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HirasugarInstituteofTechnology, Nidasoshi.

Inculcating Values, Promoting Prosperity

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EEE
Exam.
Internal Assessment
Even Sem(2017-18)

FIRST INTERNAL ASSESSMENT

Sem: VIII
Date: 07/03/2018

Sub: Electrical Distribution System
Time:3pm to 4pm

Sub. Code:10EE844
Max. Marks: 25

Note: Answer two full questions, draw sketches wherever necessary.

Q. No		Discription of Question	Marks	CO	RBT Level
1	a	Explain the factors affecting system planning.	7	430.1	L1,L2
		OR			
	b	With the help of block diagram explain present distribution system planning technique.	7	430.1	L1,L2
	c	With the help of block diagram explain distribution system automation.	6	430.1	L1,L2
		OR			
	d	Write a note on distribution system planning model.	6	430.1	L1,L2
2	a	Explain the need of distribution system planning.	6	430.1	L1,L2
		OR			
	b	Explain System approach.	6	430.1	L1,L2
	c	Mention and explain various control functions of distribution automation.	6	430.1	L1,L2
		OR			
	d	Write a note on data base concept and new automated tools.	6	430.1	L1,L2

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HOD

SCHEME OF EVALUATION

Sem : 8th Subject : Electrical distribution Sys Sub Code : 10EE844 Date : 07/03/18

Q. No.	Bit	Description	Marks	CO's
1	a	Explanation for factors affecting System planning (all four factors)	07	430.1
		OR		
	b	Block diagram of present distribution Sys planning technique + explanation	02 + 05	430.1
	c.	Block diagram of distribution automation explanation for distribution automation	02 04	430.1
		OR		
	d.	Explanation for distribution Sys planning model	06	430.1
2.	a	Explanation for need of distribution Sys planning	06	430.1
		OR		
	b	Explanation for Sys approach	06	430.1
	c.	at least 6 control functions explanation	06	430.1
		OR.		
	d	Explanation for data base concept & new automated tools	06	430.1

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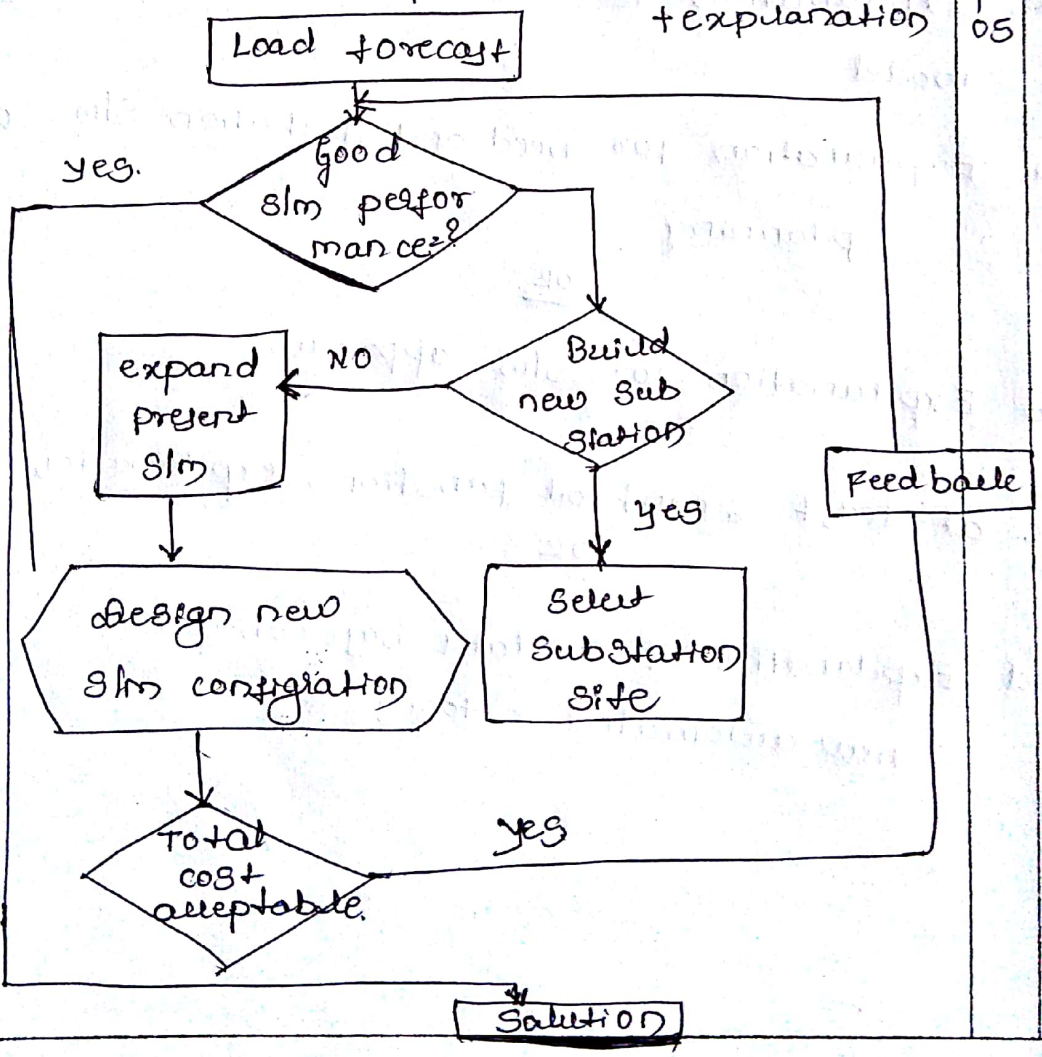
SCHEME OF EVALUATION

Sem : 8th Subject : Electrical distribution S/m Sub Code : 10EE844 Date : 07/03/18

Q. No.	Bit	Description	Marks	CO's
1.	a	The various factors affecting distribution S/m planning are ① Load forecasting ② Substation expansion ③ Substation site selection ④ other factors Explanation with neat sketch	07	430.1
		OR		
	b.	distribution S/m planning technique. + explanation	02 + 05	430.1



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SCHEME OF EVALUATION

Sem : 8th | Subject : Electrical distribution Sys | Sub Code : 10EE844 | Date : 07/03/18

Q. No.	Bit	Description	Marks	CO's
1	c	Block diagram of distribution s/m Automation + explanation	02 + 04	430.1

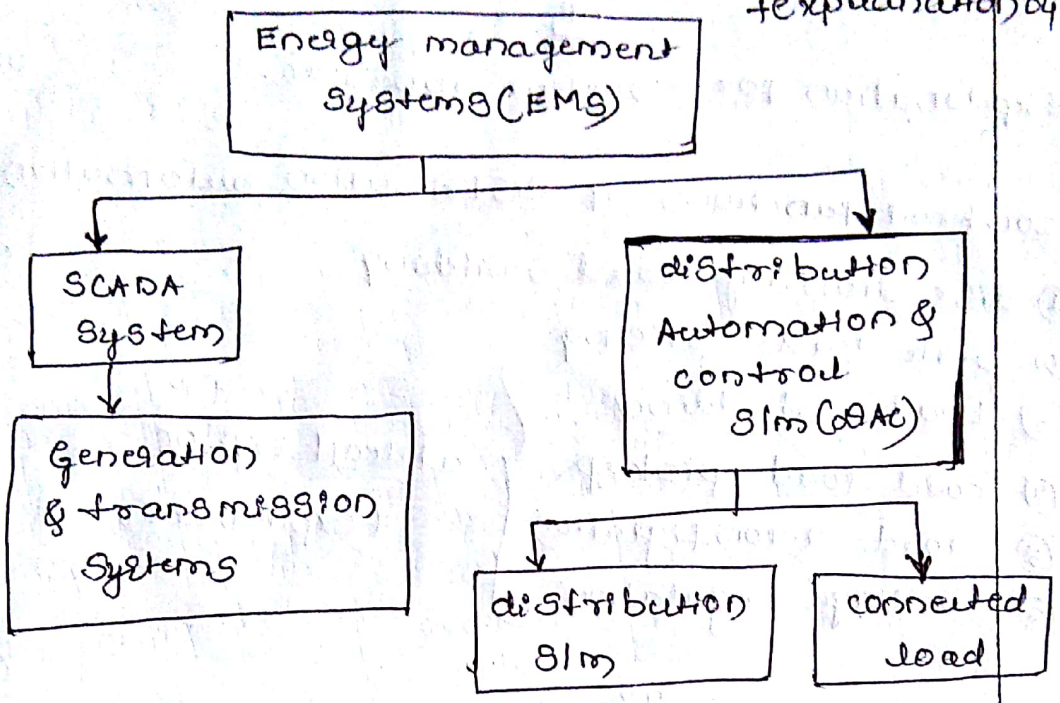

fig - Monitoring & controlling an electric power s/m

OR

d. The operations research techniques used in performing this task include
① the alternative policy method
② the decomposition method
③ The linear programming & integer - programming method.
④ The dynamic programming method
⑤ Genetic algorithm method
⑥ The quadratic programming method. | 06 | 430.1

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SCHEME OF EVALUATION

Sem: 8th Subject: Electrical distribution S/m Sub Code: 10EE844 Date: 07/03/18

Q. No.	Sl.	Description	Marks	CO's
2.	a	need of distribution s/m planning explanation	06	430.1
		OR		
	b	Explanation for System approach	06	430.1
	c	control functions of distribution automation		
		① discretionary load switching	06	430.1
		② peak load pricing		
		③ Load Shedding		
		④ cold load pickup		
		⑤ load reconfiguration		
		⑥ voltage regulation		
		atleast ~~exp~~ 06 + explanation		
		OR		
	d	Explanation for data base concept & new automated tools	06	430.1

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SECOND INTERNAL ASSESSMENT

Sem: VIII
Date:12.04.2018

Sub: Electrical Distribution System
Time:3pm to 4pm

Sub. Code:10EE844
Max. Marks: 25

Note: Answer two full questions, draw sketches wherever necessary.

Q. No		Discription of Question	Marks	CO	RBT Level
1	a	Define Utilisation factor, coincidence factor & loss factor	6	430.2	L4
		OR			
	b	Assume that annual peak load of a primary feeder is 2000KW, at which the power loss, i.e, total copper loss is 80KW per three phase. Assuming an annual loss factor of 0.15, determine i)average annual power loss ii) the total annual energy loss due to copper losses of the feeder.	6	430.2	L4
	c	Explian Box-Jenkins methodology & small area load forecasting.	7	430.2	L4
		OR			
	d	Derive the relationship between load & loss factors analyse it for three different cases.	7	430.2	L4
2	a	With the help of flow diagram explain Engineering design process.	6	430.5	L2
		OR			
	b	Explain the design criteria & standards in distribution system.	6	430.5	L2
	c	With single & double bus double breaker bus scheme explain distribution substation.	6	430.5	L2
		OR			
	d	Discuss the operation criteria & standards in distribution system	6	430.5	L2

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SCHEME OF EVALUATION

Sem : 8th | Subject : Electrical distribution Sys | Sub Code : 10EE844 | Date : 12/04/18

Q. No.	Bit	Description	Marks	CO's
1.	a	defination of utilisation factor, loss factor & coincidence factor.	06	430.2
		OR		
	b	With the given data calculating average annual power loss & total annual energy loss	06	430.2
		OR		
2	c	Explanation for Box-Jenkins methodology & small area load forecasting OR	07	430.2
	d	Relationship b/n load & loss factor	07	430.2
2.	a	flow diagram of Engineering design process + explanation	02 + 04	430.5
		OR		
	b	Explanation for design criteria & standards in distribution system	06	430.5
	c.	diagram of single & double breaker bus scheme & explanation	02 + 04	430.5
		OR		
	d.	discussion for operation criteria & standards in distribution sys.	06	430.5

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SCHEME OF EVALUATION

Sem : 8th | Subject : Electrical distribution Sys | Sub Code : 10EE844 | Date : 12/04/18

Q. No.	Bit	Description	Marks	CO's
1	a	Utilisation factor $F_u \triangleq \frac{\text{maximum demand}}{\text{rated s/m capacity}}$ coincidence factor $F_c \triangleq \frac{\text{coincident max demand}}{\text{Sum of individual max. demand}}$ $F_c = \frac{\text{dia}}{\sum_{i=1}^{n} \text{dai}}$ & $F_c = 1/F_D$ Loss factor $F_{LS} \triangleq \frac{\text{average power loss}}{\text{power loss at peak load}}$	06	430.2
		OR		
	b	Given peak load = 2000 kw, I^2R loss = 80 kW Loss factor = 0.15 We have loss factor = $\frac{\text{average power loss}}{\text{power loss at peak load}}$ ∴ average power loss = 0.15 × 80 kw = 12 kw. → The total annual energy loss is = avg power loss × 8760 hr/yr = 12 kw × 8760 = 1,05120 kwh	06	430.2
	c.	Explanation for Box-Jenkins methodology & Small area load forecasting	07	430.2

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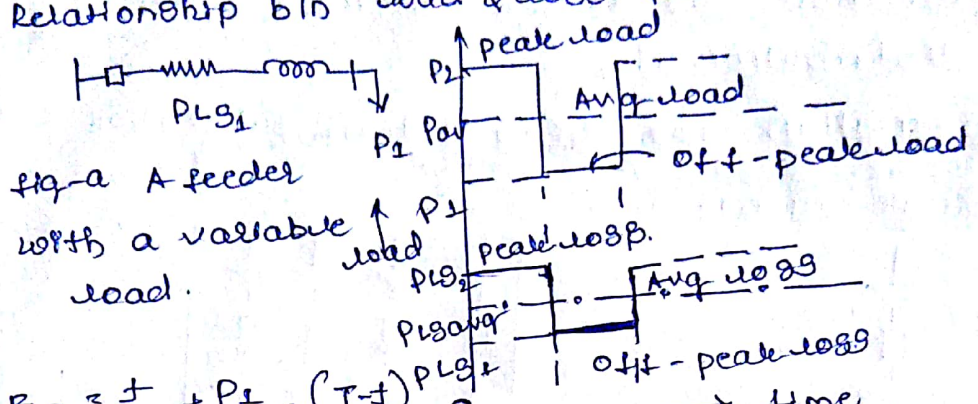
SCHEME OF EVALUATION

Sem : 8th Subject : Electrical distribution Sub Code : 10844 Date : 12/04/18

Q. No.	Blt	Description	Marks	CO's
	d	Relationship b/n load & loss factor	07	430.2



$$FLD = \frac{t}{T} + \frac{P_1}{P_2} \times \left(\frac{T-t}{T}\right) \quad \text{---(1)}$$

fig-b An arbitary & idealized curve.

$$FLS = \frac{t}{T} + \frac{P_1^2}{P_2^2} \times \left(\frac{T-t}{T}\right) \quad \text{---(2)}$$

case-1) off-peak load is zero $PLS_1 = 0$

case-2) very short lasting peak $t \to 0$.

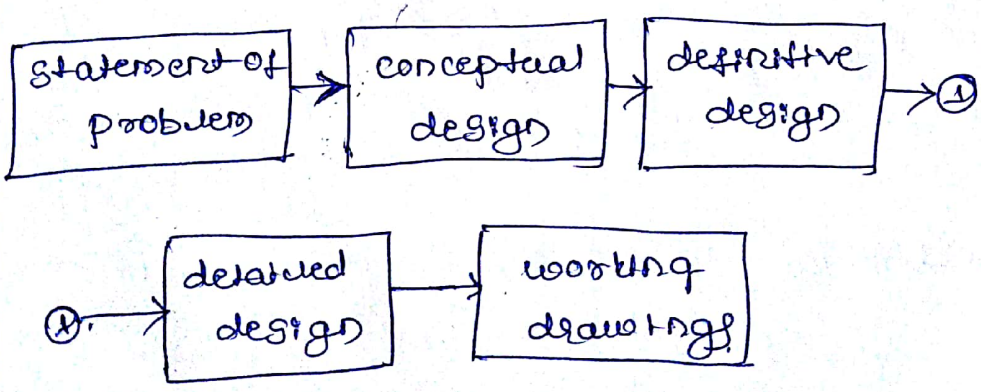
$\therefore FLS \to (FLD)^2$

case-3) Load is steady $t \to T$. $FLS \to FLD$

$FLS = 0.3\,FLD + 0.7\,FLD^2$

& $FLS = 0.16\,FLD + 0.84\,FLD^2$

2	a	Explanation for engineering design process	06	430.5



			06	430.5

fig- flow diagram of design process

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SCHEME OF EVALUATION

Sem : 8th Subject : Electrical distribution Sub Code : 10EE844 Date : 12/04/18

Q. No.	Bit	Description	Marks	CO's
8	b	Explanation for design criteria & standards in distribution sln	06	430.5
	c	Explanation for distribution substation	06	430.5

single bay bar

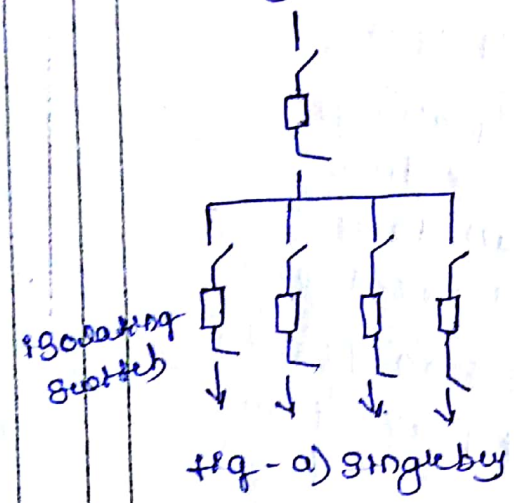

fig-a) single bay

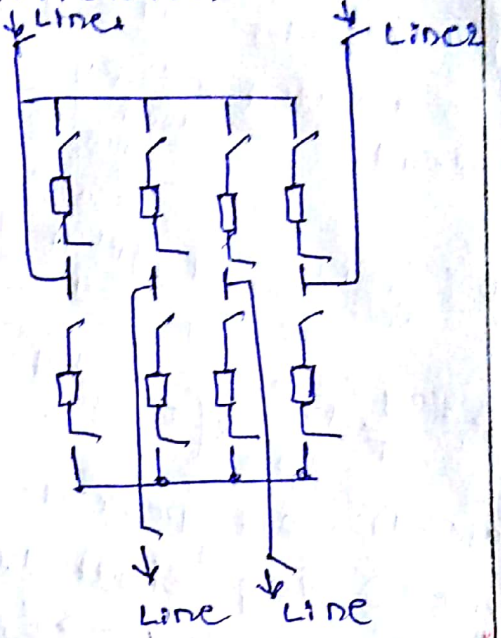

fig-b) double bay double breaker

	d	discussion for operation criteria & standards in distribution system	06	430.5

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THIRD INTERNAL ASSESSMENT

Sem: VIII | Sub: Electrical Distribution System | Sub. Code:10EE844
Date:19.05.2018 | Time:3pm to 4pm | Max. Marks: 25

Note: Answer two full questions, draw sketches wherever necessary.

Q. No		Discription of Question	Marks	CO	RBT Level
1	a	With neat sketch explain the different components of planning process	7	430.3	L2
		OR			
	b	Explain traditional least cost planning & Demand side management for distribution system planning.	7	430.3	L2
	c	Discuss in brief the planning criteria of distribution system.	6	430.3	L2
		OR			
	d	Explain the various types of feeders in distribution system.	6	430.3	L2
2	a	Explain in detail about dispersed generation & Net metering.	6	430.4	L2
		OR			
	b	Write a note on Global positioning system.	6	430.4	L2
	c	With block diagram representation explain the process of digital mapping.	6	430.4	L2
		OR			
	d	Explain the role of GIS in distribution system.	6	430.4	L2

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SCHEME OF EVALUATION

Sem : 8th | Subject : Electrical distribution Sys | Sub Code : 10EE844 | Date : 19/5/18

Q. No.	Bit	Description	Marks	CO's
1	a	neat sketch of different components of planning process + explanation	02 + 07	430.3
		OR		
	b	Explanation for traditional least planning + explanation for demand side management	07	430.3
	c	Explanation for planning criteria of distribution system	06	430.3
	d	Explanation for radial, loop & feeder Nlw OR	06	430.3.
2.	a	with sketch explanation for dispersed generation + Net metering	04 + 02	430.4.
		OR		
	b	Explanation for Global positioning system	06	430.4
	c	block diagram of digital mapping explanation for digital mapping	02 04	430.4.
		OR		
	d	Explanation for GIS in distribution system	06	430.4

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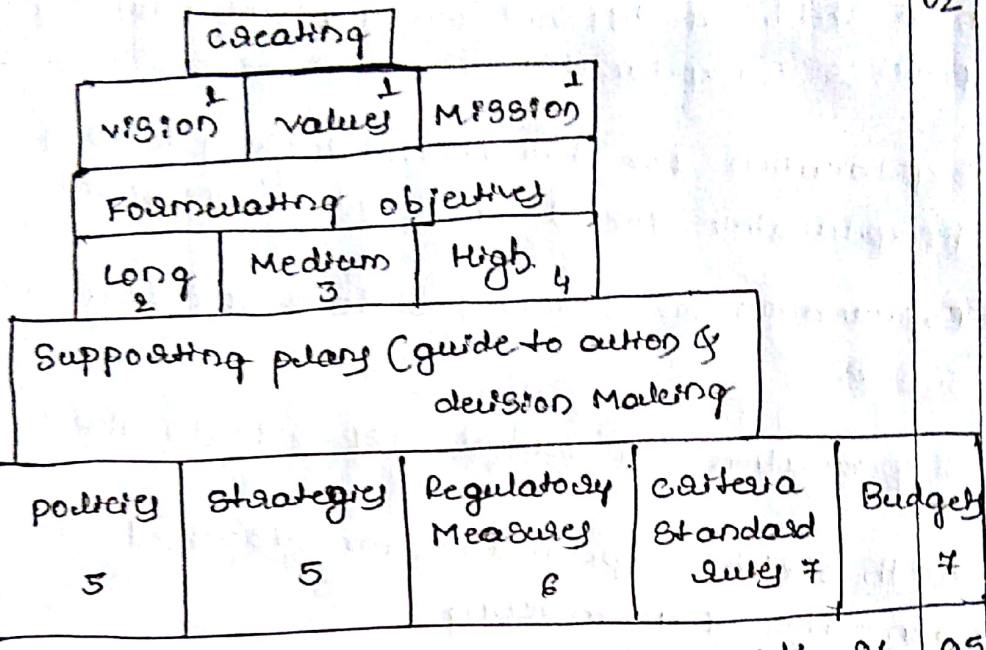
SCHEME OF EVALUATION

Sem : 8th | Subject : Electrical distribution Sys | Sub Code : 10EE846 | Date : 19/5/18

Q. No.	Bit	Description	Marks	CO's
1	a		02	430.3
		Explanation for different components of planning process	05	430.3
		OR		
	b	Explanation for traditional least cost planning & demand side Management	07	430.3
	c	Explanation for distribution sys planning criteria → planning criteria and standards together form a set of requirements against which the planning process can compare alternatives in the evaluation & final choice → A distribution plan must provide good economy & it should also satisfy various criteria & standards	06	430.3

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SCHEME OF EVALUATION

Sem: 8th Subject: Electrical distribution sys Sub Code: 10EE844 Date: 19/5/18

Q. No.	Sub Div	Description	Marks	CO's
		OR		
1	a	Explanation for radial, loop & Feeder N/w	06	430.3

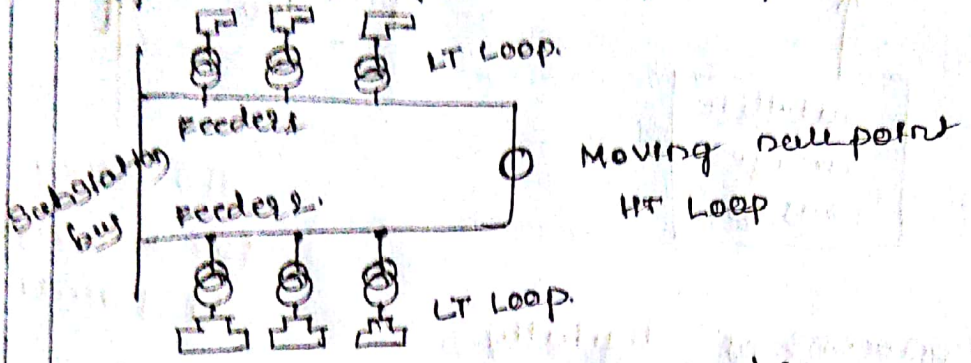
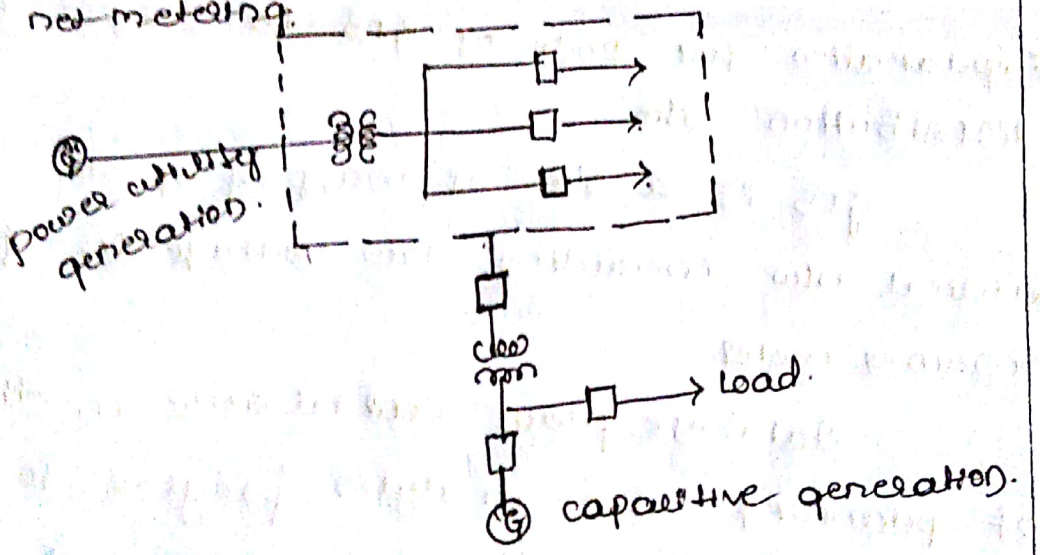


fig - LT & HT Loop feeder.

2	a	Explanation for dispersed generation & net metering.	06	430.4



OR

	b	Explanation for Global positioning sys	06	430.4

GPS is a sys in which earth orbitting satellites provide precise information on time and position is enabled with GPS receiving device to compute position on earth

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2. c. Explanation for digital mapping — 04 Marks — 430.4.
Neat sketch of digital mapping — 02 Marks

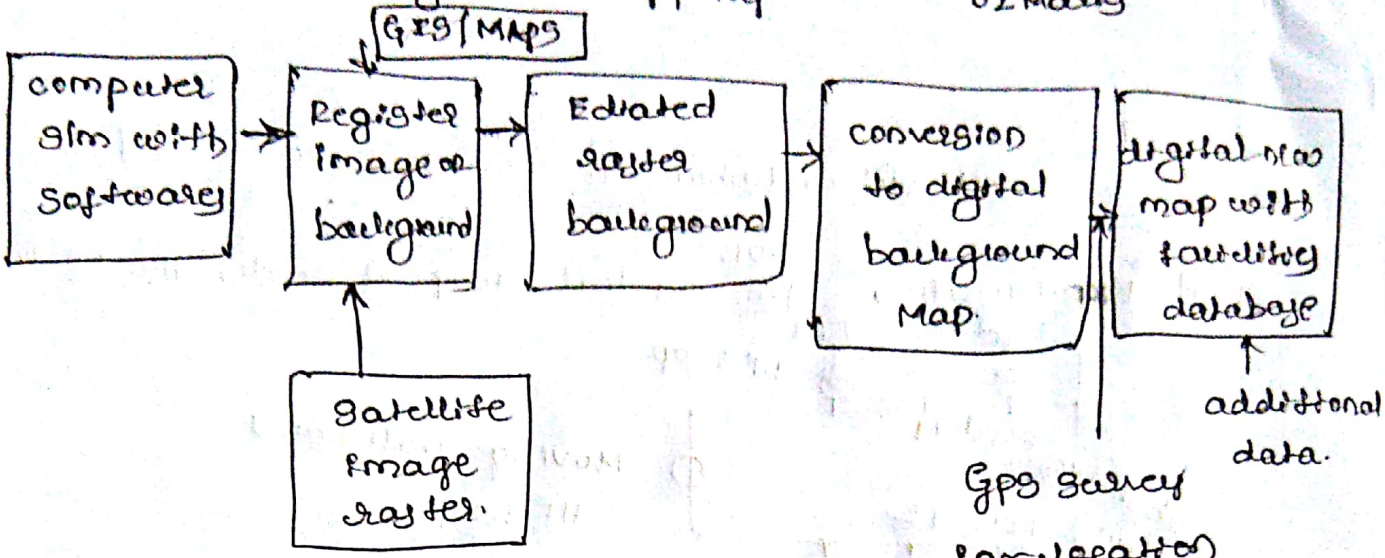

Fig - process of digitally mapping n/w.

OR

2. d. Explanation for Role of GIS in 430.4.
distributed s/m

GIS is a s/m of mapping of complete electrical n/w including low voltage s/m & consumer meter.

Database plays central role in the operation of planning, where analysis program form a part of the s/m supported by database mgt s/m which stores, retrieve and modify various data on the distribution system.