Diploma Exam 2022 (Old)
(Common) (Theory)
Industrial Automation (Basics) (20005050)

[Max. Marks: 70]

All questions are compulsory.
Marks are mentioned on the right side of each question.

Q.1 Choose the most suitable answer the following options **Group (A)** (1*20=20)

i. Which of the following is considered a high level language?
(a) Assembly language (b) Machine language (c) FORTRAN (d) All of the above

ii. CAD/CAM is the inter-relationship between
(a) engineering and marketing
(b) engineering and manufacturing
(c) marketing and design
(d) manufacturing and marketing

iii. Which item best describes a CAM technology?
(a) geometric modeling (b) documentation (c) drafting (d) numerical control

iv. The heart of automation technology is
(a) robots (b) computers (c) control (d) sensors

v. The steady state error is
(a) zero for all inputs to type I systems
(b) decreased by increasing gain
(c) independent of the type of input
(d) a function of the transient response

vi. Pressure sensors:
(a) Use the piezoresistive effect in strain gauge sensors
(b) Use an aneroid chamber with a variable resistance output
(c) Use capacitive variations to sense pressure
(d) All of the above

vii. An aneroid barometer
(a) Is very unreliable
(b) Can measure only atmospheric pressure
(c) Measures pressure by sensing deflection of an evacuated chambers
(d) Can be used to measure gas or liquid flow rates

viii. The name given to the test that determines whether a machine can think is the:
(a) Gaussian test (b) McCarthy test (c) Turing test (d) Boolean test

ix. How is the integral mode implemented using analog methods?
(a) Op amp and resistors
(b) Op amp and a capacitor
(c) Op amp and an RC network to place the error voltage across the capacitor
(d) All of the above

x. Fusing factor of fuse is always
(a) less than 1 (b) more than 1 (c) infinity (d) zero

xi. DC motors can be modeled as:
(a) Armature controlled (b) Field Controlled (c) Both a and b (d) None of the mentioned

xii. DC motors are constructed using:
(a) Permanent Magnet (b) Electromagnet. (c) Magnets are not used (d) Plastics

xiii. What is the actuating quantity for the relays?
(a) Magnitude (b) Frequency (c) Phase angle (d) All of these

xiv. When _____ contacts are actuated, they disrupt the power supply through them.
(a) normally open type (b) normally closed type (c) both a. and b. (d) none of the above

xv. Which of the following is the output of a Thermocouple?
(a) Alternating current (b) Direct current (c) AC voltage (d) DC voltage

xvi. Which of the following is/are components of an electric drive?
(a) Control unit and Power Modulator
(b) Electric Motor and Control System (c) Input Command (d) Sensing Device and Electric Motor

xvii. Which of the following motor can be referred as a universal motor?
(a) Permanent magnet motor (b) DC shunt motor (c) DC series motor (d) DC compound motor,

xviii. The output generated by the piezoelectric sensor is _____.
(a) Mechanical (b) Electric charge (c) Chemical (d) All the above

xix. What are the Approaches of Automation to improve productivity in manufacturing operations?
(a) The USA principle (c) An automation migration strategy
(b) The ten strategies for automation and production systems (d) All of the above

xx. Control loop unit of M.C.U is always
(a) a hardware unit (b) a software unit (c) a control unit (d) none of the mentioned

Group (B)

Q.2 What is industrial automation components? 4

Q.3 What is the objective for industrial automation? 4

Q.4 What are the four levels of industrial automation? 4

Q.5 What are the 3 central types of automation? 4

Q.6 What is level zero in industrial automation? 4

Group (C)

Q.7 What is the highest level of industrial automation?

Q.8 What are the application of mathematics in industrial engineering?

Q.9 What are two examples of the applications of mathematics in industry?

Q.10 How we did Temperature Measurement in industrial automation?

Q.11 What are the 4 main motor types?