

Assignment II
Trade - Electrician

TRADE THEORY

1. Give the thermal classification of insulating materials with example of each class.
2. Describe the uses of the following type of wires –
 - (a) VIR insulating wire
 - (b) Eureka wire
 - (c) Nichrome wire
 - (d) Enamelled wire
3. Classify cables on the basis of voltage grade.
4. What are the precautions to be taken while using cable?
5. What is soldering?
6. What are the safety measures to be taken while soldering?
7. Differentiate between soldering welding and brazing.
8. Give the principles and working of wheat stone bridge.
9. Define resistance in the circuit? On what factors does the resistance of substance depend. Give formula for it?
10. What is circuit breaker? Describe the various types of circuit breaker?
11. What is a circuit? Explain types of circuit?
12. What is switch? Explain their types.
13. What are primary cells and secondary cells?
14. What are the different methods of charging of batteries? Explain.
15. What are the difference in lead acid cell and nickel iron cell? Explain their remedies.
16. How are metals extracted by electrolysis?
17. Explain magnet and its magnetisation properties.
18. Explain types of magnet and methods of magnetisation.
19. Explain operation of electric bell and buzzer.
20. What are series group and parallel group in resistors? Define the formula for them.
21. What are series group and parallel group in capacitors? Define the formula for them.
22. Explain charging process of a capacitor.
23. What is motor?
24. What is generator? What is the principle of generator?
25. What is energy and its unit?
26. What is Faradays law of electromagnetic induction?
27. What is transformer? Explain with a sketch.
28. What is a power factor?
29. What is the typical use of an auto-transformer?
30. Which is the common method of cooling for power transformer?
31. What type of losses is there in a transformer? Explain.
32. What is the importance of lamination in core?
33. What is a cell or a battery?
34. What is direction of current in internal circuit of battery?
35. What is local action and polarization in lead acid cell?
36. What are magnetic materials and magnetic flux?
37. What is magnetic axis?
38. What is insulation resistance and its unit?
39. What is synchronous speed? Describe by the formula.
40. What is back E.M.F in DC Motor?
41. Why is 4 point starter used to drive DC machines?
42. How to change the direction of rotation in a 3 phase AC induction motor?
43. How to change the direction of AC ceiling fan?
44. What is the importance of overload coil?
45. What is fuse?
46. What are power circuit & control circuit?
47. What are line current & phase current?
48. What are line voltage and phase voltage?
49. Is ammeter connected in series with line and why?
50. What is star delta connection?

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51. What are rotor and stator?
 52. What are field and armature?
 53. What are commutator and slip ring?
 54. What is Torque?
 55. How should we select the earth value resistance?
 56. What are under voltage relay and earth fault relay?
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ENGINEERING DRAWING

1. Draw a suitable diagram of the T-square and explain about it.
 2. Draw a suitable diagram of the square prism, pentagonal pyramid and ellipse.
 3. What is triangle? Define the various type of triangle with appropriate drawings.
 4. What is quadrilateral? Define the various types of quadrilateral with appropriate drawings.
 5. What is polygon? Explain the types of polygon with suitable diagrams.
 6. Define centre, radius, diameter, circumference chord, sector, tangent, semi circle with suitable diagrams.
 7. Write 1 to 10 in double stroke vertical gothic lettering using the ratio of 7:4 and height 35mm.
 8. What is dimensioning? Draw and explain unidirectional system of dimensioning.
 9. Draw and explain parallel type, chain type and progressive type dimensioning.
 10. Draw the free hand sketch diagram of –
 - (a) Flat file
 - (b) Hammer
 - (c) Spanner
 - (d) Combination Plier
 - (e) Try-square
 - (f) Crimping Machine
 - (g) Bearing Puller
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WORKSHOP CALCULATION & SCIENCE

1. If $(x + y) = 5$ and $xy = 4$, then find the value of $(x^2 + y^2)$?
2. If $2x + 3y = 8$, $x + 2y = 5$, then find the values of x and y ?
3. A man sold 9 tables and 7 chairs for Rs. 11320 and 6 tables and 13 chairs to another person for 12130. What was the price for each?
4. A rectangular sheet of metal measures 8cm by 6cm. Four quadrants of circles each of radius 2cm are cut away at corners. Find the area of remaining portion?
5. If $\frac{\sin\theta}{\cos\theta} + \frac{\cos\theta}{\sin\theta} = 2$, then find the value of θ ?
6. If $x = 45^\circ$ and $y = 15^\circ$, then find the value of $\cos x + \cos y$
7. Prove that $\frac{1-\cos 2\theta}{1+\cos 2\theta} = \tan^2\theta$
8. Write the difference between AC and DC?
9. Write about –
 - (a) Insulator
 - (b) Conductor
 - (c) Semi – Conductor
 - (d) Electromotive Force
 - (e) Frequency

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10. Define ohm's Law.
11. If a parallel circuit of electricity has three resistance of value 8Ω , 5Ω and 3Ω . Calculate the total resistance of the circuit?
12. What is temperature? Describe different scales of temperature. Write the relation between them.
13. What are pyrometers? Name two types of pyrometers.
14. Define mechanical advantage, velocity ratio and efficiency of machine.
15. Explain lever and principle of lever. State different classes of levers with their applications.
16. What is young's modules? Draw a simple stress, strain diagram and explain ultimate stress, breaking stress and yield point.
17. Define factor of safety. What safe load can be suspended from a wire 6mm diameter, if the ultimate tensile strength of its material is 3500kg/cm^2 and factor of safety is 5?
18. Explain insulator and their types. Write the properties of good insulator.
19. Define the terms –
 - (a) Magnetic flux
 - (b) Magnetic flux density
 - (c) Permeability
 - (d) Reluctivity
 - (e) electromagnet
 - (f) Magnetomotive force
20. Classify the magnetic materials.
21. Explain the term atmospheric pressure.
22. Explain Boyle's Law.
23. If $m = 7 - 4\sqrt{3}$, then find the value of $(m + \frac{1}{m})$?
24. If $3^{x+3} + 7 = 250$. Find the value of .
25. Find the value of x and y -
If $9x + 5y = 19$ and $3x + 7y = 17$
26. Find the value of x , if $(x - 4)^2 - (x + 4)^2 = -16$
27. Draw and briefly explain the various type of AC Waveform.
28. Define the following terms –
 - (a) Cycle
 - (b) RMS Value
 - (c) Time period
 - (d) Average value
 - (e) Instantaneous value
29. Explain and draw the series R – L circuit.
30. Explain series and parallel connection of capacitor.
31. What is friction? Explain the types of friction?
32. Write short note on Newton's Law of Motion?
33. Convert $(1100101.00101)_2$ into equivalent decimal number.
34. Convert 1924 into hexadecimal equivalent.
35. Convert $(ACB.8C)_{16}$ into octal equivalent.
36. What do you understand by estimation and explain the objective of estimation.
37. Find the mean, median and mode of the following data –

Class Interval	0 -50	50 -100	100-150	150-200	200-250	250-300	300-350
Frequency	2	3	5	6	5	3	1

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38. A sum of Rs. 2668 amounts to Rs. 4669 in 5 year at the rate of simple interest. Find the rate percent?
 39. Find the Compound interest on Rs. 31250 at 16% per annum compounded quarterly for 9 months.
 40. A vendor buys oranges at Rs. 2 for 3 oranges and sells them at a rupee each. How many oranges he must sell to make a profit of Rs. 10?
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EMPLOYABILITY SKILLS

1. What is noun? Explain the types of noun with suitable examples.
 2. What is the importance of preposition? Describe the use of any five prepositions.
 3. Mention the point to be considered in writing a C.V./ Bio-Data.
 4. What is computer? Describe the function of CPU.
 5. Explain the various types of output devices with suitable example.
 6. Describe the basic functions of an operating system.
 7. How to create a file and folder?
 8. What are the main features of Ms. Word?
 9. What is worksheet? Briefly explain the step for printing simple excel sheet.
 10. What is internet? Explain the advantages and disadvantages of Internet.
 11. Define types of networking with suitable example.
 12. What is communication? Explain.
 13. Briefly examine the barrier of communication and how to overcome it?
 14. What do you understand by attitude?
 15. Explain entrepreneurship.
 16. Describe consumer- behaviour.
 17. Briefly explain the method of Marketing?
 18. Explain SWOT Analysis.
 19. Give the reason for the need of employment
 20. What is SSI? Describe the objective of SSI.
 21. What is PMRY? Explain the objectives and eligibility criteria of it.
 22. What is GDP? What are the features affecting GDP?
 23. Explain productivity. Describe the factors affecting productivity.
 24. What do you mean by pollution? Explain the types of pollution.
 25. List down the basic rules for safety to prevent an accident in workplace.
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