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**3rd Sem / Electrical, Power station Engg,  
Elect, & Eltx.Engg, Fire Tech& safety**

**Subject:- Electrical and Electronics**

Time : 3Hrs. **Engineering Materials** M.M. : 100

**SECTION-A**

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

- Q.1 Class Y insulation has a working temperature of \_\_\_\_\_. (CO3)  
a) 90 b) 135  
c) 180 d) >180
- Q.2 In case of conductors, valence band and conduction band have. (CO3)  
a) Less gap b) more gap  
c) Moderate gap d) Overlapped
- Q.3 The property of materials, by which they can be drawn into wires is known as, (CO2)  
a) Ductility b) Creep  
c) Malleability d) Elasticity
- Q.4 Which is most used conducting material. (CO2)  
a) Gold b) Copper  
c) Silver d) Iron
- Q.5 Solder is an alloy of. (CO5)  
a) Copper and lead  
b) Nickle, Copper, Zinc

- c) Tin and lead  
d) Silver, Copper, and lead

- Q.6 The temperature coefficient of resistance is negative for. (CO1)  
a) Tungsten b) Steel  
c) Carbon d) Copper
- Q.7 Which of the following material is used for making the permanent magnet. (CO6)  
a) Cobalt steel b) Mu-metal  
c) Silicon Iron d) Nickel Iron
- Q.8 Thermocouple works on the principle of \_\_\_\_\_. (CO5)  
a) Joule effect b) Pettier effect  
c) Seebach effect. d) Thomson effect
- Q.9 Most commonly used overhead transmission line conductor are. (CO2)  
a) Copper b) Steel  
c) Galvanized iron d) ACSR
- Q.10 Transformers core are made up of (CO7)  
a) Cast iron b) Silicon steel  
c) Plastic d) Copper

**SECTION-B**

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

- Q.11 Nichrome is an alloy of \_\_\_\_\_ and chromium. (CO2)
- Q.12 In a P-type semiconductors, the minority carriers are \_\_\_\_\_. (CO1)

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- Q.13 Name any two insulating materials. (CO\_3,8)
- Q.14 Armature winding of a d. c machine is made up of \_\_\_\_\_. (CO\_7)
- Q.15 Name any two hard magnetic material. (CO\_6)
- Q.16 Body of the kit kat fuse is made up of \_\_\_\_\_. (CO\_5)
- Q.17 The magnetic material losses its magnetic properties at \_\_\_\_\_. (CO\_6)
- Q.18 Write any two properties of Bakelite. (CO\_3)
- Q.19 ACSR stands for \_\_\_\_\_. (CO2)
- Q.20 Thermocouple is used for measuring \_\_\_\_\_. (CO\_5)

### SECTION-C

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

- Q.21 Mention the electrical and chemical properties of insulating material. (CO\_4)
- Q.22 Write the different types of insulating materials with two examples each. (CO\_3)
- Q.23 Define eddy current losses and discuss the factors on which eddy current loss depends. (CO\_6)
- Q.24 What is fuse? Discuss the important properties of a fuse wire. (CO\_5)
- Q.25 Explain why and where mica are used? (CO\_3)
- Q.26 Explain the process soldering and properties of materials used as solder. (CO\_5)
- Q.27 Define semiconductor. Discuss its engineering applications. (CO\_1)
- Q.28 Classify ferromagnetic materials. Give two examples of each. (CO\_6)

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- Q.29 Mention the factors affecting dielectric strength of insulating materials. (CO3)
- Q.30 Write the properties and applications of copper. (CO2)
- Q.31 Make a list of materials used for making the part of transformer. (CO7)
- Q.32 Write a short note on Bi-metals and its applications. (CO5)
- Q.33 Discuss working of thermocouple with their materials. Mention its important applications. (CO4)
- Q.34 Explain different factors affecting the resistivity of conducting materials. (CO2)
- Q.35 Define super conductivity with two examples and mention its applications. (CO2,4)

### SECTION-D

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

- Q.36 Explain the thermoplastic resin and thermosetting plastic resin with examples, their properties and uses. (CO3,4)
- Q.37 Discuss high resistivity conducting material with their properties and applications. (CO2)
- Q.38 Write various engineering materials necessary for fabrication of DC machines along with their part name. Also explain the reasons of using these, materials for that particular application. (CO7)

Note : Course outcomes ( CO ) mentioned in the question paper is for official purpose only.

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