Q.25 Mention differences between hydraulic & pneumatic systems.
Q.26 Describe stepper motor with neat diagrams.
Q.27 Mention the applications of Synchronous motor.
Q.28 Differentiate between Mircoprocessor and Microcontroller.
Q.29 Define the Logic gates. List the basic logic gates.
Q.30 List the applications of Logic gates.
Q.31 Write a short note on Peripheral Interfacing.
Q.32 Write the requirements for a good interface adapters.
Q.33 What is relay? Write the principle on which it works.
Q.34 Draw the ladder diagram to represent : -Two switches are normally open and both have to be closed for a motor to operate.
Q.35 At what conditions master control is used? How does jump control work?

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Mention types of the directional control valve and method of their actuation symbols.
Q.37 How does microprocessor work list out terms used in microprocessor?
Q.38 What is sensor interfacing and explain interfacing of pressure sensor?

Roll No. .....

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Sub.: Mechatronics

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 What converts physical input into output, among the basic parts of a measuring system?

a) Transducer or sensor b) Signal conditioning
c) Intelligence d) Display

Q.2 Where is the feedback generated by sensors in a mechatronics system given?

a) Input sensors
b) Comparators
c) Mechanical actuators
d) Output sensors

Q.3 What type of interface does a DAQ (Data acquisition) hardware creates?

a) Interface between two similar signals
b) Interface between a computer and signal
c) Interface between two dissimilar signals
d) Interface between two similar hardware

Q.4 Which among the following fluid parameters are not controlled by the control valves?

a) Pressure b) Rate of flow

c) Speed d) Direction of flow

Q.5 Which electrical relay contact tip material has the highest electrical conductivity?

a) Silver

b) Alloy of silver and copper

c) Allow of silver and tungsten

d) Alloy of silver and Nickel

Q.6 Which gate is called as equality detector?

a) 2 input AND Gate b) 2 input NAND Gate

c) 2 input XOR Gate d) 2 input XNOR Gate

Q.7 What is the major difference between a mirco processor and a micro controller?

a) Presence of external peripherals

b) Presence of internal peripherals

c) CPU

d) Stack pointer

Q.8 Which among the following is the main advantages of a microcontroller?

a) Simple programming

b) High level programming

c) Costly

d) High voltage requirement

Q.9 Data acquisition can be done on qualitative quantities.

a) True b) False

Q.10 Ladder logic programming consists primarily of

a) Virtual relay contacts and coils.

b) Logic gate symbols with connecting lines

c) Function blocks with connecting lines

d) Text-based code.

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Mechatronic systems.

Q.12 Performance Terminology.

Q.13 Data Acquisition system.

Q.14 Actuation.

Q.15 Solenoid

Q.16 Digital Logic

Q.17 Micro controller

Q.18 Interfacing.

Q.19 Shift Registers.

Q.20 Internet Relays.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain with a block diagram the measurement system.

Q.22 Define the sensors and transducers with example.

Q.23 Explain briefly data acquisition system.

Q.24 What is 5/2 DCV? Explain with neat sketch.