2 elements     Option D:   4 elements     Option A:   6 elements     Option D:   4 elements     Option A:   6 elements     Option A:   6 elements     Option B:   4 elements     10.   Which refers to the time for the process control loop to make necessary<br>adjustments to the final control element?     Option C:   Dead Time     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called                                                                                                                                                                                                                                                                                                                                                                                                                                | 8         | Which type of system belongs to ON-OFF CONTROLLER?                               |
| Option B:   Discontinuous     Option C:   Digital     Option D:   Composite     9.   A process control system consists of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |                                                                                  |
| Option C:   Digital     Option D:   Composite     9.   A process control system consists of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                  |
| Option D:   Composite     9.   A process control system consists of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -         |                                                                                  |
| 9.   A process control system consists of                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           | 0                                                                                |
| Option A:   10 elements     Option B:   6 elements     Option D:   2 elements     Option D:   4 elements     10.   Which refers to the time for the process control loop to make necessary<br>adjustments to the final control element?     Option A:   Control lag     Option D:   Dead Time     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     Option D:   Dead Time     Option B:   Dead Time     Option C:   Process Lag     Option D:   Control Lag     I2.   Which of the following cannot be an input that is given to the PLC?     Option B:   Encoder     Option B:   Encoder     Option B:   Control relay     I3.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option B:   0.756     Option B:   0.756     Option B:   Speed of DAS is high     Option B:   Speed of DAS is high     Option B:   Simple system     Option B: </td <td>-</td> <td></td>                           | -         |                                                                                  |
| Option B:     6 elements       Option C:     2 elements       Option D:     4 elements       10.     Which refers to the time for the process control loop to make necessary<br>adjustments to the final control element?       Option A:     Control lag       Option D:     Error       11.     The deviation of controlled variable from the setpoint is called       Option A:     Error       11.     The deviation of controlled variable from the setpoint is called       Option A:     Error       0ption B:     Dead Time       Option C:     Process Lag       Option D:     Control Lag       12.     Which of the following cannot be an input that is given to the PLC?       Option A:     Push button       Option B:     Encoder       Option C:     Sensor       Option A:     175       Option A:     175       Option B:     0.571       Option B:     0.571       Option B:     Speed of DAS is high       Option B:     Simple system       Option B:     Simple system       Option B:              | 9.        | A process control system consists of                                             |
| Option C:   2 elements     0ption D:   4 elements     10.   Which refers to the time for the process control loop to make necessary adjustments to the final control element?     Option A:   Control lag     Option B:   Process lag     Option D:   Error     Option A:   Error     Option C:   Dead Time     Option C:   Process Lag     Option D:   Error     Option C:   Process Lag     Option C:   Process Lag     Option A:   Error     Option D:   Control Lag     11.   The deviation of controlled variable from the setpoint is called                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Option A: | 10 elements                                                                      |
| Option D:   4 elements     10.   Which refers to the time for the process control loop to make necessary adjustments to the final control element?     Option A:   Control lag     Option B:   Process lag     Option D:   Earor     11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     Option B:   Dead Time     Option A:   Error     Option D:   Control Lag     Option D:   Process Lag     Option D:   Control Lag     Option D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option A:   Push button     Option B:   Encoder     Option C:   Sensor     Option B:   Ontrol relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option A:   Speed of DAS is high     Option A:   Speed of DAS is high     Option A:   Speed of DAS is high     Option B:   Simple system     Option A:   Speed of DAS is high                                          | Option B: | 6 elements                                                                       |
| 10.   Which refers to the time for the process control loop to make necessary adjustments to the final control element?     Option A:   Control lag     Option B:   Process lag     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     0ption B:   Dead Time     Option A:   Error     0ption B:   Dead Time     Option D:   Control Lag     0ption D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option A:   Push button     Option D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option D:   0.571     Option B:   0.756     Option A:   Speed of DAS is high     Option B:   Simple system     Option D:   Accuracy     15.                                                           |           | 2 elements                                                                       |
| adjustments to the final control element?     Option A:   Control lag     Option B:   Process lag     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     Option D:   Dead Time     Option B:   Dead Time     Option D:   Control Lag     Option D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option B:   Encoder     Option D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option D:   0.7571     Option A:   Speed of DAS is high     Option B:   Sneed of JAS is high     Option B:   Simple system     Option B:   Simple system is less     Option D:   Cost of system is less     Option D:   Cost of system is less     Option D:   Accuracy     I14.   Advantage of using is NOT a standard interface     Option B:   System is less     Option B: <td< td=""><td>Option D:</td><td>4 elements</td></td<> | Option D: | 4 elements                                                                       |
| adjustments to the final control element?     Option A:   Control lag     Option B:   Process lag     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     Option D:   Dead Time     Option B:   Dead Time     Option D:   Control Lag     Option D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option B:   Encoder     Option D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option D:   0.7571     Option A:   Speed of DAS is high     Option B:   Sneed of JAS is high     Option B:   Simple system     Option B:   Simple system is less     Option D:   Cost of system is less     Option D:   Cost of system is less     Option D:   Accuracy     I14.   Advantage of using is NOT a standard interface     Option B:   System is less     Option B: <td< td=""><td></td><td></td></td<>                    |           |                                                                                  |
| Option A:   Control lag     Option B:   Process lag     Option C:   Dead Time     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     Option B:   Dead Time     Option D:   Control Lag     0ption D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option A:   Push button     Option D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option D:   1.32     14.   Advantage of using multiplexer in later stage of DAS is     Option A:   Speed of DAS is high     Option B:   Simple system     Option D:   Cost of system is less     Option D:   Kich of the following is NOT a standard interface     Option B:   RS 422 A                                                                                                                                                                                         | 10.       |                                                                                  |
| Option B:   Process lag     Option C:   Dead Time     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     Option B:   Dead Time     Option D:   Control Lag     Option D:   Control Lag     Option A:   Process Lag     Option D:   Control Lag     I2.   Which of the following cannot be an input that is given to the PLC?     Option A:   Push button     Option D:   Control relay     Option D:   Control relay     I3.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option D:   1.32     I4.   Advantage of using multiplexer in later stage of DAS is     Option B:   Simple system     Option D:   Cost of system is less     Option D:   Cost of system is less     Option D:   Accuracy     I5.   Which of the following is NOT a standard interface     Option B:   RS 422 A                                                                                                         |           | adjustments to the final control element?                                        |
| Option C:   Dead Time     Option D:   Error     11.   The deviation of controlled variable from the setpoint is called                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | -         | 6                                                                                |
| Option D:   Error     11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     Option B:   Dead Time     Option C:   Process Lag     Option D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option A:   Push button     Option D:   Control relay     0ption D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option D:   1.32     14.   Advantage of using multiplexer in later stage of DAS is     Option B:   Speed of DAS is high     Option B:   Simple system     Option C:   Cost of system is less     Option D:   Accuracy     15.   Which of the following is NOT a standard interface     Option B:   RS 232 C     Option B:   RS 422 A                                                                                                                                                                                                |           |                                                                                  |
| 11.   The deviation of controlled variable from the setpoint is called     Option A:   Error     Option B:   Dead Time     Option D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option B:   Encoder     Option C:   Sensor     Option D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option B:   0.756     Option C:   0.571     Option D:   1.32     14.   Advantage of using multiplexer in later stage of DAS is     Option B:   Simple system     Option C:   Cost of system is less     Option D:   Accuracy     15.   Which of the following is NOT a standard interface     Option A:   RS 232 C     Option B:   RS 422 A                                                                                                                                                                                                                                                                            | <b>^</b>  |                                                                                  |
| Option A:   Error     Option B:   Dead Time     Option C:   Process Lag     Option D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option A:   Push button     Option D:   Control relay     0ption D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option A:   175     Option B:   0.756     Option D:   1.32     14.   Advantage of using multiplexer in later stage of DAS is     Option B:   Simple system     Option B:   Simple system     Option C:   Cost of system is less     Option D:   Accuracy     15.   Which of the following is NOT a standard interface     Option A:   RS 232 C     Option B:   RS 422 A                                                                                                                                                                                                                                                                                    | Option D: | Error                                                                            |
| Option A:   Error     Option B:   Dead Time     Option C:   Process Lag     Option D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option A:   Push button     Option D:   Control relay     0ption D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option A:   175     Option B:   0.756     Option D:   1.32     14.   Advantage of using multiplexer in later stage of DAS is     Option B:   Simple system     Option B:   Simple system     Option C:   Cost of system is less     Option D:   Accuracy     15.   Which of the following is NOT a standard interface     Option A:   RS 232 C     Option B:   RS 422 A                                                                                                                                                                                                                                                                                    |           |                                                                                  |
| Option B:Dead TimeOption C:Process LagOption D:Control Lag12.Which of the following cannot be an input that is given to the PLC?Option A:Push buttonOption B:EncoderOption C:SensorOption D:Control relay13.A proportional band setting of 175% is equivalent to a gain setting of.Option B:0.756Option D:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           | *                                                                                |
| Option C:Process LagOption D:Control Lag12.Which of the following cannot be an input that is given to the PLC?Option A:Push buttonOption B:EncoderOption C:SensorOption D:Control relay13.A proportional band setting of 175% is equivalent to a gain setting of.Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | -         |                                                                                  |
| Option D:   Control Lag     12.   Which of the following cannot be an input that is given to the PLC?     Option A:   Push button     Option B:   Encoder     Option D:   Control relay     13.   A proportional band setting of 175% is equivalent to a gain setting of.     Option A:   175     Option B:   0.756     Option D:   0.571     Option A:   1.32     14.   Advantage of using multiplexer in later stage of DAS is     Option B:   Simple system     Option C:   Cost of system is less     Option D:   Accuracy     15.   Which of the following is NOT a standard interface     Option A:   RS 232 C     Option B:   RS 422 A                                                                                                                                                                                                                                                                                                                                                                              | -         |                                                                                  |
| 12.Which of the following cannot be an input that is given to the PLC?Option A:Push buttonOption B:EncoderOption C:SensorOption D:Control relay13.A proportional band setting of 175% is equivalent to a gain setting of.Option A:175Option B:0.756Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1         |                                                                                  |
| Option A:Push buttonOption B:EncoderOption C:SensorOption D:Control relay13.A proportional band setting of 175% is equivalent to a gain setting of.Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Option D: | Control Lag                                                                      |
| Option A:Push buttonOption B:EncoderOption C:SensorOption D:Control relay13.A proportional band setting of 175% is equivalent to a gain setting of.Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 12        | Which of the following cannot be an input that is given to the $\mathbf{PL} C^2$ |
| Option B:EncoderOption C:SensorOption D:Control relay13.A proportional band setting of 175% is equivalent to a gain setting of.Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |           |                                                                                  |
| Option C:SensorOption D:Control relay13.A proportional band setting of 175% is equivalent to a gain setting of.Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |                                                                                  |
| Option D:Control relay13.A proportional band setting of 175% is equivalent to a gain setting of.Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption B:Speed of DAS is highOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           |                                                                                  |
| 13.A proportional band setting of 175% is equivalent to a gain setting of.Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           |                                                                                  |
| Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Option D. |                                                                                  |
| Option A:175Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 13.       | A proportional band setting of 175% is equivalent to a gain setting of.          |
| Option B:0.756Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                                                                                  |
| Option C:0.571Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           | 0.756                                                                            |
| Option D:1.3214.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |                                                                                  |
| 14.Advantage of using multiplexer in later stage of DAS isOption A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |                                                                                  |
| Option A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |                                                                                  |
| Option A:Speed of DAS is highOption B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 14.       | Advantage of using multiplexer in later stage of DAS is                          |
| Option B:Simple systemOption C:Cost of system is lessOption D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Option A: |                                                                                  |
| Option D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Option B: |                                                                                  |
| Option D:Accuracy15.Which of the following is NOT a standard interfaceOption A:RS 232 COption B:RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Option C: | Cost of system is less                                                           |
| Option A: RS 232 C   Option B: RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Option D: |                                                                                  |
| Option A: RS 232 C   Option B: RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |           |                                                                                  |
| Option B: RS 422 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | ŭ                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                                                                                  |
| Option C:   RS 485                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Option C: | RS 485                                                                           |

| Option D: | RS 100                                                                   |
|-----------|--------------------------------------------------------------------------|
|           |                                                                          |
| 16.       | Which of the following statement is NOT correct?                         |
| Option A: | Data logger can be called as DAS but DAS is not necessary as data logger |
| Option B: | Data logger is a standalone device                                       |
| Option C: | Data logger can be powered by solar energy                               |
| Option D: | DAS is portable.                                                         |
|           |                                                                          |
| 17.       | Due to the effect of loading                                             |
| Option A: | Output voltage gets decreased                                            |
| Option B: | Output voltage is increased.                                             |
| Option C: | There is no effect on output voltage.                                    |
| Option D: | Output voltage remains constant.                                         |
|           |                                                                          |
| 18.       | What is the expansion for DAQ?                                           |
| Option A: | Data Acquisition System                                                  |
| Option B: | Data Acquiring System                                                    |
| Option C: | Data Allied System                                                       |
| Option D: | Data Acquisition Software                                                |
|           |                                                                          |
| 19.       | Accreditation bodies conduct laboratory assessments:                     |
| Option A: | Against ISO/IEC 17025 alone                                              |
| Option B: | Against ISO 9001 alone                                                   |
| Option C: | Against ISO/IEC 17011 and ISO/IEC 17025                                  |
| Option D: | Against ISO/IEC 17025 and other accreditation requirements documents     |
|           |                                                                          |
| 20.       | What does LabVIEW stand for?                                             |
| Option A: | Laboratory Viewpoint                                                     |
| Option B: | Learning Based Viewpoint                                                 |
| Option C: | Laboratory Virtual Instrumentation Engineering Workbench                 |
| Option D: | Learning Virtual Instrumentation Engineering Workbench                   |

| Q2.<br>(20 Marks ) | Solve any Two out of Three.10 marks each                                  |
|--------------------|---------------------------------------------------------------------------|
| A                  | Draw basic pneumatic system and describe its components.                  |
| В                  | What is Transmitter? Give the classification details of transmitter? Draw |
| D                  | and explain the process loop with transmitter.                            |
| C                  | List any five SAMA symbols. Draw clear symbol with brief description.     |

| Q3.<br>(20 Marks ) | Solve any Two out of Three.10 marks each                                                         |
|--------------------|--------------------------------------------------------------------------------------------------|
| Α                  | Draw the basic structure of PLC and describe its components in detail.                           |
| В                  | What is the need of composite controller? Explain PI Controller in detail.                       |
| С                  | What is a Data Acquisition System (DAS)? Describe, with clear diagram, working of a typical DAS. |