SYLLABUS FOR TRADE TEST (SKILL TEST) FOR THE POST OF TECHNICIAN ELECTRONICS & COMMUNICATION ENGINEERING

1. Familiarization with operation and use of the following instruments.
   Multi-meter, CRO, Signal generator, Regulated Power Supply by way of taking readings of relevant quantities with their help.
2. Plotting of V-I characteristics of a PN junction diode and Zener diode.
3. Measurement of the voltage gain, input and output impedance in a single state CE amplifier circuit.
4. Fabrication and Observation of the wave shapes for the following rectifier circuit
   a. Half-wave rectifier
   b. Full-wave rectifier
   c. Bridge-rectifier
5. Plotting of the wave shape of full wave rectifier with
   a. Shunt capacitor filter
   b. Series inductor filter
   c. RC filter
6. Plotting of input and output characteristics and calculation of parameters of transistors in CE&CB configuration.
7. Measurement of voltage, frequency, time and phase using DSO.
8. Verification and interpretation of truth tables for AND, OR, NOT NAND, NOR and ExclusiveOR (EXOR) and Exclusive NOR(EXNOR) gates.
9. Realisation of logic functions with the help of NAND or NOR gates
   - Design of a NOR gate latch and verification of its operation
10. To design a half adder using XOR and NAND gates and verification of its operation
    Construction of a full adder circuit using XOR and NAND gates and verify its operation
11. 4-bit adder, 2's complement subtractor circuit using a 4-bit adder IC and an XOR IC and verify the operation of the circuit.
12. To design a NOR Gate Latch and verification of its operation
13. Use of IC 555 as monostable/astable multivibrator and observe the output for different values of RC
14. To use IC 741 (op-amplifier) as

    i) Inverter, ii) Adder, iii) Subtracter iv) Integrator

15. To realize positive and negative fixed voltage AC power supply using three terminal voltage regulator IC (7805, 7812, 7905)
16. Recognition and use of various types of connectors RJ-45, RJ-11, BNC and SCST
17. Making of cross cable and straight cable
18. Identify the IP address of a workstation and the class of the address and configure the IP Address on a workstation
19. Operation of 8051 Micro-controller Kit.
20. Write Program to interface ADC with 8051 Micro-controller.