

CVM UNIVERSITY**M.Sc. (Surface Coating Technology) Semester- I Examination -2021**

Monday, 1st March -2021

10:00 AM to 12:00 PM

101470108: Fundamental Mechanical Engineering for Coating Technologist**Total Marks 60****Note:** (1) Attempt all questions.

(2) Figures to the right indicate marks.

- Q. 1 (a) Answer the following multiple choice questions. (08)**
- 1 Pressure is the property of fluid and it is designated as
(a) N / m^2 (b) Bar
(c) Pascal, KPa, MPa (d) All of these
 - 2 Which is the property of a material to undergo deformation, under tension without breaking?
(a) Stiffness (b) Hardness
(c) Ductility (d) Strength
 - 3 Cross belt drive means when two shafts are _____, but its direction of rotation is _____.
(a) Perpendicular, same (b) Parallel, opposite
(c) Perpendicular, opposite (d) Parallel, same
 - 4 Shearing process using a die and punch where the interior portion of the sheared sheet is to be discarded, is known as
(a) Punching (b) Perforating
(c) Blanking (d) Lancing
 - 5 It controls the rate of flow of fluid which in turn controls the speed of motion of actuators.
(a) Direction control valve (b) Flow control valve
(c) Pressure control valve (d) Check valve
 - 6 The axis of shaft is perpendicular and non-intersecting in
(a) Worm gear (b) Bevel gear
(c) Helical gear (d) Spiral gear
 - 7 Robots can be used in assembly work in the industries for
(a) High precision. (b) High precision and accuracy
(c) High accuracy. (d) Low precision and accuracy.
 - 8 Hydraulic systems are having advantages like
(a) Higher working force (b) Accuracy in movement
(c) Self-lubricating effect (d) All of these

- Q. 1 (b) Attempt the following questions as True / False. (08)**
- 1 Force is the product of mass and acceleration of the body upon which it is applied.
 - 2 Absolute pressure = Gauge pressure - Atmospheric pressure
 - 3 Ceramic materials are brittle and less ductile in nature.
 - 4 The ratio of stress to the strain produced in a material is a constant, called modulus of plasticity.
 - 5 Rack and pinion drive is used to transmit rotary motion to linear motion.
 - 6 Grinding Process is an abrasive machining process that uses a grinding wheel as the cutting tool.
 - 7 The main function of tail stock to support the job when required and it is also used to perform drilling operation.
 - 8 Drawing is a metalworking process which uses compressive forces to stretch metal.

- Q. 2 Attempt any six questions of the following. (12)**
- 1 Define these mechanical properties: Strength, hardness
 - 2 Compare between flat belt and V belt drive.
 - 3 What is bearing? Why it is used in power transmission?
 - 4 What is nozzle? What is its function?
 - 5 Define extrusion process with an example.
 - 6 Explain metal forging process with its advantages.
 - 7 Draw line diagram of Lap and Butt welding joints.
 - 8 What is pattern allowance? List the types of pattern allowances?

- Q. 3 What is the function of coupling? Draw line diagram of flange coupling. (08)**

OR

- Q. 3 Compare the characteristic of Belt drive, Chain drive and Gear drive.**
- Q. 4 Show any six operations performed on lathe machine, showing direction of speed, feed and depth of cut with line diagrams. (08)**

OR

- Q. 4 Brief various sheet metal operations with diagram.**
- Q. 5 Compare between hot working & Cold working process. (08)**

OR

- Q. 5 Define welding process. What are the advantages and disadvantages of welded joints?**
- Q. 6 Compare working characteristics of hydraulic systems versus pneumatic systems. (08)**

OR

- Q. 6 Draw line diagram of spraying gun with labelling of all components. Explain its working mechanism.**
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