S J P N Trust's

HirasugarInstitute of Technology, Nidasoshi.

Inculcating Values, Promoting Prosperity

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E&E Engg. Dept.
Exam
Internal Assessment
Even Sem(2017-18)

FIRST INTERNAL ASSESSMENT

Sem: VIII
Date: 05/03/2018

Sub: Electrical Design, Estimating and Costing
Time: 11AM-12Noon

Sub. Code: 10EE81
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 term estimating and the purpose of estimating and costing.	6	419.1	L2
		OR			
	b	Explain the activities of purchase department.	6	419.1	L2
	c	Explain different modes of tendering.	6	419.1	L2
		OR			
	d	Explain the terms: i) tender form ii) Contigencies iii) overhead charges iv) profit v) IE rules vi) IE act.	6	419.1	L2
2	a	Explain general rules and guidelines for wiring of residential installation.	7	419.2	L2
		OR			
	b	Discuss the positioning of main board, switches, socket outlets and lamps for residential wiring.	7	419.2	L2
	c	Explain the factors to be considered for design of lighting scheme.	6	419.2	L2
		OR			
	d	Explain different types of lighting schemes.	6	419.2	L2

Course Coordinator

Module Coordinator

HOD

SCHEME OF EVALUATION

Sem : VIII | Subject : E-DEC | Sub Code : 10EE81 | Date : 5/3/18

No.	Bit	Description	Marks	CO's
1	a)	Def: Art of assessment of quantities of different items & cost thereof to plan the amount reqd for executing a work. →2M Purpose of estimating - It provides us an accurate assessment of the amount of money reqd. →4M	6M	4M-1.
	b)	Purchase activities - Creation of comprehensive & continuously updated list. - Maintenance of vendor evaluation & rating records. - Conducting market survey - Analysing bids/offers for decision making - Arranging negotiations with suppliers - Issue of purchase order.	6M	4M-1
	c)	Modes of tendering i) Open tendering ii) Global " iii) Limited " iv) Single " v) Proprietary " vi) Spot "	6M	4M-1

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SCHEME OF EVALUATION

Sem : VIII Subject : EDEC Sub Code : 06EE81 Date : 5/

Q. No.	Bit	Description
1.	d)	i) Tender form → 1M ii) Contingencies → 1M. iii) Overhead charges – 1M. iv) Profit – 1M. v) IE rules – 1M vi) IE act – 1M
2.	a)	General rules/guidelines for internal wiring. 7M – Every installation to be properly protected near the point of entry. – The conductor used should be of sufficient size. – The conductor installed is to be safe. – Every socket is to be connected to distribution board – Every line is to be protected. – Switch board must be installed at a height of min. 1.25 m. – No fuse or switch is to be provided for earthed conductor.

SCHEME OF EVALUATION

Subject: EDEC | Sub Code: 10EES1 | Date: 5/3/18

Description	Marks	CO's
b) Position of main board → 2M At a ht of 1.5 m from ground level – For 1-ϕ 2 wires – For 3-ϕ 4 wires	7M	419.2
Position of switches → 2M – Ht. of switch board should be 1.25 m – 1.6 m above the floor.		
Position of socked outlets → 1M – socked outlets are placed in the switch board itself.		
Position of lamps. → 2M – Sy. ht. of pendant & bracket or angle holder is 2.025 m to 2.5 m.		
c) Factors for design of lighting scheme. i) Illumination level ii) Uniformity of Illumination iii) Glares. iv) Shadows. v) Colour Rendering vi) Mounting Height vii) Spacing of Luminaries	8M	419.2

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SCHEME OF EVALUATION

Sub Code : 10EE81 Date : 5/3/18

VII Subject : EDEC

Bit	Description	Marks	CO
d)	Types of lighting schemes.	6M)	4
	i) Direct lighting		
	ii) Indirect "		
	iii) Semi-direct "		
	iv) Semi-indirect "		
	v) Local "		
	vi) General "		

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Internal Assessment
Even Sem(2017-18)

SECOND INTERNAL ASSESSMENT

em: VIII
ate: 11/04/2018

Sub: Electrical Design, Estimating and Costing
Time: 11AM-12Noon

Sub. Code: 10EE81
Max. Marks: 25

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

Q. No		Discription of Question	Marks	CO	RBT LEVEL
1	a	The figure 1 shows the plan of a dwelling house which is to be wired in open conduit system for providing lighting outlets only. List the lighting load, draw the wiring plan and prepare an estimate of cost for the electrification of the lighting outlets.	13	419.2	L6
		OR			
	b	A 15HP, 415V, 3-phase, 50Hz induction motor is to be installed in a workshop. The plan of which is shown in the figure 2 below. Draw the layout of wiring and estimate the quantity of materials required and total cost. Assume efficiency of motor as 85% and power factor as 0.8 lagging.	13	419.5	L6
2	a	Explain the factors to be considered for the choice of wiring system for internal wiring.	6	419.2	L2
		OR			
	b	Explain pipe earthing system for residential installation with neat figure.	6	419.2	L2
	c	Write the important considerations regarding motor installation wiring.	6	419.5	L2
		OR			
	d	Explain the determination of input power, input current and rating of cables of the motor.	6	419.5	L2

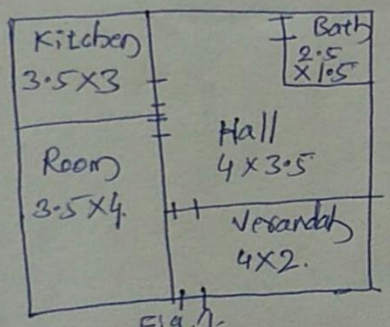

Fig. 1

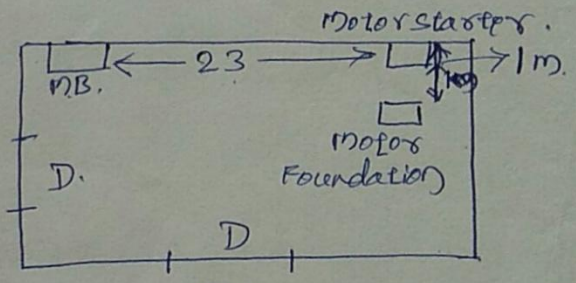

Fig. 2

All dimensions are in meters.

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E&E Engg Dept | Exam | IA Scheme | 2017-18 Even Sem

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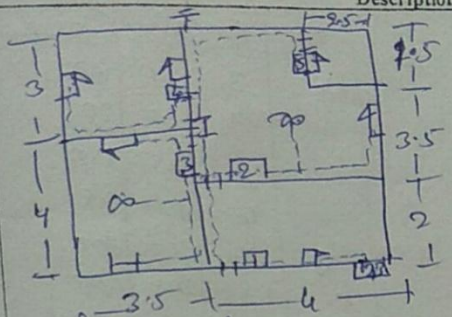
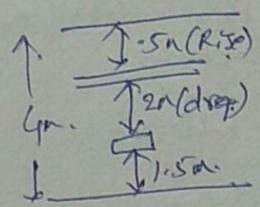
I.A. - II

SCHEME OF EVALUATION

Sem: VIII | Subject: EDEC | Sub Code: 10EE81 | Date: 11/4/2018

Q. No.	Bit	Description	Marks	CO's
1	a)	 	20	

Lighting load

Sl.No.	Place	socket 60W.	Angle holder 60W	Tube 40W	Fan 80W.	Total
1	Veranda	—	1×60.	—	—	60.
2	Room	1×60	1×60.	1×40=40	1×80=80	240
3.	Hall	1×60	1×60	1×40.	1×80	240
4)	Kitchen	1×60	2×60	—	—	180.
5)	Bath	—	1×60	—	—	60.
	Total	3	6	2	2	780.

*) wire size 3/22 Cu wire.
*) 5 amp switch 15A, 250V.
*) PVC conduit = 50.82m + 10% = 56m.
*) Length of wire = 168m

} 7M

Sl.No	Particulars	Unit.	Qty.	Rate	Cost.
1)	3/22 PVC Cu wire	M.	168	20/-	3360.
2)	15amp, 2mm PVC conduit	M	56	20	1120.
3)	Accessories	—	—	—	112.
4)	ICDP switch	No	1	80	80.
5)	1c pole switches	"	13	20	260.

8M

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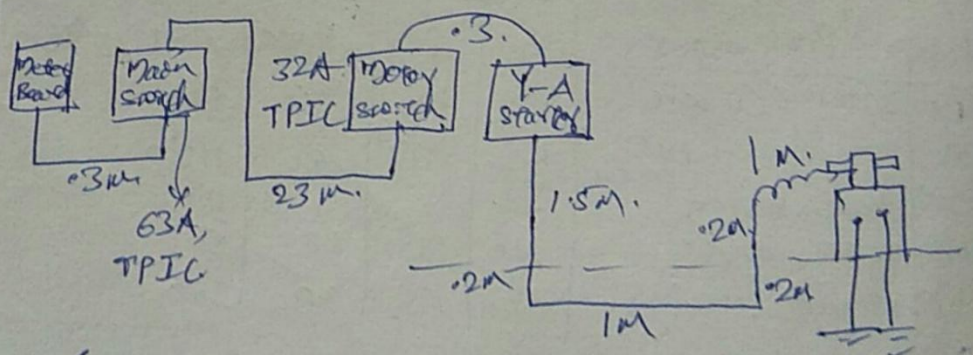
SCHEME OF EVALUATION

Sem : 4TH Subject : EDEC Sub Code : 10EE81 Date : 11/4/18

Q. No. | Bit | Description | Marks | CO

Sl No.	Particulars.	Unit.	Qty	Rate	Cost
6)	sockets.	No's.	3.	20	60.
7)	Fuse unit.	"	01.	20	20.
8)	Angle holders	"	6.	25	150
9)	Ceiling roses	"	4	12	48.
10)	8SWG GI wire	Kg.	2.	100.	200.
	40 mm GI pipe	M	15	200	300
	Earthing accessories	Lumpsum	—	—	200.
11)	Saddles.	No.	75	1	75
12)	10mm x 150mm x 45mm VTPR	No.	3	15	45
13)	150mm x 200mm x 45mm	"	2	25	50
14)	Regulator 250V, 6A	"	2.	220	440.
15)	MCB	"	1	150	150.
16)	Round plate.	"	11	5	55
17)	Miscellaneous	"	—	—	300.
18	Labour.				
	Lighting: 13 x 120 = 1560/-				1800
	MCB: 1 x 120 = 120/-				
	Earthing = 120/-				
	Total				8825.
19)	Contingencies at 5%.				442
	Total.				9267

1. 6)



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SCHEME OF EVALUATION

Sem : VII | Subject : EDCE | Sub Code : 10EE81 | Date : 11/4/18

Q. No.	Bit	Description	Marks	CO's

Full load $I = \frac{15 \times 735.5}{\sqrt{3} \times 415 \times .85 \times .8} = 22.5A$

Length of 25mm HG rigid conduit.
From meter board to main board = 8m.
" main board to south = 23m
Total = 23.3m
10% wastage = 2.33
= 25.63
≈ 26m.

Length of 50mm HG conduit. = 3.5m
25mm flexible conduit = .3m.
50mm " " = 1m.
Length of 16mm² PVC cable. = 35m.
Earthing wire = 6kg.

Sl No	Particulars	Qty	Rate	Total
1)	63A, 415V TPIC switch	1	1800	1800
	32A, 415V " "	1	1500	1500.
2)	IC Board 25×30 cm	1	375	375
	45×60 cm	1	900	900.
3)	HG conduit			
	25mm	26m	35	910
	50mm.	3.5m	45	157.5
4)	Flexible pipe			
	25mm	.3m	25	7.5
	50mm	1m	35	35
5)	3-core Al, 1100V, 16mm² wire	35m	60	2100.
6)	Conduit Bend 25mm	6	8	48
	50mm	4	10	40.
7)	Conduit shackle 25mm	24	4	96
	50mm	4	5	20.

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SCHEME OF EVALUATION

Sem : VII | Subject : EDEC | Sub Code : 10EE81 | Date : 11/4/18

Q. No. | Bit | Description | Marks

Sl.No.	Particulars.	Qty	Rate	Total.
8)	Flexible lock nuts 25MM	2	10	20
	50MM	3	15	45
9)	Wooden Bushing 25MM	6	3	18
	50MM.	2	3.	6
10)	Wooden gutties.	2 pella	10	20.
11)	8 SWG wire	6kg	200	1200
12)	shock treatment.	1	40	40.
13)	Condown plate.	2	10	20.
14)	Earthing pipe.	15.	100	200.
	Cu wire 8 SWG.	18	25	450.
	Cu plate 600x600x60mm	2	2000	4000.
	GI cover.	2	150	300
				17988.

Labour charge laying cable = 2200

" " fixing sockets = 400

Total 20,588.

5% contingencies = 1029.

Total = 21617/-

2. a) i) safety
ii) Durability
iii) Appearance
iv) Mechanical Protection
v) Permanency
vi) Accessibility
vii) Initial cost.
viii) Maintenance cost. (Any six)

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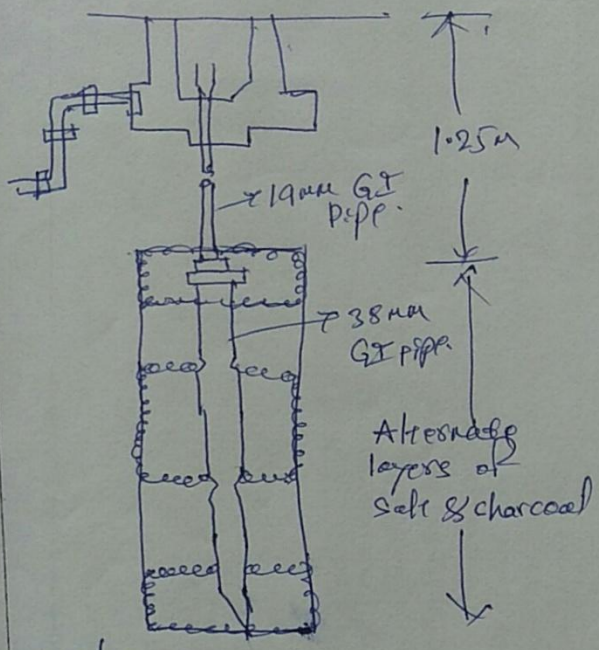
2017-18 Even Sem

SCHEME OF EVALUATION

Sem : VIII | Subject : EDEC. | Sub Code : 10EE81 | Date : 11/4/18.

Q. No.	Bit	Description	Marks	CO's
2.	b)	 Explanation. — 4M.	4M+2M	6M
2	c)	Any six considerations 1×6 = 6M wooden work should not be used, Looping, Flexible pipe; Switch fuse, Starters, laying of conduits & cable, Cross section of wire, Current rating, Earthing, Main switch for group of motor.	6M	4M+2M

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E&E Engg. Dept.
Exam
Internal Assessment
Even Sem(2017-18)

Sem: VIII
Date: 18/05/2018

THIRD INTERNAL ASSESSMENT

Sub: Electrical Design, Estimating and Costing
Time: 11AM-12Noon

Sub. Code: 10EE81
Max. Marks: 25

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

Q. No		Discription of Question	Marks	CO	RBT LEVEL
1	a	Estimate the materials required and their cost for overhead service connection to home of 2KW load at 240V, 50Hz supply. The supply is to be given from 20m away from the home.	13	409.3	L6
		OR			
	b	Estimate the materials required for 33/11KV outdoor substation and draw key diagram with one input and six output lines.	13	409.6	L6
2	a	Explain testing of switchboards and transformers.	6	409.4	L2
		OR			
	b	Explain the reasons for excess reading of energy consumption by energymeter.	6	409.4	L2
	c	Explain the different ways of classification of substations.	6	409.6	L2
		OR			
	d	Explain the factors to be considered for selection of site for substation installation.	6	409.6	L2

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III IA. SCHEME OF EVALUATION

Sem : VIII | Subject : EDEC | Sub Code : 10EE81 | Date : 18/5/2018

Q. No.	Bit	Description	Marks	CO's
1.	a)	P = 2KW, V = 240V.	10	4 & 3
		load C= $\frac{2000}{240}$ = 8.33A		
		FOS = 2, C= rating = 8.33 × 2 = 16.66A		
		Size of Al. wire = 4 mm^2.		
		4M.		

S.No.	Name	Qty	Rate	Total.
1)	4 mm^2 Al. cable.	2(20+10)=60	32	1920.
2)	Brake insulator 11KV.	2	25	50
3)	Insulator 1.1KV.	36	30/doz	90.
4)	GI supporting pipe.	1.5m	100	150.
5)	PVC pipe 25mm	3m	20	60
6)	PVC Bend 25mm	1	30	30
7)	Messenger wire 8 SWG.	3kg.	30/kg	90.
8)	Meter Board 12×12	1	100	100
9)	Fuse 2 & 4A	1	80	80.
10)	MCB	1	160	160.
11)	DP switch.	1	180	180.
12)	GI pipe locknut.	—	2set 40/set	80.
				4595
		5% cont.		230.
				733/-

9M.

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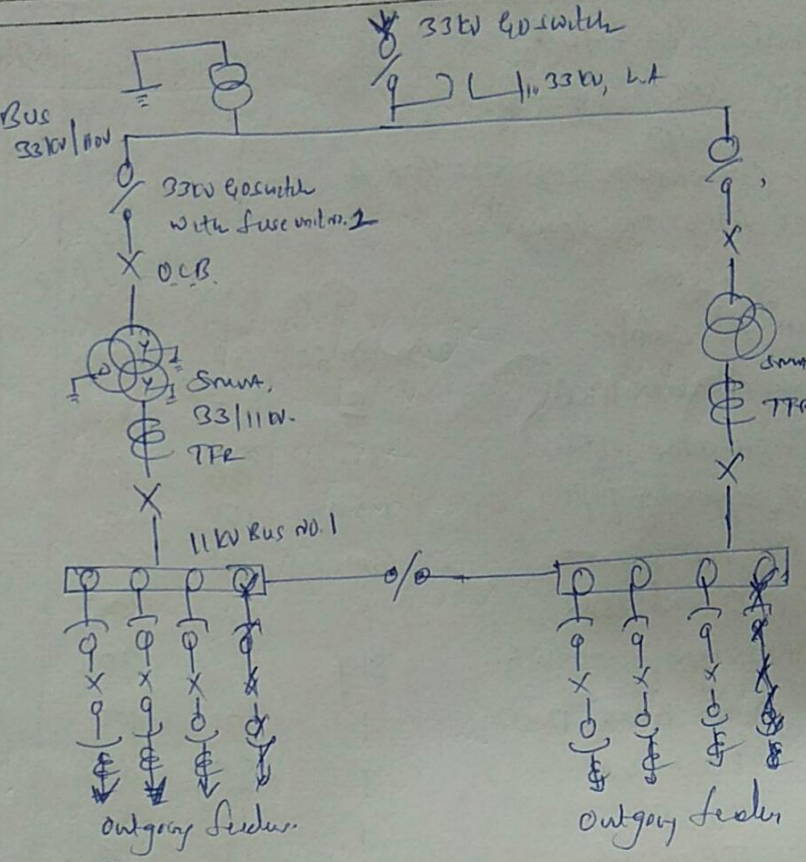
SCHEME OF EVALUATION

Sub Code : 10EE81 | Date : 18/05/2018

Sem : VIII | Subject : EDEC.

Q. No.	Bit	Description	Marks	COs
16			13 1/2	



Sl.No.	Description	Qty
1	5MVA 33/11KV. TFR	2 nos.
2.	33KV isolated cum GO switch	3 nos.
3.	33 KV. LA	1 set
4.	33 KV. O.C.B.	
5.	Power factor Correction Capacitor	2 nos.
6.	4 sq HDBC Conductor	150 mt
7	6 sq HDBC Cu conductor	200 mt
8.	11 KV 3 core XLPE Duarm AI. Conductor armoured cable	50 mt.
9.	Cable boxes 33KV, 3 core complete	4 nos
10.	Cable boxes 3 core 11KV,	4 nos
11	11KV, 3 φ metal clad with board with draw out type OCBs of rated, CTs. PTs.	1 No.
12.	Bus bar coupler 11KV,	1 No.

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SCHEME OF EVALUATION

Sem: VIII Subject: FDCC Sub Code: (10EE82) Date: 18/5/2021

	Description	Marks	CO's
2 a)	Switch board		
	* All switch boards shall be tested for dielectric test.	3M	4
	* All earth connections shall be checked.		
	* Operation of protective devices, CB's, indicating lamps shall be tested.		
	Transformers		
	* All commissioning tests as listed in IS:10028 shall be carried out	3M	4
b)	Reasons for excess recording.	6M	4
	* Creeping of disc of energy meter - 2M		
	* Defective bearing - 2M		
	* Meter defect - 2M		

Course Coordinator | Module Coordinator | HOD

SCHEME OF EVALUATION

Sub Code : 10EE81 | Date : 18/5/18

em : VIII | Subject : EDEC

Q. No.	Bit	Description	Marks	CO's
2	c.	Classification of Sub-stations	6	

Classification on the basis of nature of duties
i) Step up or Primary s-s ii) Primary grid s.s. iii) step down or distribution s.s
II) Basis of service rendered
i) Transformer s.s ii) Switching s.s iii) Converting s.s
III) Basis of operating voltage
i) H.V ss ii) EHV s.s iii) U.H.V s.s
IV) Basis of importance
i) Grid s.s ii) Town s.s
V) Basis of design
i) Indoor type ss ii) Outdoor s.s

d.	The following factors are considered while Making site selection for a s.s		6

1) Type of sub-station
2) Availability of suitable & sufficient Land
3) Communication facility
4) Atmospheric condition
5) Availability of essential amenities to the staff

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