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

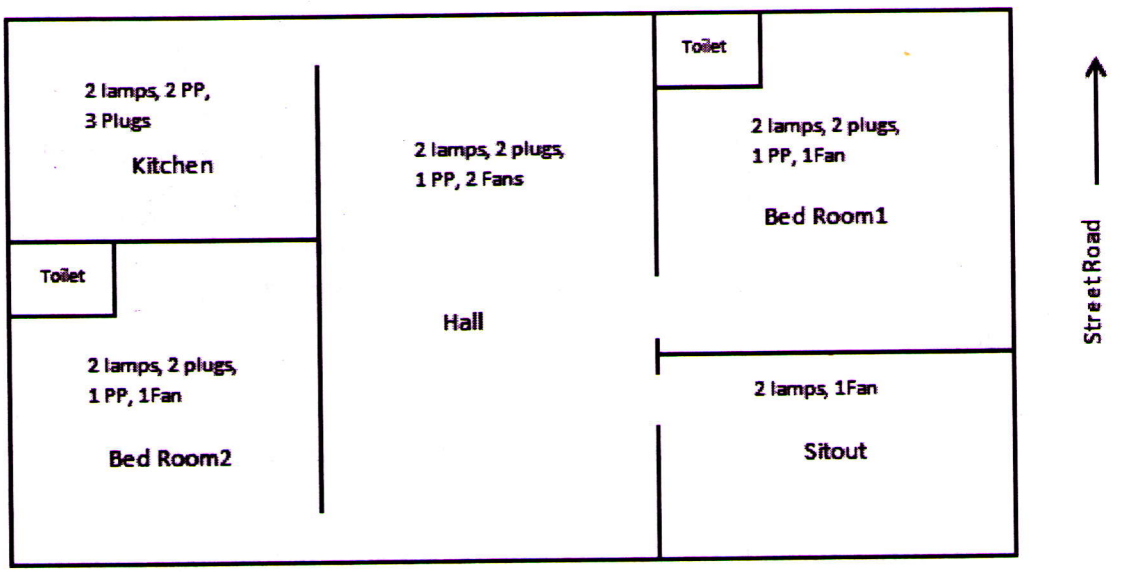
Answer all questions, each carries 5 marks.

		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.

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)

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