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15/11/14

Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

BE (Elect), sem - VII, Re-exam

RE-Examination
Second Half 2014

Duration : 3 Hours

Total Marks : 100

CLASS/SEM: BE/VII

SUBJECT: Design, Management and Auditing of Electrical System

- Attempt any FIVE question out of SEVEN questions
- Answers to all sub questions should be grouped together
- Figures to the right indicate full marks
- In the absence of any data, make suitable assumptions and justify the same.

Master

Q.1a) Explain the role of DMAES Engineer in audit process. (10)

b) What is the concept of payback period pertaining to the financial analysis technique? (05)

c) Explain the need of low voltage switchgear. (05)

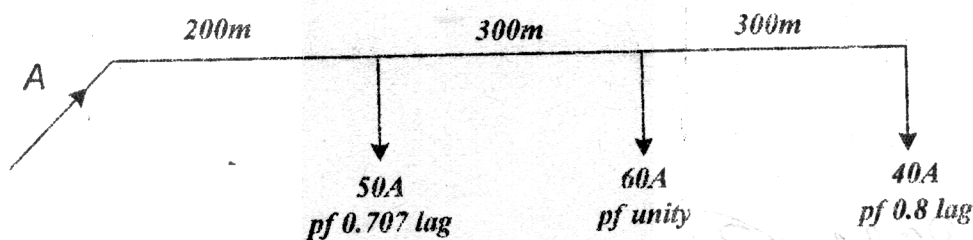
Q.2a) Write a note on Diesel Generator set by considering following points: (15)

- De rating factors
- Site conditions/facilities required before and during operation of DG set
- Details and specifications of DG set to be given to the manufacturer

b) What is the concept of green building? (05)

Q.3a) What is the necessity of electrical load management and maximum demand control? (10)

b) A single phase distributor fed at end A is loaded as shown Fig. below. The loop resistance and reactance per km are 0.3 and 0.15 ohm respectively. Determine the voltage drop at the far end. (10)



Page - ①

Q.4a) The three phase Diesel Generator set is supplying the isolated load through the cable having impedance $(0.01+j0.02)$ ohm per phase. The terminal voltage (at the load end) is 1100V and load is 10000 KVA. Calculate the source voltage (at the generator terminals) for: (08)

(i) 0.8 p.f. leading load

(ii) 0.8 p.f. lagging load (04)

Draw the phasor diagram in both cases.

b) Discuss various factors to be considered in cable's conductor sizing (08)

Q.5a) Explain the energy efficient technologies used in electrical motors and drives system. (10)

b) Draw Single Line Diagram, assuming emergency DG Set supply of 500 KVA and main utility supply of 22 KV and fault level of 65 KA at supply point. (10)

Q.6a) Derive the expression for the voltage drop in cable for single phase system and hence explore it for three phase system. (10)

b) Discuss the importance of power factor improvement from Utility point of view. (05)

c) What are the important factors to be considered while selecting the transformer in substation? (05)

Q.7a) Describe in brief the major equipments used in primary substation. (12)

b) Explain the different types of substation used in distribution system. (08)

File
27/10/14

Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

BE (Elect), Sem - VII

Second Half 2014

Total Marks :100

Duration : 3 Hours

CLASS/SEM: BE/VII (ELECTRICAL)

SUBJECT: Design, Management and Auditing of Electrical System

- Attempt any FIVE question out of SEVEN questions
- Answers to all sub questions should be grouped together
- Figures to the right indicate full marks
- In the absence of any data, make suitable assumptions and justify the same.

Master

Q.1a) Explain the tendering process in detail. (10)

b) What is the concept of time value of money and payback period pertaining to the financial analysis technique? (10)

Q.2a) Enlist the major equipments used in primary substation. Define the criterion for the selection of location of substation. (10)

b) Enumerate the criterion for the: (06)

i) Selection,

ii) Specification and

iii) Sizing of distribution transformer.

c) Distinguish the criterion for the selection of HT and LT switchgear. (04)

Q.3a) A busbar having two incoming lines of currents 1000A and 2500A respectively and three outgoing lines out of which currents in two lines are 500A and 1500A respectively. Draw the single line representation and provide the differential protection for the same. (08)

b) Explain Load Factor and Demand Factor. (04)

c) A domestic lighting installation having fifteen, 60 watt lamps is operated as follows: (08)

5 lamps from 6 p.m. till 8 p.m.

10 lamps from 8 p.m. till 10 p.m.

6 lamps from 10 p.m. till 12 p.m.

(i) Determine the connected load, the maximum demand, the demand factor and daily load factor.

(ii) Also determine the improved load factor if a 2 KW immersion heater is used from 1 p.m. till 5 p.m. and a 2 KW heater from 8 p.m. till 11 p.m.

Q.4a) What is the necessity of electrical load management and maximum demand control. (10)

BEElectr'n). sem- VII, Design, management & Auditing of Electrical System, 27/10/14

b) For given load data find total KVA and overall pf. Also calculate the capacitor required to improve pf to 0.9 lagging. Assume system voltage is 400V. (10)

Sections	Efficiency	Pf (lag)	Load in kW
Production Center	0.75	0.7	500
Office	0.85	0.8	100
Stores	0.8	0.8	75
Quality Control	0.85	0.85	125

Q.5a) The three phase Diesel Generator set is supplying the isolated load through the cable having impedance $(0.04+j0.06)$ ohm per phase. The terminal voltage (at the load end) is 400V and load is 15000 KVA. Calculate the source voltage (at the generator terminals) for: (10)

(i) 0.9 p.f. leading load

(ii) 0.9 p.f. lagging load

b) Discuss the various factors to be considered while designing interior lighting of mall. (10)

Q.6a) Enumerate the means of energy efficient technologies in electrical system and explain in brief the energy efficient transformers and electronics ballast. (10)

b) A three phase four wire 400 V system feeds a balanced load of 480 KW at 0.8 p.f. lag as well as single phase loads of 50 KW, 150 KW and 200 KW each at unity p.f. connected between a, b and c phase respectively. Determine the current in each line and in the neutral wire of the system. (10)

Q.7a) Derive the expression for the voltage drop in cable for single phase system and hence explore it for three phase system. (08)

b) Explain the detail procedure of energy audit and enumerate the equipments required for it. (08)

c) Explain the salient features of numerical relays employed in the protection of modern power system. (04)

BE(Elect), Sem-VII, Re-exam, Electronic Instrument.

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Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING
(An Autonomous Institute Affiliated to University of Mumbai)

Re-Exam (First Half 2014-15)

Total Marks: 100

Duration: 3 Hours

CLASS / SEM: B.E. Electrical SEM VII

SUBJECT: Electronic Instrumentation

- Answer **any FIVE** out of SEVEN.
- Answer to all sub questions should be grouped together
- Figures to the right indicate **full marks**

Master

-
- | | | |
|-------|--|----|
| 1. a. | An amplifier requires a 5 to 10V input signal from a 4 to 20mA control signal. Design a signal conversion system to provide this relationship. | 10 |
| b. | Explain
Process Equation
Process Load
Process Lag
Self Regulation | 10 |
| 2. a. | Explain with the help of neat block diagram generalized DAS. | 10 |
| b. | Explain the Successive Approximation Method for A/D conversion. | 10 |
| 3. a. | Explain Latching instruction, Timer instruction and Counter instruction | 10 |
| b. | Write a program to control the following home automation process | 10 |
| i. | Switch ON the lights as soon as the person enters the room | |
| ii. | Switch ON the AC after 20 seconds the person enters the room | |
| 4. a. | Write short note on arbitrary Wave form generator | 10 |
| | Write short note on Digital storage Oscilloscope | 10 |
| 5. a. | Write short note on SCADA | 10 |
| | Write short note on Function Generator | 10 |
| 6. a. | Analyze the second order system for step response | 10 |
| b. | Explain the static and dynamic characteristic of an instrument . | 10 |
| 7. a. | Explain the purpose of calibration and Risk involved in not calibrating an instrument | 10 |
| b. | Explain P, PI, PID controlling modes of a control system. | 10 |

File
29/10/14

Bharatiya Vidya Bhavan's
SARDARPATEL COLLEGE OF ENGINEERING
(An Autonomous Institute Affiliated to University of Mumbai)

END SEM (First Half 2014-15)

Total Marks: 100

B.E. (Electrical), Sem - VII Duration: 3 Hours

CLASS / SEM: B.E. Electrical / SEM VII SUBJECT: Electronic Instrumentation

- Answer **any FIVE** out of SEVEN.
- Answer to all sub questions should be grouped together
- Figures to the right indicate full marks

Master

-
- | | |
|---|----|
| 1. a. Explain the importance of instrument calibration? | 07 |
| b. Write a short note on five point calibration? | 03 |
| c. Explain any two PID tuning method? | 10 |
| 2. a. Obtain the unit ramp response of a first and second order instrument? | 05 |
| b. Name and explain static characteristics of an instrument? | 05 |
| c. Write and explain program for filling oil into the tank until high level sensor turns on and turn off the motor until the level falls below the low level sensor (Refer Fig:1) | 05 |

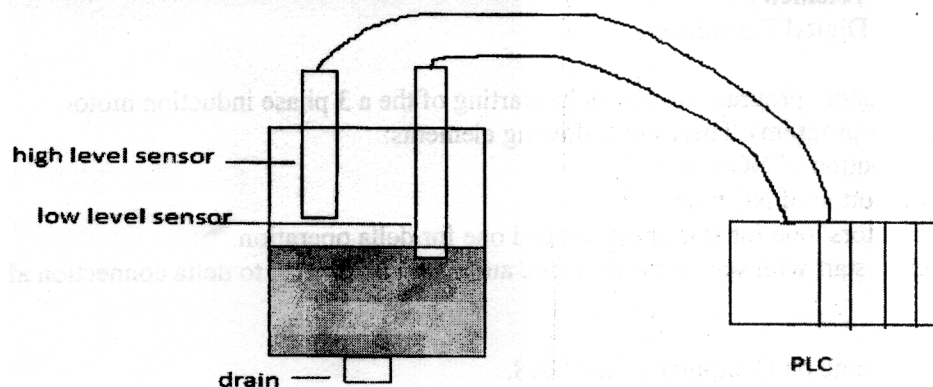


Fig:1

- | | |
|---|----|
| d. Write a note on commercially available PLCs? | 05 |
| 3. a. Given the error of Fig:2, plot a graph of a PID controller output as a function of time
$K_p = 5, K_I = 0.7s^{-1}, K_D = 0.5s$ and $P_I(0) = 20\%$ | 12 |

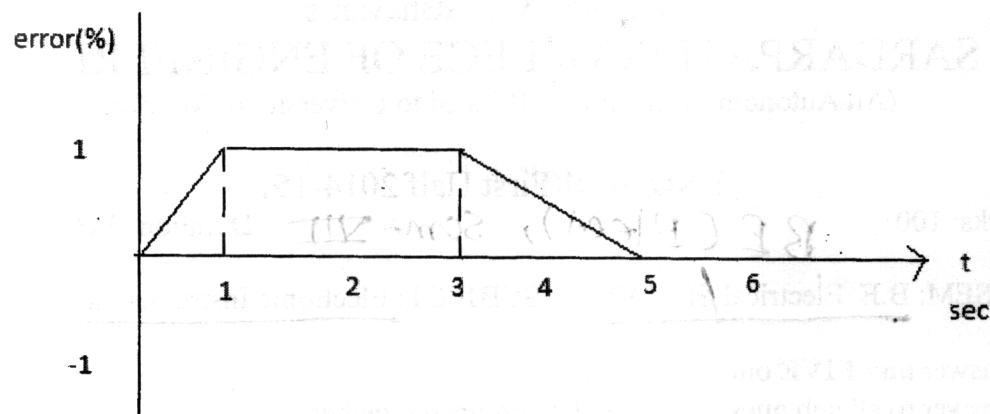


Fig:2

- b. Write short note on final control elements of a process control system 08
4. a. With a neat block diagram explain a programmable logic controller? 08
 - b. Name and explain the programming languages of a PLC? 07
 - c. What is meant by one-shot instruction? When does its use come? 05
5. a. Explain Distributed control system 10
 - b. Write short note on Virtual Instrumentation 10
6. a. Write short notes on : (any two) 20
 - i. Sweep generator
 - ii. LCD and LED
 - iii. Telemetry
 - iv. Digital Transducers
7. a. Develop a ladder program for star delta starting of the a 3 phase induction motor (PLC ladder program). There are following elements: 10

Start push button of NO type
Stop push button of NC type
Two contactors: one for star operation and one for delta operation.
Motor must start with star connection and automatically switch to delta connection after 5 sec.

 - b. Write short note on Computer Based DAS. 10

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7-11-14

SARDAR PATEL COLLEGE OF ENGINEERING

(An autonomous institute affiliated to the university of Mumbai)

2014 AT-KT

Class BE / Sem VII (Elect).

B. E. E. Sem VII

Marks 100

Subject : High Voltage Engineering

Time 3 Hrs

Attempt any **five** of the **seven** questions below

Master.

Assume data wherever required with explanation

Marks to the right indicate full marks

-
- Qs.I a)** With neat diagram explain the mechanism of lightening phenomena? (10)
- b)** A steady current of $600\mu\text{A}$ flows through the plane electrode separated by a distance of 0.46 cm when a voltage of 11.5 kV is applied. Determine the Townsend's first ionization coefficient if a current of $62\mu\text{A}$ flows when the distance of separation is reduced to 0.11 cm and the field is kept constant at the previous value. What is the usual classification of voltages used in a.c. transmission? (10)
- Qs.II a)** What are the important properties that a solid insulation should have to be suitable for use in high voltage engineering ? Give some examples of solid insulators. (10)
- Explain with neat diagram the mechanism of lightening phenomena? What are the protective measures taken to avoid the effect of lightening. (10)
- b)** Explain the breakdown mechanism due to treeing and tracking? (10)
- Qs.III a)** Explain neatly the streamer theory of breakdown in gases. (10)
- b)** Generation of high voltages ($> 400\text{kV}$) at power frequency for testing (10)
- Qs.IV** Explain the following:
- a.** Basic principle of operation of electro static generator & Van de Graaf generator (10)
- b.** Discuss the applications of insulating materials used in high voltage equipments. (10)

Qs.V a) With a simple Peak voltmeter circuit explain the measurement of high voltage. Mention the advantages & disadvantages of this method peak reading voltmeter is required to measure voltage up to 160 kv. (10)

b) A peak voltmeter uses an RC circuit, a micro ammeter & a capacitance potential divider. The potential divider has a ratio of 1000 : 1 & a micro ammeter can read up to 9 μ A. Determine the value of R & C if the time constant of RC circuit is 9.0 secs. (05)

c) Greinacher Voltage doubler circuit (05)

Qs.VI Answer any two with neat sketches:

a) Three stage Marx Impulse generator (10)

b) A sample of insulation is tested using a 33kv, 50Hz, high voltage Schering bridge. On balance, the parameters of bridge are as follows: standard capacitance of 450 pF, the resistive branch 700 Ω , a branch with parallel combination of resistance & capacitance of values 160 Ω & 0.16 μ F. Determine: i) the value of capacitance of the sample insulation, (ii) parallel equivalent loss resistance of the sample, (iii) $\tan\delta$ & (iv) power loss under these test conditions. (10)

c) Full impulse wave & Chopped impulse wave (10)

Qs.VII Explain any two with neat sketches:

a) Operation of Cockroft-Walton voltage multiplier circuit on load (10)

b) Trigatron & Tripping circuit for Trigatron (10)

c) Measurement of Dielectric Loss Tangent ($\tan\delta$) (10)

Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

(Re-exam Dec 2014)

TOTA MARKS. 100

BE (E)- sem VII

Duration: 3 HOUR

Illumination Engineering

N.B.: Attempt any Five questions out Seven question.

MASTER FILE

- Q 1** A factory has 140 numbers of twin lamps FTL 36 watt fitting, and 12 numbers of 250watt HPSV lamp fittings in indoor area. It works for 200 days a year two shifts daily. There are 20 numbers of 250 watt HPSV lamp's street lights and 8 numbers of 400 watts flood light for outdoor area's safety and security purpose. Find the number of lamps to be stocked at the beginning of the year for re-lamping purpose? 20
- Q 2** An engineering factory plant of plot area 600M X 300M has following details. Design scheme for indoor as well as outdoor area lighting, outdoor lighting includes security of perimeter and street lighting? 20
1) Reception and security staff room 10M X 5M X 3M A/C 2) Factory shed measuring 300M X 100M X 20 M cranes at 15M. 3) Factory ware house 300M X 100M X 20M crane at 15M 4) 25 M wide road of 600M length and 5) Perimeter of 600M X 300M.plot.
- Q3** Design lighting scheme for container yard measuring 1500MX600M. Assume your own data with justification of the same. 20
- Q 4** a) what is a multi purpose stadium and how do you provide lighting to such an stadium? 10
b) What is Ex marking on electrical equipments? Explain in details. What is T code with reference to flameproof equipments explain? 10
- Q5** Design lighting scheme for railways yard of 5000MX50M. Assume your own data with justification of the same. 20
- Q 6** a) Define Coefficient of Utilisation, maintenance factor, lamp lumen depreciation, and lamp life based on 50% mortality rate 10
b) Explain Zone/Division of flameable locations, what are the groups of flameable gases? 10
- Q 7** Write short notes on the following (any four)? 20
i) Photopic and scotopic vision ii) Tower location of sport field iii) Selection of maintenance factor iv) Selection of reflection factors of walls ,ceiling and floor v) Adaptation and accommodation of eye vi) Selection of flameproof equipments vii) Indoor and outdoor tennis court lighting?

LAMP LIGHT OUTPUT

BECE - Sem VII

19/12/14

PTO

LID Illumination Engineering

HID

S.No	Type of lamp	Wattage	Light out In lumen	S.No	Type of lamp	Wattage	Light out In lumen
1	GLS	100	1340	13	HPMV	80	3600
2		200	3000	14		125	6200
3	T.Halogen	50 (12V)	900	15		250	12700
4		500 (230V)	9000	16	Metal Halide	400	22000
5		1000(230V)	22000	17		150	12100
6	Flourescent Tublar lamps	18 (halo-phosphate)	1015	18		250	20000
7		36(halo-phosphate)	2450	19	HPSV	400	36000
8		40	2400	20		150	13500
9	CFL	9	600	21		250	25000
10		13	920	22	HPSV Tublar	400	47000
11		18	1200	23		250	27000
12		26	1800	24		400	50000



COU. FOR TYPE - A

Utilisation Factors UF[F]											SHR NOM =1.50
Room Reflectances			Room Index								
C	W	F	.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
.70	.50	.20	.41	.47	.52	.55	.60	.63	.66	.69	.71
	.30		.36	.42	.47	.50	.56	.59	.62	.66	.68
	.10		.32	.38	.43	.47	.52	.56	.59	.63	.66
.50	.50	.20	.37	.42	.46	.49	.53	.55	.57	.60	.61
	.30		.33	.38	.42	.45	.49	.52	.55	.57	.59
	.10		.29	.34	.39	.42	.47	.50	.52	.56	.58
.30	.50	.20	.33	.37	.40	.43	.46	.48	.49	.51	.53
	.30		.29	.34	.37	.40	.43	.46	.48	.50	.51
	.10		.27	.31	.35	.38	.41	.44	.46	.48	.50

COU - FOR TYPE - B

Utilisation Factors UF[F]											SHR NOM =1.75
Room Reflectances			Room Index								
C	W	F	.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
.70	.50	.20	.42	.50	.56	.61	.67	.71	.74	.79	.81
	.30		.35	.43	.49	.54	.61	.66	.69	.74	.78
	.10		.30	.38	.44	.49	.56	.61	.65	.70	.74
.50	.50	.20	.38	.45	.50	.54	.59	.63	.66	.69	.72
	.30		.32	.39	.44	.49	.54	.59	.62	.66	.69
	.10		.27	.35	.40	.44	.50	.55	.58	.63	.66
.30	.50	.20	.33	.40	.44	.47	.52	.55	.58	.61	.63
	.30		.29	.35	.40	.43	.48	.52	.55	.58	.61
	.10		.25	.32	.36	.40	.45	.49	.52	.56	.59

COU - FOR TYPE - C

Utilisation Factors UF[F]											SHR NOM =1.50
Room Reflectances			Room Index								
C	W	F	.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
.70	.50	.20	.57	.64	.70	.74	.79	.82	.84	.87	.89
	.30		.52	.59	.65	.69	.75	.79	.81	.85	.87
	.10		.48	.55	.61	.66	.72	.76	.79	.82	.85
.50	.50	.20	.56	.63	.68	.72	.76	.79	.81	.84	.86
	.30		.51	.58	.64	.68	.73	.76	.79	.82	.84
	.10		.47	.55	.61	.65	.70	.74	.77	.80	.82
.30	.50	.20	.55	.61	.66	.70	.74	.77	.79	.81	.82
	.30		.50	.57	.63	.67	.71	.74	.77	.79	.81
	.10		.47	.54	.60	.64	.69	.72	.75	.78	.80
.00	.00	.00	.46	.52	.58	.62	.66	.69	.71	.74	.76
8Z Class			2	2	2	2	2	2	2	2	2
CIE Flux Code 58/ 93/ 99/100/ 83											
Flux Fraction Ratio .00											

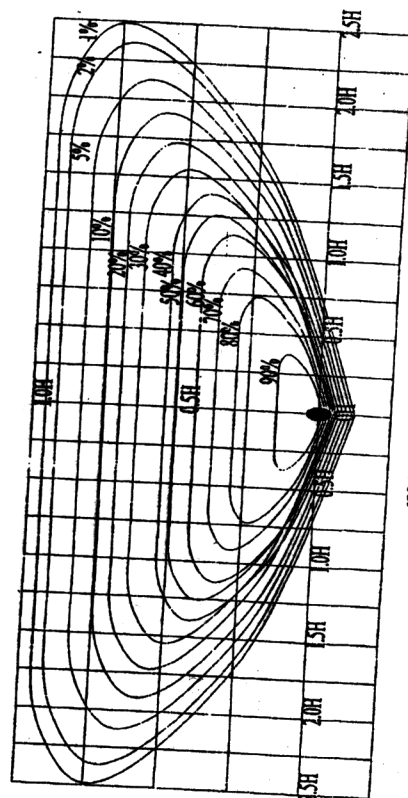


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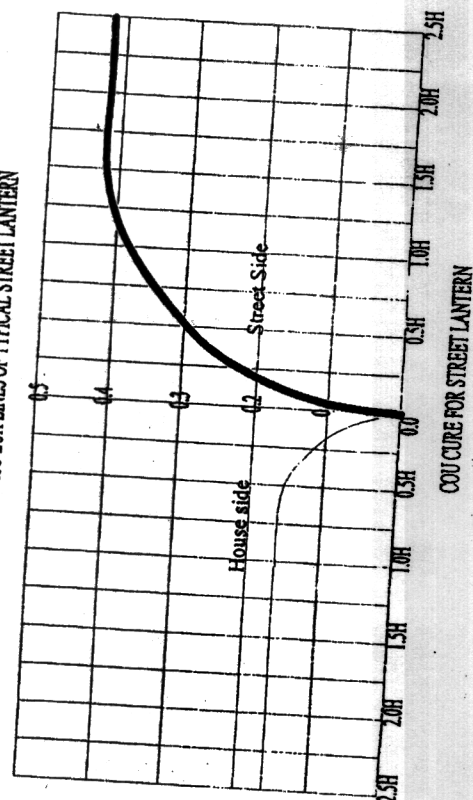
B.E. (E) - sem VII
 Illumination Engineering
 STREET LANTERN'S CURVES

19/12/14.

P T O



ISO-LUX LINES OF TYPICAL STREET LANTERN



COU CURVE FOR STREET LANTERN

LAMPS' LIGHT OUTPUTS

S.No	Type of lamp	Wattage	Light out In lumen	S.No	Type of lamp	Wattage	Light out In lumen
1	GLS	100	1340	13	HPMV	80	3600
2		200	3000	14		125	6200
3	T.Halogen	50 (12V)	900	15		250	12700
4		500 (230V)	9000	16		400	22000
5		1000(230V)	22000	17	Metal Halide	150	12100
6	Flourescent Tublar lamps	18 (halo-phosphate)	1015	18		250	20000
7		36(halo-phosphate)	2450	19		400	36000
8		40	2400	20	HPSV	150	13500
9	CFL	9	600	21		250	25000
10		13	920	22		400	47000
11		18	1200	23	HPSV Tublar --do--	250	27000
12		26	1800	24		400	50000

P T O

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7-11-74

Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

(Nov 2014)

TOTA MARKS. 100

BE(E)- sem VII

Master
VII
Duration: 3 HOUR

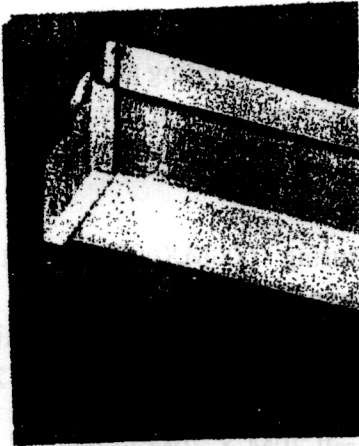
Illumination Engineering

N.B.: Attempt any Five questions out of Seven question.

- Q 1** Explain the function of Eye and its parts in process of seeing, with diagram graphs and illustrations. 20
- Q 2** Design a lighting scheme for A/C office measuring 15M X 8M having false ceiling at 2.8 M at the end of the office there are two cabins one of 2M X 3M size for manager and other 2M X 5M for meeting/conference area. Give suitable diagram of site with luminaire marked at their appropriate locations? 20
- Q 3** Design a suitable lighting scheme for an international stadium measuring 600MX600M using towers of 50 meter height, at appropriate location. Assume your own data with justification of the same. Use 2Kw metal halide lamps flood lights with efficacy of 110Lumen/watt. Illumination required is 1000Lux in horizontal plane. Mark the location of towers' bases? 20
- Q 4 a)** Design a lighting scheme for double tennis court measuring overall 30M X 30M to be used to play national level games. Assume your own data with justification of the same. 10
b) what is Ex marking on electrical equipments? Explain in details. What is T code with reference to flameproof equipments explain? 10
- Q 5** A 20 meter wide road is to be lighted for one km as class A type road. In the middle of its length it makes a cross junction and branches into 15M wide road as class B1 road. The cross Junction is a 50 meter diameter circle with 10 meter isle land inside it. Design a lighting scheme for these roads. Using high mast lighting for junction, make sketches of all the arrangement? 20
- Q 6** State the difference between RFI (Radio Frequencies Interference) suppression and power factor improving capacitor? How is IC 555 used as a LED driver explain 20
- Q 7** Write short notes on the following (any four)? 20
i) Photopic and scotopic vision ii) Tower location of sport field iii) Selection of maintenance factor iv) Selection of reflection factors of walls, ceiling and floor v) Adaptation and accommodation of eye vi) Selection of flameproof equipments

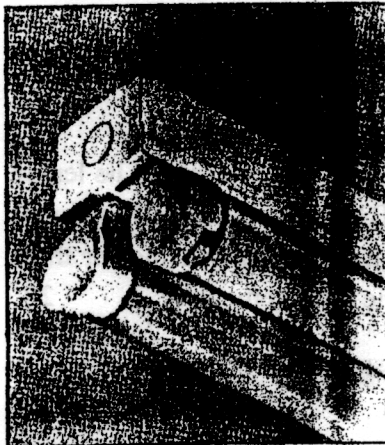
BE(Elect). Sem-VII, Illumination Engineering, 7/1/14
LAMP LIGHT OUTPUT

LID				HID			
S.No	Type of lamp	Wattage	Light out In lumen	S.No	Type of lamp	Wattage	Light out In lumen
1	GLS	100	1340	13	HPMV	80	3600
2		200	3000	14		125	6200
3	T.Halogen	50 (12V)	900	15		250	12700
4		500 (230V)	9000	16	Metal Halide	400	22000
5		1000(230V)	22000	17		150	12100
6	Flourescent Tublar lamps	18 (halo-phosphate)	1015	18		250	20000
7		36(halo-phosphate)	2450	19	HPSV	400	36000
8		40	2400	20		150	13500
9	CFL	9	600	21		250	25000
10		13	920	22	HPSV Tublar --do--	400	47000
11		18	1200	23		250	27000
12		26	1800	24		400	50000



COU. FOR TYPE-A

Utilisation Factors UF[F]											SHR NOM =1.50
Room Reflectances			Room Index								
C	W	F	.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
.70	.50	.20	.41	.47	.52	.55	.60	.63	.66	.69	.71
	.30		.36	.42	.47	.50	.56	.59	.62	.66	.68
	.10		.32	.38	.43	.47	.52	.56	.59	.63	.66
.50	.50	.20	.37	.42	.46	.49	.53	.55	.57	.60	.61
	.30		.33	.38	.42	.45	.49	.52	.55	.57	.59
	.10		.29	.34	.39	.42	.47	.50	.52	.56	.58
.30	.50	.20	.33	.37	.40	.43	.46	.48	.49	.51	.53
	.30		.29	.34	.37	.40	.43	.46	.48	.50	.51
	.10		.27	.31	.35	.38	.41	.44	.46	.48	.50



COU- FOR TYPE-B

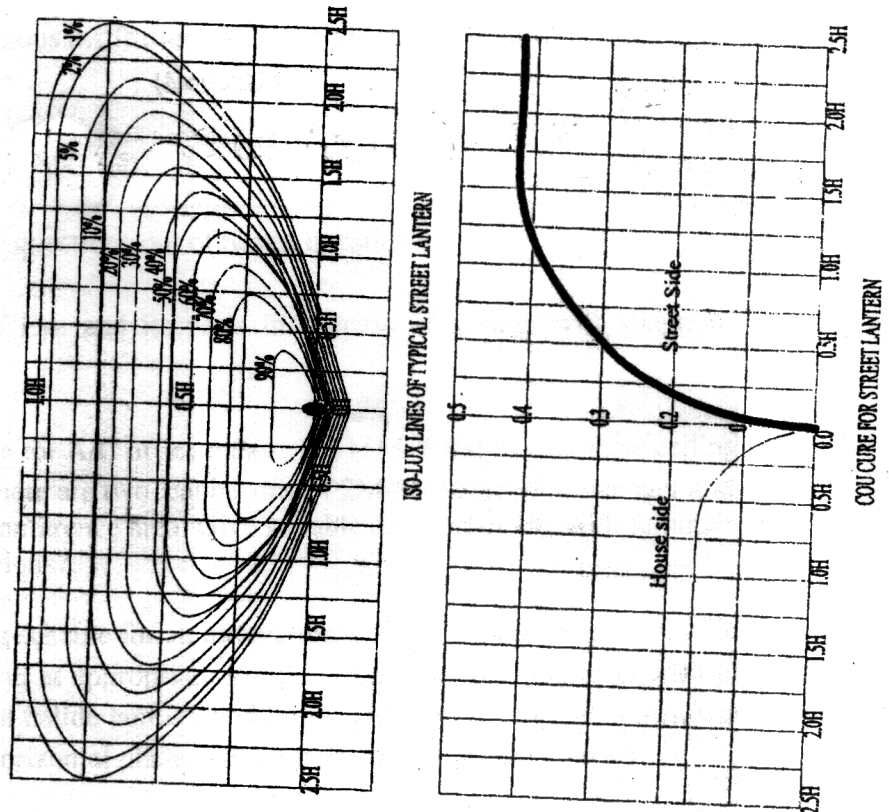
Utilisation Factors UF[F]											SHR NOM =1.75
Room Reflectances			Room Index								
C	W	F	.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
.70	.50	.20	.42	.50	.56	.61	.67	.71	.74	.79	.81
	.30		.35	.43	.49	.54	.61	.66	.69	.74	.78
	.10		.30	.38	.44	.49	.56	.61	.65	.70	.74
.50	.50	.20	.38	.45	.50	.54	.59	.63	.66	.69	.72
	.30		.32	.39	.44	.49	.54	.59	.62	.66	.69
	.10		.27	.35	.40	.44	.50	.55	.58	.63	.66
.30	.50	.20	.33	.40	.44	.47	.52	.55	.58	.61	.63
	.30		.29	.35	.40	.43	.48	.52	.55	.58	.61
	.10		.25	.32	.36	.40	.45	.49	.52	.56	.59



COU- FOR TYPE-C

Utilisation Factors UF[F]											SHR NOM =1.50
Room Reflectances			Room Index								
C	W	F	.75	1.00	1.25	1.50	2.00	2.50	3.00	4.00	5.00
.70	.50	.20	.57	.64	.70	.74	.79	.82	.84	.87	.89
	.30		.52	.59	.65	.69	.75	.79	.81	.85	.87
	.10		.48	.55	.61	.66	.72	.76	.79	.82	.85
.50	.50	.20	.56	.63	.68	.72	.76	.79	.81	.84	.86
	.30		.51	.58	.64	.68	.73	.76	.79	.82	.84
	.10		.47	.55	.61	.65	.70	.74	.77	.80	.82
.30	.50	.20	.55	.61	.66	.70	.74	.77	.79	.81	.82
	.30		.50	.57	.63	.67	.71	.74	.77	.79	.81
	.10		.47	.54	.60	.64	.69	.72	.75	.78	.80

STREET LANTERN'S CURVES



LAMPS' LIGHT OUTPUTS

S.No	Type of lamp	Wattage	Light out In lumen	S.No	Type of lamp	Wattage	Light out In lumen
1	GLS	100	1340	13	HPMV	80	3600
2		200	3000	14		125	6200
3	T.Halogen	50 (12V)	900	15		250	12700
4		500 (230V)	9000	16		400	22000
5		1000(230V)	22000	17	Metal Halide	150	12100
6	Flourescent Tublar lamps	18 (halo-phosphate)	1015	18		250	20000
7		36(halo-phosphate)	2450	19		400	36000
8		40	2400	20	HPSV	150	13500
9	CFL	9	600	21		250	25000
10		13	920	22		400	47000
11		18	1200	23	HPSV Tublar --do--	250	27000
12		26	1800	24		400	50000

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17/12/14

Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

Re Exam Dec'2014

BE (Elect), Sem - VII, Re-exam.

Second Half 2014

Total Marks: 100

Duration: 3 Hours

CLASS/SEM: B.E (Electrical)/VII

SUBJECT: Project Management

- Attempt any FIVE question out of SEVEN questions
- Answers to all sub questions should be grouped together
- Figures to the right indicate full marks
- Assume suitable data if necessary, with proper justification

17/12/14.

MASTER FILE.

Q.1 Explain in Brief -

(20)

- a) Taxonomy of Project
- b) Project Life Cycle.
- c) Pre feasibility and feasibility study

Q.2 a) Mithi River and all major nullahs of Mumbai have to be dredged/cleared of debris before monsoon. With reference to the above project, discuss the following qualities of a project manager,

(10)

- (i) Planning and Organization skill
- (ii) Effective Time Management
- (iii) Solving issues/problems immediately without postponing them
- (iv) Resource allocation skill
- (v) Team management

b) A renovation project of an Automation Industry is under consideration. Discuss the following features of the same.

(10)

- (i) Uniqueness (ii) Non-Routine (iii) Cost (iv) Team Work (v) Customer specific

Q.3 a) Discuss the importance of the following in a project appraisal.

(10)

- i) Technical Appraisal
- ii) Commercial Appraisal
- iii) Economic Appraisal
- iv) Financial Appraisal

page no. 1.

B.E. Electrical /VII, Re-exam.

Project Management

17/12/14

- b) Resources are consumed during the following activities culminating in events as shown in the table below. (10)

Draw the network diagram for this project indicating the flow of activities and events.

Find the time required by each activity.

List at least 2 paths along which the project may proceed from the beginning up to the completion.

Calculate the time required in each of the above paths.

Preceding Activity	Activity	Events	to	tm	tp
-	A	1-2	4	6	10
-	B	1-3	5	6	9
-	C	1-4	3	7	12
-	D	1-5	2	4	6
A	E	2-3	6	10	20
B,E	F	3-4	3	7	12
C,F	G	4-7	2	5	8
A	H	2-6	3	4	7
B,E	I	3-7	2	4	5
I	J	6-7	1	3	6
J,H	K	5-6	1	2	6
D,G,K	L	5-8	1	2	6

- Q.4 a) It is proposed to install a DG set in a factory. The capital cost of installing the DG set and allied equipment is Rs. 20,000/- and after 5 years, its salvage value is Rs 1500/-. If the savings accrued by the DG set are as shown below, find Net Present Value after 5 years. Assume discount rate of 8%. (10)

Year	1	2	3	4	5
Savings Rs	7000	6000	6000	5000	5000

- b) A proposed project requires an initial capital investment of Rs 20,000/-. the cash flows generated by the project are as shown below. Find the internal rate of return for the project. (10)

Year	0	1	2	3	4	5	6
Savings Rs	--	6000	5500	5000	4500	4000	4000
Rs	20000						

B.E. Electrical VII, Re-Exam
Project Management

17/12/14.

- Q.5 a) Explain in brief the advantage of material management in SPCE canteen operation and maintenance project. (10)
- b) Define risk for a project. What steps are taken to handle risks in a project? (10)
- Q.6 a) What are the steps involved in tendering process and list out the commercial terms and conditions of tenders. (10)
- b) What are the three major forms of organizational structures? Explain in brief. (10)
- Q.7 Write short notes on any Three: (in brief) (20)
- a) WBS up till work package
 - b) Quality control and Quality assurance
 - c) "SWOT Analysis" of any project of your choice.
 - d) "Social cost benefit analysis" of new free_way (Chambur to CST)
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31-10-14

Bharatiya Vidya Bhavan's SARDARPATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

Oct' - Nov' 2014

B.E (Elect), Sem - VII

Second Half 2014

Total Marks: 100

Duration: 3 Hours

CLASS/SEM: B.E (Electrical)/VII

SUBJECT: Project Management

- Attempt any FIVE question out of SEVEN questions
- Answers to all sub questions should be grouped together
- Figures to the right indicate full marks
- Assume suitable data if necessary, with proper justification

Master

Q.1 Explain in Brief-(any four)

(20)

- a) Characteristics of a good project manager.
- b) Project Earn value (Related terms.....)
- c) Pre Feasibility and Feasibility study of project
- d) Commercial and economic appraisal
- e) Different types of purchase systems

Q.2 a) Draw a PERT Network for the following data. Arrive at the critical path using Forward and Backward pass computation and find out the estimated project duration along the critical path. G & I are the last activities.

(10)

Activity	Proceeding Activity	Optimistic time(Weeks)	Most likely time (weeks)	Pessimistic time (weeks)
A	-	4	5	6
B	-	4	6	8
C	A	3	5	7
D	B	1	3	5
E	C,D	2	5	8
F	C,D	3	4	11
G	E	4	5	12
H	E	4	4	10
I	F,H	5	6	13

b) Godrej Industry Ltd wants to launch low cost Electric Iron . Their team has done financial appraisal of the market and have concluded that the sale of the product will be good, if the cost of the Iron is kept at Rs.500. The company wants to take over a small manufacturing unit and modify it into a Iron making unit which can manufacture 10,000 Iron per annum. The annual maintenance cost is Rs.5,00,000/-. The cost of the manufacturing a single Iron is expected to be Rs.300/-. With the available data, calculate the following details of the company: (10)

- What is the minimum number of Irons the company should manufacture annually, so that they do not incur any losses?
- What is the expected profit if the installed capacity of the plant is fully utilized over the year?
- If the company wants to earn a profit of at least Rs. 10,00,000/-, how many Irons Should be produced annually?

Q.3 Following table defines various milestones in a project along with their interrelationships. It also gives details of the duration of each activity under normal and critical operating Condition and the corresponding costs incurred. The project involves Rs.350/- per week of operation as its overhead cost. (20)

- Draw the network diagram and find the critical path.
- Calculate the cost/slope for each activity.
- Carry out crashing till optimum time and cost is reached.
- Find the critical path and additional project cost in each level of crashing.

Start and Finish events	Activity	Preceding Activity	Duration in weeks		Direct cost in Rs.	
			Normal	Crash	Normal	Crash
1 & 2	A	-	5	4	1,000	1,200
1 & 3	B	-	7	5	2,100	2,300
2 & 4	C	A	3	2	1,500	1,700
3 & 4	D	B	2	2	1,300	1,300
3 & 5	E	B	6	4	1,200	1,400
4 & 6	F	C & D	5	4	2,000	2,500
5 & 6	G	E	3	2	1,500	1,700

Q.4 a) Rajiv Gandhi Institute of Post Graduate Medical Education and Research Delhi, intends to set up a turnkey contract. The scope of the work involves the following: (10)

- Modernization of old hospital and institute building.
- Setting up of a multi-disciplinary advanced research centre and a learning resource centre.
- Expansion of surgical block and setting up of a screening OPD with MRD and geriatric unit.

Design a tender document covering all important terms and conditions for the above Project.

B.E (Elect) sem - VII, - Project management, 31/10/14.

- b) Explain in brief a) Quality Assurance and b) Quality control for the following project: (10)
Design and fabrication of different types of ICs (Integrated Circuits) used in Electrical and Electronics Engineering field.

Q.5 a) Carryout Risk Management Plan using 'Probability-Impact Matrix' for the following project: (10)
Manufacturing of Distribution Transformer at Industrial Area MIDC Mumbai.

- b) There has been a flood warning which is expected to hit the valley of Kashmir within the next two days. Prepare a Crisis Management Plan and explain how Crisis Communication would help to overcome the calamity. (10)

Q.6 a) Discuss the planning of Material Management for "Our College S. P. C. E. " (10)
Also prepare the inventory for the same.

- b) What are the different heads of project cost estimation process? Explain in brief. (10)
(Take any example of your own choice)

Q.7 Write short notes on any Two: (20)

- a) Organization structure
 - b) Contract law
 - c) "SWOT Analysis" of Electrical Energy Generation Plant (Hydro Power Plant)
 - d) "Social cost benefit analysis" of Express way between Mumbai and Pune.
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18/12/14

B.E. (Elect) / VII - Re - exam - Dec 2014.

Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

RE-EXAMINATION 2014, DECEMBER

Total Marks :100

Duration : 3 Hours

CLASS/SEM :- BE (ELECTRICAL) / VII

SUBJECT : RENEWABLE ENERGY SOURCES

Answer any five questions (Qs. I to Qs. VII).

Draw neat diagrams wherever required.

Answers to all sub questions should be grouped together.

Any additional question solved should be self cancelled.

MASTER FILE

Qs. 1

- a. Explain how electricity can be generated from Wave & tidal energy. (10)
- b. Explain Basic concept & working principle of solar pond (10)

Qs. 2

Explain:

- a. Measurement of solar radiations (10)
- b. Single & Double Axis Solar Tracking systems (10)

Qs. 3

Explain:

- a. Major components & its functions of a wind turbine (10)
- b. Methods employed for efficient power generation by a wind turbine. (10)

Qs. 4

What is Biomass? What are its sources? & what are the types of energy derived from these sources. Explain any one process to derive energy from biomass. (20)

Qs. 5

Explain:

- a. Solar PV cell equivalent circuit & operating characteristics (10)
- b. Horizontal & Vertical axis wind mill (10)

Qs. 6

Explain the role & methods used by different types of renewable energy resources in combination with conventional power generation. (20)

Qs. 7

Explain:

- a. Geothermal reservoir & Electricity generation (10)
- b. Latent Heat energy storage system. (10)

03/11/14

Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

CLASS/SEM :- BE (ELECTRICAL) / VII

SUBJECT : RENEWABLE ENERGY SOURCES

Total Marks : 100
Duration : 3 Hours

Answer any five questions (Qs. I to Qs. VII).
Draw neat diagrams wherever required.
Answers to all sub questions should be grouped together.

Master

Qs. I

- What is the basic principle of operation & structure of photo voltaic cell. (10)
- State the conditions necessary for current to flow in a photo voltaic cell. (04)
- State the major phenomena that limit photo voltaic cell efficiency. (06)

Qs. II

With reference to Wind Energy Conversion Systems (WECS) explain the following with neat diagrams:

- Effect of dynamic speed control range on size of the variable rotor resistance of a limited variable speed wind generator systems (05)
- Variable speed concept with a partial-scale power converter operation, advantages & disadvantages. (10)
- Major components of a wind turbine & their functions. (05)

Qs. III

- State the rules for performance estimation of a Biogas plant. (04)
- An engine-generator system running on biogas is installed to produce 2.5 kW of electric power. Estimate the volume of digester of the biogas plant required, if cow dung is used as the feed material. Given: calorific value of biogas = 20000 kJ/m³. Efficiency of generator = 85.0% & Engine efficiency = 35%. (10)
- State the factors involved in the design & operation of a biogas plant. (06)

Qs. IV

- How does a conventional geothermal reservoir works? (04)
- What are the different ways in which geothermal energy can be used & How electricity is developed from geothermal resources? (04)
- Explain geothermal combined cycle power plant. (12)

Qs.V

- a. Mention the four main factors that determine the selection of the method of solar energy storage system & its design (04)
- b. explain the following with neat diagrams:
 - i. Energy storage using solar ponds (08)
 - ii. Latent heat energy storage system (08)

Qs.VI

- a. What are the basic tidal & wave energy conversion systems? (04)
- b. What are the types of wave power mechanisms? (05)
- c. Give a comparison of Direct & Diffuse solar radiations. (05)
- d. Suggest & explain a method to measure direct solar radiations. (06)

Qs.VII

Explain the following:

- a. Double Axis Solar Trackers (05)
- b. Flat-plate & evacuated-tube solar collectors (05)
- c. Electricity generation using solar concentrators (10)

BE (Elect), Sem - VII, Re-Exam

BHARARATIYA VIDYA BHAVAN'S
SARDAR PATEL COLLEGE OF ENGINEERING

Munshi Nagar Andheri (West), Mumbai 400 058
(An Autonomous Institution Affiliated to University of Mumbai)

END SEM RE-EXAM

CLASS/SEM: **BE / VII (Elect)**
Subject : **Restructuring & Deregulation**

Total Marks: **100**
Duration : **3 hours**
Date: **18/12/2014**

- Attempt any **FIVE** out of the **SEVEN** questions.
- Answer to all sub questions should be grouped together.
- Assume **suitable data** where required.

MASTER FILE

Q.1	A) Describe the regulatory framework for electricity sector including the regulatory authority.	(10-Marks)
	B) What are the different types of markets? Explain each.	(10-Marks)
Q.2	A) Write the international experience with electricity reform of following country	(20-Marks)
	i) Nordic pool. ii) Energy crises in California.	
Q.3	A) Explain the market place mechanism in detail.	(07-Marks)
	B) Explain in brief the electricity act 2003 and various national Policies and guidance under the act. Also write the further Amendments made in it.	(07-Marks)
	C) Explain the reasons for deregulation.	(6-Marks)
Q.4	A) Explain the concept of subsidy and cross subsidy. Explain the types of each. Give comparison between subsidy and cross subsidy.	(10-Marks)
	B) What is ABT and also mention the advantages of it?	(5-Marks)
	C) Explain with suitable diagram structure of regulated industry	(5-Marks)
Q.5	A) Write the comparison between two market structures.	(05-Marks)
	B) Write short notes on i) Ministry of power ii) PTC.	(05-Marks)
	C) Explain different types of structural models of electricity markets?	(10-Marks)

BE/VII (Elect) - Restructuring & Deregulation. 19/12/19.

Q.6	<p>A) Explain three models of trading arrangement model and also mention the advantages of each?</p> <p>B) What are the problems experienced if DISTCO and retailing is owned by the same company in model 4?</p>	<p>(10-Marks)</p> <p>(10-Marks)</p>
Q.7	<p>Write short notes on :</p> <p>i) Profitability Indices ii) Debt & Equity iii) Depreciation iv) Fixed and variable cost v) Typical cost components of utility vi) Net profit value vii) Capital cost viii) Life cycle cost ix) Avoided cost x) Marginal cost.</p>	<p>(20-Marks)</p>