

TEMPLECITY INSTITUTE OF TECHNOLOGY & ENGG.
(DIPLOMA)
1st Internal Assessment Test-W-2021

Sub: -EEM
Branch: - EE
FM - 20
Time: - 1 Hour
3rd Sem

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(Figures in the right-hand margin indicate marks)

1. Answer Any Three. (3 x 2 marks)
- (a) Write down the unit of resistivity
 - (b) What is ductility property of a material?
 - (c) Name the material used for winding of generator and transformer.
 - (d) What is ACSR Conductor
2. Answer Any Two. (2 x 3.5 marks)
- (a) Write two uses of Tungsten material
 - (b) What are strain gauges.
 - (c) Write two differences between Hard drawn Copper and Annealed Copper.
3. Answer any One. (1 x 07 marks)
- (a) State and explain Hall Effect Generator.
 - (b) State and explain Copper Oxide Semiconductor as rectifier.

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1/ (a) The unit of resistance is the ohm. Thus in the metre-kilogram-second system the unit of resistivity is ohm-metre. If lengths are measured in centimetres, resistivity may be expressed in units of ohm-centimetre.

(b) Ductility is the ability of a material to be drawn or plastically deformed without fracture. It is therefore an indication of how 'soft' or malleable the material is. The ductility of steels varies depending on the types and levels of alloying elements present.

(c) This enameled copper wire is used for generator motor winding and field windings.

(d) Aluminium conductor steel-reinforced is a type of high-capacity, high-strength, stranded conductor typically used in overhead power lines.

2/ (a) Tungsten derives its name from the Swedish "Tung sten" which translates to "heavy stone". Tungsten is a metal that is gray-white in color. This metal is stable and exhibits high resistance to acids and bases.

(b) A strain gauge is a type of electrical sensor. Its primary use is to measure force or strain. The resistance of a strain gauge changes when force is applied and this change will give a different electrical output. Strain gauges use this method to measure pressure, force weight & tension.

© Hard drawn copper has significantly higher tensile strength than soft annealed copper and is used as overhead wire whereas the soft annealed copper is flexible and has somewhat improved conductivity over hard drawn copper conductor.

3/ (a) → At least two Hall effect plates formed on a semiconductor body each having a pair of oppositely positioned current contacts and a pair of oppositely positioned Hall voltage contacts positioned with respect to each other such that a line drawn bisecting the current contacts of one Hall plate is substantially orthogonal to a line bisecting the current contacts of the other Hall plate, means for applying a voltage across the current contacts of each of the Hall plates, means for selectively applying a magnetic field that intersects the Hall plates substantially perpendicularly to the plane of the Hall plates.

(b) A metal rectifier is an early type of semiconductor rectifier in which the semiconductor rectifier or selenium. They were used in power applications to convert alternating current to direct current in devices such as radios and battery chargers. Westinghouse Electric was a major manufacturer of these rectifiers since the late 1920s, under the trade name Westecore now used as a trade name for an overcurrent trip device by Westinghouse Nuclear.