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VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD B.E. (CBCS) III-Semester Main Examinations, December-2017

Electrical Installation and Safety

Time: 3 hours Max. Marks: 70

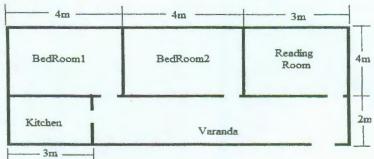
Note: Answer ALL questions in Part-A and any FIVE from Part-B

Part-A $(10 \times 2 = 20 \text{ Marks})$

- 1. What do you understand by Electrical Wiring?
- 2. Which parameters decide the selection of Wiring?
- 3. What is mean by Electrocution?
- 4. List the Hazards of Electricity.
- 5. Give the requirements of good lighting.
- 6. Why is it necessary to clean the light fittings periodically?
- 7. What is the maximum load and number of points that can be connected in a power sub-circuit?
- 8. Calculate the load current of 30KVA power load.
- 9. What is the starting current drawn by the 20HP motor?
- 10. List the types of starters used for Induction motors.

Part-B $(5 \times 10 = 50 \text{ Marks})$

- 11. a) Which type of wiring is used purely temporary purpose, why? Give its advantages and disadvantages. [4]
 - b) Give the comparison between different wiring systems. [6]
- 12. a) Explain in detail the Hazards of Electricity.
 - b) What do you understand by CPR & AED? Explain in detail. [4]
- 13. a) A drawing hall of Engineering college of 36m X 20m is to be illuminated so as to provide with 35 Lux at working plane. The Utilization factor =0.5, Depreciation factor = 1.3 & space-height ratio = 1.3. Calculate the number of lamps, wattage of each lamp and Draw i) Schematic arrangement of lamps. ii) Wiring plan showing the sub-circuits. iii) Electrical circuit wiring diagram of one of the sub-circuit from meter board.
 - b) How do you eliminate the stroboscopic effect in lighting design? [3]
- 14. a) [7]



For the above house plan prepare the design brief report only for the Raw power loads. Assume 3-Phase supply and balance the 3-phases.

b) How do you differentiate lighting load and Raw power load?

[3]

[6]

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15. a) 3-ph, 415V, 50Hz, 15HP and 10HP squirrel cage motors are to be installed in a workshop [7] of 9m X 6m. Determine the rating of main fuse switch, each motor control switch, Cable sizes from meter board to the each motor terminal and draw i) a floor plan of placing these machines. ii) Electrical circuit wiring diagram. b) Why starter is necessary for a motor? [3] 16. a) Explain about CTS cable with neat sketch and give its advantages & disadvantages. [5] b) Explain about MCB with neat sketch. [5] 17. Answer any two of the following: a) An auditorium of 15m X 6m X 4.5m height is to be fitted with fan and light points. The [5] illumination required is 10W/m² and the numbers of fans are four of 60W each. Calculate the number of lamps with wattage. Draw schematic arrangement of lamps and fans. b) If the Connected load of a hotel is 18.125KVA, Calculate the size of Service Power Cable [5] require. c) A lathe shop of 15m X 30m has to be equipped with 5HP, 3HP & 1HP, 3-ph, 415V, 50Hz [5] motors. Determine the rating of main fuse switch, each motor control switch, Cable sizes

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from meter board to the each motor terminal.