BE (Elect), Sem-VII, A.T.K.T. 22/6/15.
Design, management and Auditing of
.Electrical systems.

Lib
22/6/15

Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

ATKT-Examination
First Half 2015
Duration : **3 Hours**

Total Marks :**100**
CLASS: **B.E.(Electrical)/SEM/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) Discuss the major protection equipments used in receiving substation. **(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) What are the different methods employed to regulate the power factor in modern power system. **(10)**

b) What is the concept of green building? **(10)**

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

b) Discuss the various factors to be considered while selecting the site for substation. **(10)**

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
Draw the phasor diagram in both cases. **(04)**

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

BE (Elect), Sem-VIII, A.T.K.T., 22/6/15.
Design, Management & Auditing of Electrical Systems.

Q.5a) What are the energy efficient technologies pertaining to the electrical systems. (10)

b) Draw Single Line Diagram of secondary substation. (10)

Q.6a) Discuss five measure steps in tendering process. **(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) Compare primary and secondary substation. **(08)**

BE(Elect), sem-VII, KT. Exam, 24/6/15
Electronic Instrumentation

~~Exam~~
Lib
24/06/15

Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institute Affiliated to University of Mumbai)

KT (Second 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	Explain the static and dynamic characteristic of an instrument	10
	b.	Obtain step response of a first and second order measurement system	10
2	a.	Write short note on Digital Storage Oscilloscope	10
	b.	Write short note on Shaft encoders.	10
3	a.	Explain Single and Multi channel DAS.	10
	b.	Write short note on Sweep Generators	10
4.	a	Explain with the help of neat block diagram Process control system.	10
	b.	Explain P, PI, and PID controlling modes of a control system.	10
5.	a	Explain Digital to analog converter using R-2R ladder	10
	b.	Write short note on telemetry and SCADA	10
6	a	Explain a programmable logic controller with a neat block diagram	10
	b.	Write a note on output latching instruction and Timer instruction.	10
7	a.	Explain the need of instrument calibration? Also explain the Risk involved in not calibrating an instrument.	10
	b.	Name and explain the programming languages of a PLC?	10

Lib
26/06/15

Bharatiya Vidya Bhavan's
SARDAR PATEL COLLEGE OF ENGINEERING
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KT-2015

Class BE / Sem VII (Elect). Marks 100
Subject : High Voltage Engineering BE (Elect), Sem-VII, 26/6/15 Time 3 Hrs

- Attempt any **five** of the **seven** questions below
- Assume data wherever required with explanation
- Marks to the right indicate full marks

High Voltage Engineering

Master

Qs.I a) Explain neatly the streamer theory of breakdown in gases. (10)

b) A steady current of 600µA 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 µA 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.

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 µA. Determine the value of R & C if the time constant of RC circuit is 9.0 secs. (10)

Qs.III a) With neat diagram explain the mechanism of lightening phenomena? (10)

b) Generation of high voltages (> 400kv) 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) Explain the breakdown mechanism due to treeing and tracking? (10)

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

b)A sample of insulation is tested using a33kv, 50Hz, high voltage Schering bridge. On balance, the parameters of bridge are as follows: standard capacitance of 450 pF, the resistive branch 700Ω, a branch with parallel combination of resistance & capacitance of values 160Ω & 0.16µF. Determine: i) the value of capacitance of the sample insulation, (ii) parallel equivalent loss resistance of the sample, (iii) tanδ & (iv) power loss under these test conditions. (10)

Qs.VII Explain **any two** with neat sketches (20)

a) Three stage Marx Impulse generator
b) Full impulse wave & Chopped impulse wave
c) Measurement of Dielectric Loss Tangent (tanδ)
d) Trigatron & Tripping circuit for Trigatron

BE (Elect), Sem - VII, A.T.K.T, 25/6/15.

Renewable Energy Sources

210
25/06/15

Bharatiya Vidya Bhavan's

SARDAR PATEL COLLEGE OF ENGINEERING

(An Autonomous Institution Affiliated to University of Mumbai)

KT-EXAMINATION 2015, JUNE

Total Marks :100

Duration : 3 Hours

CLASS/SEM :- **BE(ELECTRICAL) / VII** SUBJECT : **RENEWABLE ENERGY SOURCES**

Answer any five Qs. from Qs. 1 to Qs.7)

Draw neat diagrams wherever required.

Answers to all sub questions should be grouped together.

Master.

Explain the following:

Qs. 1

- **a.** Solar thermal collectors for electricity generation. **(10)**
- **b.** Electricity generation in a solar thermal plant - large scale systems. **(10)**

Qs. 2

- **a.** Solar thermal collectors for heating. **(10)**
- **b.** Latent heat storage systems. **(10)**

Qs. 3

- **a.** Biogas plant with floating dome. **(10)**
- **b.** Geothermal reservoir & Electricity generation. **(10)**

Qs. 4

- **a.** Scope & economics and availability of Wave & tidal energy **(10)**
- **b.** Ocean thermal energy conversion **(10)**

Qs. 5

- **a.** Principle of operation of photo voltaic cell **(10)**
- **b.** Major components & its functions for a wind turbine **(10)**

Qs. 6

- **a.** Combined Flash & Binary geothermal power plant **(10)**
- **b.** Horizontal & Vertical axis wind mill **(10)**

Qs. 7

- **a.** Solar Tracking systems. **(10)**
- **b.** Solar radiation measurements. **(10)**

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