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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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