

Departmental Test - Nov 2013

Detailed answer Keys. (TO -13 B -01)

Question No.1.

1(a) (4 marks)

Requirement for setting up of Generating Station by a Generating Company.

Any generating company may establish, operate and maintain a generating station without obtaining a licence under this Act if it complies with the technical standards relating to connectivity with the grid referred to in clause (b) of section 73. - section 7 of IEAct 2003 (2)

Notwithstanding anything contained in section 7, any generating company intending to set-up a hydro-generating station shall prepare and submit to the Authority for its concurrence, a scheme estimated to involve a capital expenditure exceeding such sum, as may be fixed by the Central Government, from time to time, by notification. - Section 8(1) of IEAct 2003 (2)

1(b) (4 marks)

The Duties of Generating Companies are:

(i). To establish, operate and maintain generating stations, tie-lines, sub-stations and dedicated transmission lines connected therewith in accordance with the provisions of this Act or the rules or regulations made thereunder. (1)

(ii). To supply electricity to any licensee in accordance with this Act and the rules and regulations made thereunder and may, subject to the regulations made under sub-section (2) of section 42, supply electricity to any consumer. (1)

(iii) Every generating company shall

- submit technical details regarding its generating stations to the Appropriate Commission and the Authority; (1)
- co-ordinate with the Central Transmission Utility or the State Transmission Utility, as the case may be, for transmission of the electricity generated by it. (1)

- Section 10 of IE Act 2003

1(c) (4 marks)

The Appropriate Commission, may revoke a licence in any of the following cases, namely:

- where the licensee, in the opinion of the Appropriate Commission, make wilful and prolonged default in doing anything required of him by or under this Act or the rules or regulations made thereunder; (1)
- where the licensee breaks any of the terms or conditions of his licence the breach of which is expressly declared by such licence to render it liable to revocation; (1)
- where the licensee fails, within the period fixed in this behalf by his licence, or any longer period which the Appropriate Commission may have granted therefor; (1)
- where in the opinion of the Appropriate Commission the financial position of the licensee is such that he is unable fully and efficiently to discharge the duties and obligations imposed on him by his licence. (1)

- Section 19(1) of IE Act 2003

1.(d) 4 marks

Open access : It means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission.

- section 2(47) of IE Act 2003

Wheeling : It means the operation whereby the distribution system and associated facilities of a transmission licensee or distribution licensee, as the case may be are used by another person for the conveyance of electricity on payment of charges to be determined under section 62.

- Section 2(76) IE Act 2003

1(e). 4 marks

Section 152(1) of IE Act 2003 deals with compounding of offences.

The rates at which the sum of money for compounding to be collected is given below.

Industrial service	- Twenty thousand rupees	} Per KW/HP or part thereof for Low Tension supply and per KVA of contracted demand for High Tension supply.
Commercial service	- Ten thousand rupees	
Agricultural service	- Two thousand rupees	
Other service	- Four thousand rupees	

2 (a) 5 marks

LT Supply of electricity available to the consumer is of the following categories:-

(i). Single-phase 2 wire 240 volts between phase and neutral for supply to a total connected load not exceeding 4000 watts (including power loads).

(ii). Three-phase 4 wire 415 volts between phases and 240 volts between phase and neutral for supply to a total connected load exceeding 4000 watts but not exceeding a demand of 112 KW.

(iii). The consumer may elect to avail supply under any one of the above categories where the connected load does not exceed 4000 watts.

If the connected load or demand of a LT consumer exceeds 50 KW, the consumer shall be provided LT CT metering.

Chapter 2, regulation 3(1) a,b,c and explanation of Tamil Nadu Electricity Supply Code.

The consumer shall be provided supply at 33 kV and above for a demand exceeding 3 MVA and upto 10 MVA if the area of supply is fed through 11 KV system and if the area is fed through 22 KV system, the supply at 33 KV shall be provided for a demand exceeding 5 MVA and upto 10 MVA.

Chapter 2, regulation 3(1) (e) of Tamil Nadu Electricity Supply Code.

2(b) 5 marks

Various Miscellaneous charges recoverable by the licensee from the consumer are;

(i) Capacitor Compensation charge;

(ii) Excess demand charge;

(iii) Excess contracted load charge

(iv) Belated payment surcharge

(v) Additional security Deposit, when so called upon;

- (vi) Service / Line shifting charge
- (vii) Name transfer charge
- (viii) Reconnection charge
- (ix) Consumer meter card replacement charge
- (x) Dishonored cheque service charge
- (xi) Meter related charges
- (xii) Application Registration charge
- (xiii) Service connection charges
- (xiv) Excess demand and excess energy charges during Restriction and Control of supply .

--Chapter 2, regulation 4(2) of Tamil Nadu Electricity Supply Code.

2(c) 5 marks

To collect a compensation charge of ten percent of the price of electricity supplied to him for the preceding four months of consumption till such time adequate capacitors are installed; and where inadequate capacitors are installed or where some of the capacitors are defective, the ten percent shall be reckoned proportionate to the extent of inadequacy or defect, as the case may be;

(2)

Where it is found that the capacitors installed are either inadequate or defective, the licensee shall, in addition to the levy and collection of capacitor compensation charges, by notice in writing, call upon the consumer to install adequate capacitors or to rectify or to replace the defective capacitors, as the case may be, within two months from the date of notice.

(2)

LT service with a connected load of motors of less than 3.0 HP without welding transformers need not install capacitors.

(12)

-Chapter 2, regulation, 5(1) a, 5(1) b & 5(1)c of Tamil Nadu Electricity Supply Code.

2(d) 5 marks

For Domestic and Agricultural category of LT supply service, the excess demand charges shall not be applicable.

For other categories of LT services with contracted demand equal to or less than 18.6 KW (25 HP), the excess demand charges shall not be applicable where the connected load is equal to or less than the contracted demand.

(2)

For services with contracted demand less than or equal to 18.6 KW (25 HP), whenever the consumer's connected load exceeds the contracted demand, the licensee shall install meters with demand recording facility and bring the consumer under the scope of excess demand chargeable category.

(1)

Chapter 2, regulation 5(2)(ii) a & 5(2)(ii)b & note of Tamil Nadu Electricity Supply Code.

In the case of temporary supply, the excess demand charges shall be the difference between the minimum charges for temporary supply computed at the rate notified, for a back period of six months or date of supply whichever is lesser, and the corresponding current consumption charges already recovered from the consumer.

(2)

Chapter 2, regulation 5(2)(iii) of Tamil Nadu Electricity Supply Code.

3(a) 2 marks

No addition or reduction of load in case of LT service and no addition or reduction of demand in case of HT service, may be sanctioned unless the outstanding dues in the same service connection had been paid as per regulation 5 (2) (iv) of Tamil Nadu Electricity Supply Code.

(2)

3(b) 6 marks

Additional Security Deposit

(i) The adequacy of security deposit may be reviewed and refixed once in a year in case of HT consumers and once in every two years in case of LT consumers taking into account the interest due for credit. Such reviews shall be made in the month of April/May.

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(ii) The adequacy of security deposit shall be based on the periodicity of billing for the respective category.

- For the categories of consumer under monthly billing, the Security Deposit is equivalent to two times of the monthly average of the electricity charges for the preceding twelve months prior to April.

- For the categories of consumer under bi-monthly billing, the Security Deposit is equivalent to three times of the monthly average of the electricity charges for the preceding twelve months.

- For the categories of consumer under half yearly billing, the security deposit is equivalent to seven times of the average charges per month.

Chapter 2, regulation 5(5)(i), 5(5)(ii) a, b & c of Tamil Nadu Electricity Supply Code

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3.(c) 6 marks

The duties of the Distribution Licensee are

i. To develop and maintain an efficient coordinated and economical distribution system in his/her area of supply and to supply electricity in accordance with the provisions contained in the Act.

ii. To implement the code with respect to the requirements from the consumers and oversee for prudent practices and code discipline.

iii. To facilitate review and recommend to the Commission amendments to the code without prejudice to the provisions in clause 51 of this code.

iv. To ensure that the consumer installations comply with the requirements of the code at the time of effecting service connection.

v. To take measures for resolution of issues arising due to non-compliance of operational / commercial / technical regulations of the code by the various sections of consumers in their jurisdiction.

vi. To allow the Distribution lines to be used as common carrier as and when the Commission introduce non discriminatory open access to any of the consumer in his/her area to get supply from other Licensees / Generating Companies outside his/her area.

- Chapter 2 regulation 3 (4) of Tamil Nadu Electricity Distribution Code.

(6)

3(d) 6 marks

The procedures and practices to be followed by the Licensees for Demand Estimation are :

The Licensee shall provide to the SLDC / SSLDC, its projection of demand on a year ahead, month ahead and day ahead basis. The time frames for such submission, as set out in the TNEGC shall be adhered to by the Licensee. The SLDC or SSLDC shall be the agency to receive the details from the licensees or issue directions to the Licensees as the case may be in line with the requirements prescribed in this chapter on Operational Guidelines and as per the provisions of the relevant Code. On demand, the consumers concerned shall furnish these data to the Licensees. The Licensee shall estimate its hourly and daily demand on the basis of relevant load curves drawn on a day ahead basis, subject to modification depending upon information received from any specific consumer or caused by any untoward incident/ contingency.

-Chapter 5, regulation 15 (1) of Tamil Nadu Electricity Distribution Code.

The procedures and practices to be followed by the Licensees for Scheduled Shutdown Programs are :

The Licensee shall furnish the proposed (planned) outage (scheduled shutdown) programs to the STU/ SLDC as specified in TNEGC. Planned outage programs shall furnish clearly the details of the electric lines/cables and the equipments of the distribution system that will be taken out of service, and other details of the planned interruption namely the date, duration and quantum of load that may be limited/ restricted at any interconnection during this planned interruption.

- Chapter 5, regulation 15 (2) of Tamil Nadu Electricity Distribution Code.

4 (a) 3 marks

The contingencies in the distribution system are mainly due to:

(i) Total or partial blackout of intra transmission or inter transmission network.
(Loss of generating sources)

(ii) Failure of network components like Breakers, Power Transformers, Current Transformers, Potential Transformers and lines in the transmission system.

(iii). Breakdown of components like Distribution Transformers, lines, etc. in the distribution system.

-Chapter 5, regulation 15 (3) of Tamil Nadu Electricity Distribution Code.

4(b) 4 marks

The Licensee shall maintain the system power factor at the level of minimum of 0.9 (Lag) at the interface/s .

The Licensee shall carry out system improvement measures at strategic points in the distribution system by undertaking useful system studies and installing the required VAR compensation equipment to meet the situation.

The Licensee shall also counsel and advise the consumers on the ways and means to improve the power factor in their respective systems to the required level.

Every consumer with a power factor less than the stipulated level may be suitably advised to rectify the situation by installing appropriate power factor

correction equipment, without prejudice to the levy of compensation charges as per the orders of the Commission from time to time.

- Chapter 4, regulation 13 (3) of Tamil Nadu Electricity Distribution Code.

4 (c) 3 marks

Requisitions for supply of energy (Applications) , even if incomplete, and irrespective of whether they are handed over in person or by post, should be acknowledged in writing. If they are in order, they shall be registered immediately and acknowledged. If they are incomplete, the defects should be indicated and returned without registration.

(3)

- Chapter 6 , regulation 27 (3) note of Tamil Nadu Electricity Distribution Code.

4 (d) Quality of service means providing uninterrupted, reliable electric supply at stipulated voltage and frequency, which will be the end result of its planning, designing of network, operation and service management to ensure stability in supply and prompt compliance of consumers' complaints on metering and billing.

(2)

- Chapter 6 , regulation 3 of Tamil Nadu Electricity Distribution Standards of performance Regulations 2004.

4(e) 4 marks

Category	Time Schedule for LT
(i) Involving no extension or improvement work	Preferably within a week but not exceeding 30 days
(ii) Involving Extension and Improvement without Distribution Transformers	60 days
(iii) Involving Extension and Improvement with Distribution Transformers	90 days

(3)

The time taken by the Consumer to remit the prescribed charges from the date of receipt of demand notice will not be covered in the above time schedule.

(1)

- Chapter 6 , regulation 4(3) and regulation 4(3) (IV) of Tamil Nadu Electricity Distribution Standards of performance Regulations 2004.

4 (f.) 4 marks

Duties of Licensee to supply electricity on request are:

i. Every distribution licensee shall , on an application by the owner or occupier of any premises, give supply of electricity to such premises, within one month after receipt of application requiring such supply:

- Provided that where such supply requires extension of distribution mains, or commissioning of new substation, the distribution licensee shall supply the electricity to such premises immediately after such extension or commissioning or within such period as may be specified by the Appropriate Commission.

- Provided further that in case of a village or hamlet or area wherein no provision

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for supply of electricity exists, the Appropriate commission may extend the said period as it may consider necessary for electrification of such village or hamlet or area.

- Provided that the licensee will refuse to supply electricity to an intending consumer who had defaulted payment of dues to the licensee in respect of any other service connection in his name.

ii. It shall be the duty of every distribution licensee to provide, if required, electric plant or electric line for giving electric supply to the premises specified in sub-section (i)

Provided that no person shall be entitled to demand, or to continue to receive, from a licensee a supply of electricity for any premises having a separate supply unless he has agreed with the licensee to pay to him such price as determined by the Appropriate Commission.

iii. If a distribution licensee fails to supply the electricity within the period specified in sub-section (1), he shall be liable to pay a penalty which may extend to one thousand rupees for each day of default.

- Chapter 6 , regulation 27 (1)(1), 27 (1) (2) & 27 (1) (3) of Tamil Nadu Electricity Distribution Code.

5.a. *4 marks*

Liquidated damages: It is the penalty clause included in the Tender specification for delay in delivery which shall be at half percent(0.5%) of the contract price of undelivered items/materials for each completed week of delay and the total shall not exceed ten (10%) percent of the contract price of the units/materials so delayed. This shall be incorporated in all the Purchase orders.(Per) B.P.(F.B) No.32(Accounts Branch) dt 13.10.97.

Clause. No.10.7.(a) of Tender Regulations 1991

Security Deposit: The successful tenderer will have to pay a Security deposit of 10% of the value of the contract inclusive of Earnest Money Deposit paid subject to a monetary ceiling of Rs 10.0 lakhs. Of this 2% of the value of the contract including the amount remitted as EMD has to be paid in cash/DD and the balance 8% in the form of Bank guarantee. Per B.P (F.B) No.5 (Accounts Branch) dt 10.04. 2000

-clause 12.1 of tender regulations 1991

5(b) *4 marks*

In the case of two part system of tenders, the procedure for submission of tenders will be as detailed below.

(i) The bidders shall be required to submit their bids in two envelopes at the same time on or before the notified date and time fixed for the submission of the particular tender.

(ii) The first envelope, called Envelope-A shall contain:

- a) Technical specifications, design details, deviations from specifications and other technical details.
- b) Commercial terms, including payment terms, liquidated damages, guarantees and other commercial matters.

- c) Relevant details about experience in execution of similar works or successful supply of similar or other related equipments to Tamil Nadu Electricity Board/other Electricity Boards/other Organisations and
- d) Any other information called for in the Specification other than price.

(iii) The second envelope, call Envelope-B, shall contain all the price bids.

(iv) Envelope-A, Envelope-B and the cash receipt for the payment of Earnest Money Deposit or proof of permanent Earnest Money Deposit or period of exemption from payment of Earnest Money Deposit shall be enclosed in an overall envelope and this shall be sent to reach the prescribed officer on or before the notified time and date for the receipt of the particular tender. Envelope-A, Envelope-B and the overall envelope shall be individually sealed, superscribed and addressed as instructed in the Specification.

clause 18.4 of tender regulations 1991

5(c) *4 marks*

Rejection of tenders may be due to

- (i) Not in the prescribed form
- (ii) Not accompanied by the required EMD or proof of permanent Deposit or proof of exemption. (4)
- (iii) Not properly signed by the tenderer
- (iv) From any blacklisted firm or contractor
- (v) Received after the expiry of the due date and firm
- (vi) Received by telex or telegram
- (vii) Not accompanied by an undertaking/agreement where EMD/SD is to be exempted.
- (viii) Not in conformity with Board's technical specifications
- (ix) From an approved tenderer whose Permanent EMD is not adequate for the particular tender

- (21.2 of Tender Regulations 1991)

5. (d) *4 marks*

-Repeat orders can be placed against previous order placed for one year after the issue of original order based on requirements or till the next purchase order is placed whichever is earlier. — 1

-It should be placed only for meeting emergent requirement.

-It should also to be ensured that there has been no decline in the purchase price of the original order placed. — 1

-The chief Engineers can place repeat orders at original rate depending on the requirement as per the tender regulations. — 1

- More than one repeat/extension order should not be placed. — 1

(Clause no.27.1 &2 and 27.6 of Tender regulation 1991)

5(e) 4 marks

(i) The Tender Inviting Authority shall ensure that adequate time is provided for the submission of tenders and a minimum time is allowed between date of publication of the Notice Inviting Tenders in the relevant Tender Bulletin or in the newspapers whichever is later and the last date for submission of tenders. This minimum period shall be as follows.-

- for tenders upto rupees two crores in value, fifteen days; and
- for tenders in excess of rupees two crores in value, thirty days.

(ii) Any reduction in the time stipulated as per sub-rule (1) has to be specifically authorized by an authority superior to the Tender Inviting Authority for reasons to be recorded in writing.

Clause 20 of the Tamil Nadu Transparency in Tenders Rules 2000-

6(a) 4 marks

Stock found in excess during verification should be taken as receipts both in the quantity and value accounts, the valuation being made at the current market rate. The value of the stores found surplus should be credited as a revenue receipt or a receipt on capital account as the case may be.

In the case of stock found deficient, the accounts should be examined to see if the deficiency is due to error in accounts. If it is not due to error in accounts, the deficiency should be shown as issues both in the quantity and value debited to 'unadusted items 091', pending recovery from the person responsible for the deficiency or sanction to write off as the case may be.

para 446 of TNEB Manual Vol I

6. (b) 4 marks

Stores Transfer Notes

Direct transfer of materials from one work to another should be avoided as a rule. It may be permitted in special cases where it is anticipated that unnecessary expenditure will be incurred in sending them to stores. In such cases, the executive officer transferring the materials should make out a Stores Transfer Note (M.E.D. Form 63), obtain the acknowledgment of the officer to whom they are transferred and forward it to the Central Office after obtaining the countersignature of the Assistant Engineer. Reasons for the transfer and if the value involved is large, the circumstances in which materials were obtained for in excess of requirements, as above, should be stated in the Stores Transfer Note. Stores Transfer Notes are posted in the ledgers in the same way as journal voucher.

The stores transfer notes may be treated as requisition and devolution slips but it is necessary to effect adjustment of the value in the accounts by means of consolidated journal entries which should also be sent to audit along with the monthly accounts along with such transactions.

-para 442 of TNEB Manual vol I

6 (c) 3 marks

The administrative approval is an order to execute a certain specified work at a stated cost. If in working out the detailed estimates, it is found necessary to make

any important deviation from the design to which administrative approval has been obtained or if the cost will exceed the estimate, administratively approved by more than 10% revised administrative approval must be obtained before technical sanction is accorded.

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- para 489 and 491 of TNEB manual Vol I

6(d) *2 marks*

Duplicate chest keys

The duplicate keys of the cash chest should be placed under the seal of the Chief accountant in the custody of the Treasury Officer. A duplicate key register should be maintained and once a year, in the month of April, the keys should be sent for examined and returned under fresh seal, a note being made in the register that they have been found correct.

2

-para 355 of TNEB Manual Vol I

6 (e) *2 marks*

The works to be checkmeasured are

Bills for work done

Suppliers bill for stores

Nominal muster rolls for dept labour

Work orders completed and sent for sanction

Meter reading

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- (Para 604) of TNEB Manual Vol I

6(f) *5 marks*

M.Book

i. It is a measurement book used for recording of measurement .It is the most important record as it is the basis of all accounts of quantity.

ii. This m. book must be made use of only when the work done or supplies made is susceptible of detailed measurement or count.

iii. All local purchases made for carrying out repairs or works at places distant from stores should be recored in the M.book

iv. S.R.B, LLB and Time roll books are regarded as M.books.

v. In case of cutting trees and jungle clearance, the no. of trees marked out and the particulars of area to be cleared of jungle clearance should be checkmeasured before trees are cut and removed.

vi. In case of loss it should be reported to central office .

vii In the following cases where actual measurement or count is not involved, no entry need be made in the M.Book.

- Compensation for land

- Compensation for trees

- Property tax on buildings

- Rents on buildings hired for office accommodation or for keeping departmental stores

- Current consumption charges

- Wages of work establishment and

- Water charges

5 for any five points

Para 603 of TNEB Manual Vol I

7 (a) 5 marks

Importance of maintenance of battery;

The storage battery in a power house or substation is the most vital equipment since the operation of the protective, isolating devices for all equipments depend on the availability of the D.C power from the battery.

At power stations the battery is the emergency source to run essential lubricating oil system and provide minimum lighting when there is a total shut down.

There have been major fires in transformers and breakers due to circuit breaker not clearing the fault due to defective conditions of the battery. Hence more importance has to be given on maintenance of battery.

Page 9 , Para 2.01.Code of Technical Instructions

Trickle Charging

All lead storage batteries shall be operated at a floating voltage as near as possible to 2.15 volts at the cell terminals by switching on the charging rectifier. The rectifier shall be set to take the continuous D.C. load of the system by way of indication lamps and coils in continuous operation and in addition, feed a fraction of an ampere into the battery. This is called Trickle Charging. This helps to maintain a charged battery without deterioration and increase the interval between routine recharging.

2.04.02 of Code of Technical Instructions.

7 (b) 5 marks

Surge Monitor is an exclusive device to determine the service performance of a lightning Arrester. This device monitors the on-line condition of the Lightning Arrester and in addition provides a ready count of the operations performed on it. The Surge Monitor is connected Electrically in series between the Lightning Arrester and the ground.

The cyclometric counter of the Surge-Monitor records the number of the operations performed by the arrester while the current meter shows the value of the arrester at any time.

When a surge – be it due to the natural lightning Phenomenon or the man made switching operations in the electrical system approaches a Lightning arrester, it offers an easy path for the transient through the surge Monitor to the ground. The surge monitor has active elements matched with those of the Arrester. The active elements provide the sensing signal for the cyclometer type counter. The current meter with its push button operator indicates the grading current of the lightning Arrester at any time.

-5.10 & 5.10.01 of Code of Technical Instructions

7(c) *6 marks* Safety Precautions Before starting Work on a Breaker.

It should be ensured that

- Breaker is open before opening disconnects.
- Line and bus disconnects have been checked open.
- There are no backfeeds from potential transformers.
- Main fuses at the switchboard have been removed.
- and d.c. is disconnected from the breaker mechanism.

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Work must be done from ladders or platforms along side the breaker. Essential work may be done from the top of the breakers only if protective barriers have been installed.

When working on the mechanism with the breaker closed, wire the trip latch or block the breaker closed so that it cannot be tripped accidentally.

4.02 of Code of Technical Instructions

7(d) *6 marks*

Types Of Fire Extinguishers

- | | | |
|---|---|--|
| 1. Soda Acid | : | Suitable for fires involving combustible Materials of organic nature such as wood, paper, rubber etc. only. |
| 2. Chemical FOAM | : | Best suited to put out fires involving combustible materials of organic nature and flammable liquids like transformers oil. |
| 3. Dry Powder | : | This type of extinguisher is suitable for fire involving flammable liquids and flammable gases under pressure and also best suited for fires in electrical equipments. |
| 4. Carbon – dioxide | : | This type of extinguisher is suitable for fire involving flammable liquids and flammable gases under pressure and also best suited for fires in electrical equipments. It is suited for electrical fires indoor equipments and not so effective in open air usage. |
| 5. Fire Buckets
Water (in a round Bottom bucket of paper, plastics etc. 10 litre capacity) | : | This method of fire extinguishing can be used when the cooling effect of water is essential for extinction of fires involving |
| 6. Sand (in round Bottom bucket of 10 litre capacity) | : | Sand can be used to extinguish fires where a blanketing effect is essential (e.g.) fires involving combustible materials of organic Nature like wood, paper etc. and flammable liquids. |

-10.03.01 of Code of Technical Instructions

8.(a) 4 marks

The accident should be avoided because it causes the following problems.

- Suffering of self
- Loss of earnings
- Incapability to work
- Extra expenditure to be incurred to meet out the expenses arising out of accidents
- suffering of dependents both mentally and financially
- loss to department

Fore ward of translator in the safety manual

Reasons for occurrence of accidents

- working Absent mindedly
- Negligence of adopting safety rules
- Negligence to use safety appliances
- Inadvertence
- Overconfidence
- Playfulness and heroism
- Lack of supervision
- Lack of knowledge and experience
- Lack of co-ordination.

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2 (for 4 marks)

2 (for 4 marks)

8(b) 8 marks

Line clear is the permit obtained before commencement of work in the electrical line or equipment in which work is to be carried out.

It is given after stopping the operation of electricity in the electric line/equipment and ensuring safety to work on the line/equipment.

Authorised persons who is responsible for the work should only get the line clear and it should be given only by the authorized persons who is authorized to do the operation.

Also the person who obtains line clear in person should follow the person who gives line clear and ensure that the line/equipment in which he is going to work is isolated from all the electrical parts and discharged to the earth.

After completion of work the person responsible for the work should ensure in person that the staff working under his supervision is available in safe place and then remove the earthing which is provided for safety at working place and then request to the person who issued L.C so as to return the line clear.

When Line clear could not be obtained in person it should be obtained over phone. The person who receives the line clear message over phone should read it again and the person who issued Line clear should confirm the same. Both should realize the importance of Line clear clearly. They should record the same in the Line clear book and return the Line Clear after completion of work in the same manner and send it post immediately.

Chapter 1, 14.1,14.2,14.3 of Safety Manual

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2

2

2

8(c) 3 marks

The points to be observed after opening the AB switches are :

After opening the AB switch it should be ensured that all the blades are opened to the extent possible in single throw switch and in double throw switch the blades are opened equally on both sides. The AB switches should be kept in locked condition.

Chapter 3, 14.5, 14.6, 14.7 & 14.8 of Safety Manual

8(d) 5 marks

- i. Ladder should have enough strength to climb.
 - ii. Ladder without proper steps should not be used.
 - iii. Ladder should be placed in safe position so as to facilitate climbing of poles (i.e. it should be kept 75 degree to the earth and it should be placed at one fourth distance of the height of the ladder.)
 - iv. The ladder should be placed in such a safe way that it should not slip at the bottom or top of the ladder.
 - v. It should not be kept on movable things.
 - vi. It should not be kept on the sides of opening of doors and windows.
 - vii. Two ladders should not be used. If necessary the ladders should be joined by placing parallel sticks.
 - viii. Steel/iron ladder should not be used nearer to electrical lines/equipments to avoid coming into contact with electrical parts/lines.
 - ix. While climbing the ladder nothing should be taken on hand or in shirt pockets.
- Chapter 5, 3 of safety Manual. (page 74, 75 & 76 of safety manual.)

(3)

(5)

For any
five points