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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) Overlapped
- 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)