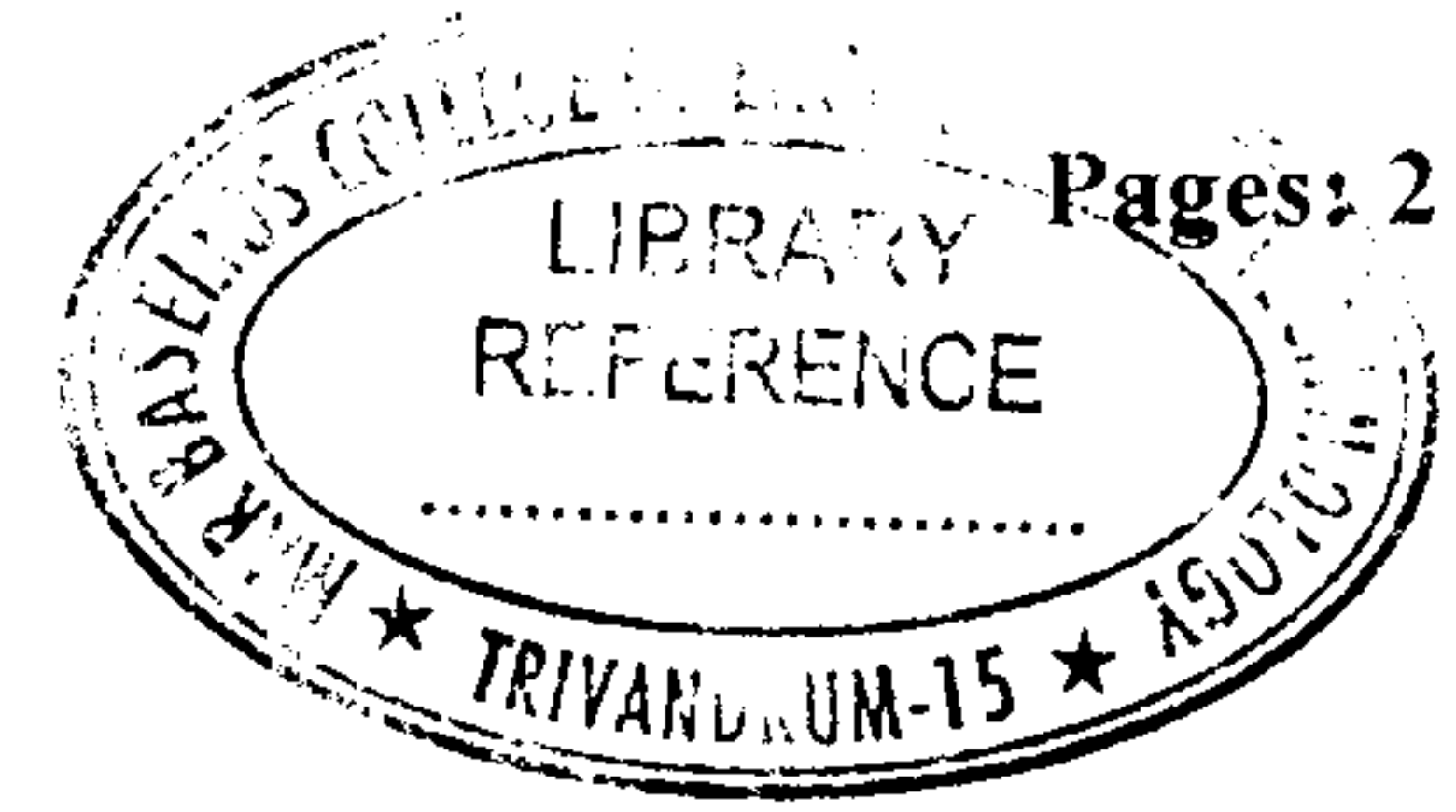


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G1057



Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SEVENTH SEMESTER B.TECH DEGREE EXAMINATION(S), MAY 2018

Course Code: EE405
Course Name: Electrical System Design

Max. Marks: 100

Duration: 3 Hours

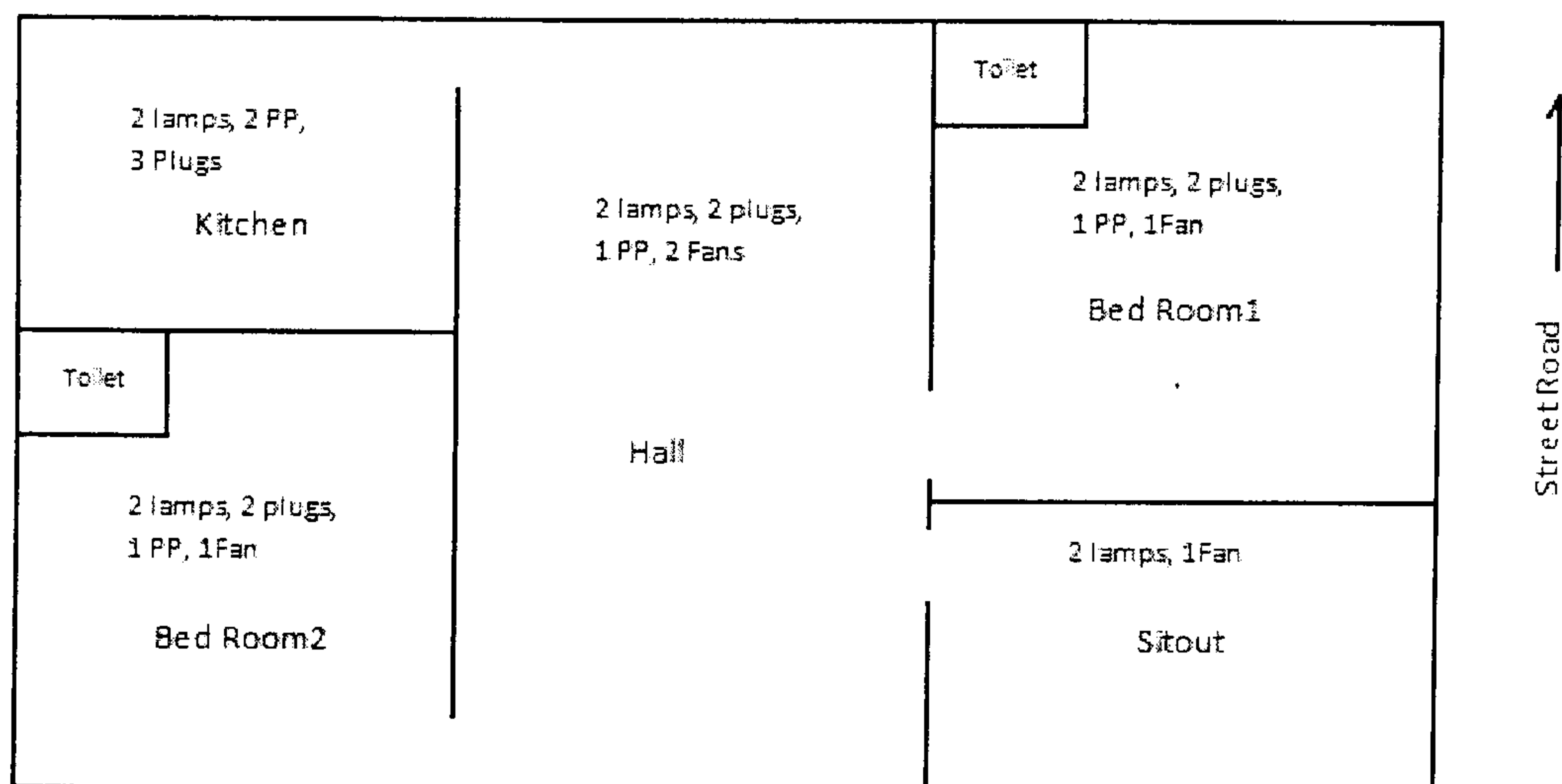
PART A*Answer all questions, each carries 5 marks.*

Marks

- | | | |
|---|--|-----|
| 1 | Why it is necessary to have pre-commissioning tests of electrical installations. | (5) |
| 2 | Specify a circuit breaker having both short circuit and overload protection. Explain its difference between MCB and ELCB. | (5) |
| 3 | Draw the single line diagram of an indoor substation showing all accessories of the system. | (5) |
| 4 | List out different types of transformer tests carried out before commissioning. | (5) |
| 5 | A certain incandescent lamp, hangs from the ceiling of a room. The illuminance received on a small horizontal screen lying on a bench 2m vertically below the lamp is 63.5 lux. Calculate illuminance at a point when the screen is moved horizontally a distance of 1.5m along the bench. | (5) |
| 6 | Mention the features of good lighting scheme for buildings? | (5) |
| 7 | What are the various energy conservation techniques imposed in buildings? | (5) |
| 8 | Briefly explain need of a solar PV system for domestic application. | (5) |

PART B*Answer any two full questions, each carries 10 marks.*

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|----|--|------|
| 9 | a) What are the steps to be followed for safety precautions against electric shock? | (4) |
| | b) Describe electric service in buildings. | (6) |
| 10 | a) What are different protective devices used in domestic installation? Explain each one in detail. | (6) |
| | b) Describe the selection procedure for ELCB for domestic and industrial dwelling. | (4) |
| 11 | Design an electrical schematic for the residential building with following details. Locate the positions of meter board, Main Switch board, DB, switch boards. | (10) |



PART C

Answer any two full questions, each carries 10 marks.

- 12 a) What are the advantages and disadvantages of an outdoor type substation over an indoor type substation? (6)
- b) What are the classifications of the substations according to its functions? (4)
- 13 a) Design a wiring plan for installing a 75HP induction motor in an industry. (6)
- b) How do you select the starter for the above Induction motor of 0.8pf, 75% efficiency? Explain. (4)
- 14 a) How do you design an earth mat in substation? Explain its importance. (5)
- b) What are most common test in UG cables? Explain. (5)

PART D

Answer any two full questions, each carries 10 marks.

- 15 a) What is energy conservation techniques imposed in buildings? Mention its necessity. (5)
- b) Distinguish between continuous power, prime power and standby power related with standby generator. (5)
- 16 a) Explain rising mains and rising buses in high rise buildings. (4)
- b) Explain the various design parameters taken into consideration while designing street lighting and flood lighting. (6)
- 17 a) Explain with suitable line diagram, how standby generators can include in existing electrical supply system. Assume HT consumer connection. (6)
- b) Write short notes on generator installation and its protection. (4)
