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Roll No.

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**3rd Sem / Branch : EE/PSE/E&EE/Fire
Tech. & Safety**

Subject:- Electrical & Electronics

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

SECTION-A

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

- Q.1 Which is the most commonly used conducting materials (CO2)
- a) Gold b) Silver
c) Copper d) Iron
- Q.2 In case of conductors, valence band conducting bands have (CO1)
- a) More gap b) Over lapped
c) Less gap d) Moderate gap
- Q.3 Poorest conductor of electricity is (CO2)
- a) Carbon b) Steel
c) Aluminium d) Silver
- Q.4 The frame of DC motor is made of (CO8)
- a) Copper b) Carbon
c) Cast iron d) Silicon steel
- Q.5 Transformers bushings are made up of (CO5)
- a) Porcelain b) Copper
c) Silicon steel d) Plastic

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- Q.6 Which of the following is used in permanent magnet? (CO6)

a) Nickle iron b) Cobalt steel
c) Silicon iron d) Mu metal

- Q.7 The voltmeter used in thermocouple is of (CO7)

a) Large range b) Low range
c) Medium ranged d) Any of above

- Q.8 The armature winding of dc generator is usually made of (CO8)

a) Copper b) Aluminium
c) Cast iron d) Silicon steel

- Q.9 Materials used for making fuse wire should have melting points. (CO7)

a) High b) Low
c) Medium d) Any of the above

- Q.10 Field Coils of electrical motors are insulated by (CO5)

a) Varnish b) Cotton
c) Mica paper d) Jute

SECTION-B

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

- Q.11 Nucleus of an element has _____ charge on it. (CO1)
- Q.12 What is energy band? (CO1)
- Q.13 What is ACSR? (CO2)

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- Q.14 Superconductors have _____ resistance. (CO2)
 Q.15 What is semiconductor? (CO3)
 Q.16 Define Insulator? (CO4)
 Q.17 Expand PVC? (CO5)
 Q.18 Define Retentivity? (CO6)
 Q.19 Define fuse. (CO7)
 Q.20 Bushings of transformer are made from _____ (CO8)

SECTION-C

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

- Q.21 Give a brief idea on classification of Materials. (CO1)
 Q.22 Draw and explain energy band for Conducting materials. (CO1)
 Q.23 List the desirable properties of good conductor. (CO2)
 Q.24 Explain various properties of Aluminium. (CO2)
 Q.25 What is an Intrinsic Semiconductor? (CO3)
 Q.26 Explain thermal properties of Insulating materials. (CO4)
 Q.27 Explain the importance of Insulating materials in modern engineering application. (CO4)
 Q.28 Explain the procedure for preparation of PVC (CO5)
 Q.29 Differentiate between the thermosetting and

thermoplastic materials. (CO5)

- Q.30 What are ferromagnetic materials? State their properties (CO6)
 Q.31 Differentiate between soft magnetic and hard magnetic materials. (CO6)
 Q.32 Explain the process of soldering and properties of materials used as solder. (CO7)
 Q.33 Draw and explain HRC fuse. (CO7)
 Q.34 Give a brief description of materials used in Electrical machines. (CO8)
 Q.35 Write various engineering materials necessary for fabrication of Transformer. (CO8)

SECTION-D

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

- Q.36 On the basis of atomic structure, write comparison between Conducting, Semiconducting and Insulating materials. (CO1)
 Q.37 Discuss the important properties and applications of Copper. (CO2)
 Q.38 Explain various engineering materials necessary for fabrication of AC and DC Motors. (CO8)