

TRD QUESTION BANK – 300 QUESTIONS

INSTRUCTOR /TRD SELECTION

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CHAPTER 1-OHE

ABBREVIATIONS & ELECTRICAL TERMS RELATED TO OHE

1.1 GR & SR

- | | |
|--------------------------------------|----------------------------------|
| (a) General Rules & Subsidiary Rules | (b) General Rules & Safety Rules |
| (c) Grand Rules & Subsidiary Rules | (d) Grand Rules & Safety Rules |

1.2 CORE

- (a) Centre For Rural Electrification
- (b) Central Organization for Railway Electrification
- (c) Co-Related
- (d) Centre of Research & Economy

1.3. RDSO

- (a) Research Designs & Standards Organization
- (b) Revenue for Direct Supply Order
- (c) Railway, Design & Standard Organization
- (d) Research, Design & Specification Organization

1.4. RITES

- (a) Railway Institute for Technical & Economical Services
- (b) Rail India Technical & Economic Services
- (c) Railway India Trading & Economical Services
- (d) Railway India Technical & Engineering Services

1.5 SCADA

- (a) Supervisory Control & Data Acquisition
- (b) Supervisor Computer & Data Acquisition
- (c) Supervisor Control & Discipline Act
- (d) Super Computer & Data Acquisition

1.6. IRCAMTECH

- (a) Indian Railways Council for Advanced Material Technology
- (b) Indian Railways Committee for Advanced Material Technology
- (c) Indian Railways Centre for Advanced Material Technology
- (d) Indian Railways Centre for Advanced Maintenance Technology

1.7. IRIEEN

- (a) Indian Railway Institute of Entertainment Engineer
- (b) Indian Railway Institute of Education Expert
- (c) Indian Railway Institute of Electrical Expert
- (d) Indian Railway Institute of Electrical Engineering, Nasik

1.8. Full form of SWR

- (a) Section Working Rules
- (b) Station Working Rules
- (c) Safety Working Rules
- (d) Safety with remote control

1.9. Expand RSJ?

- (a) Rolled State Joint
- (b) Rail Steel Joint
- (c) Rolled Steel Joist
- (d) Rolled Straight Joint

1.10. Expand TTC?

- a) Train Track Cantilever
- b) Two / Three Track Cantilever
- c) Traction train Cantilever
- d) None of the above

CHAPTER 2 - OHE 25 KV AC TRACTION SYSTEM

2.1 A neutral section is provided in OHE between two 25 kV, single phase , 50 Htz. traction substations due to

- (a) To separate the zones, which fed by the adjacent substation of different phase
- (b) To increases the current carrying capacity of the OHE
- (c) To minimise the voltage drop in OHE conductors
- (d) All of the above

2.2 Normally, power generation & transmission system of the supply authorities are of

- (a) Single phase
- (b) Two phase
- (c) Three phase
- (d) Three phase & neutral wire

2.3 25 kV traction system needs the supply of

- (a) Single phase
- (b) Two phase
- (c) Three phase
- (d) Three phase & neutral wire

2.4 Normally, power generation & transmission system of the supply authorities are of three phase type & incoming supply is taken in consecutive 25 kV ac traction sub stations is of different phase in rotation , due to

- (a) Balance the traction load on each phase (b) Unbalance the traction load on each phase
- (c) Obtained maximum power (d) Minimise voltage drop

2.5 Normally, two adjacent 25 kV AC traction sub stations works as in

- (a) Parallel (b) Series (c) Independent (d) Cannot say

CHAPTER 3 - OHE

SPAN LENGTH, TENSION LENGTH

3.1 Standard span length in regulated AC traction is

- (a) 55 meters (b) 57.5 meter (c) 49.5 meter (d) 61 meter

3.2 Standard span length in regulated AC traction is

- (a) 60 meter (b) 56 meter (c) 50 meter (d) 45 meter

3.3 Maximum span length in unregulated Tramway OHE is

- (a) 45 meter (b) 36 meter (c) 30 meter (d) 22.5 meter

3.4 Maximum span length in regulated Tramway OHE is

- (a) 72 meter (b) 61 meter (c) 67.5 meter (d) 63 meter

3.5 Difference between two consecutive span length should not be more than

- (a) 25 m. (b) 20 m. (c) 18 m. (d) 16 m.

3.6 In AC traction , maximum span length in unregulated OHE is

- (a) 72 m. (b) 67.5 m. (c) 63 m. (d) 61 m.

3.7. If unequal encumbrance is used between two OHE structures, maximum span length will be

- (a) 72 m. (b) 67.5. (c) 61 m. (d) 63 m.

CHAPTER 4-OHE

WIND PRESSURE ON CONVENTIONAL OHE & SAG

4.1 Maximum wind pressure is considered to design OHE structures for Red/heavy zone

- (a) 180 kgf /sq. m. (b) 160 kgf /sq. m.
- (c) 150 kgf /sq. m. (d) 110 kgf /sq. m.

4.2. Maximum wind pressure is considered to design OHE structures for Yellow/medium zone

- (a) 112.5 kgf /sq. m. (b) 125 kgf /sq. m.
- (c) 109.5 kgf /sq. m. (d) 102 kgf /sq. m.

4.3 Maximum wind pressure is considered to design OHE structures for Green/light zone

- (a) 112.5 kgf /sq. m. (b) 105 kgf /sq. m.
- (c) 75 kgf /sq. m. (d) 88 kgf /sq. m.

CHAPTER 5 -OHE ENCUMBRANCE, GRADIENT OF THE CONTACT WIRE

5.1 In AC traction, the axial distance between catenary & contact wire in vertical plane at mid span should not be less than

- (a) 150 mm (b) 170 mm (c) 180 mm (d) 270 mm

5.2 At obligatory structure of turnout, It is general practice to give encumbrance

- (a) 1.4 m. turnout OHE & 0.9 m main line OHE
- (b) 0.9 m. turnout OHE & 1.4 m main line OHE
- (c) 1.4 m. turnout OHE & 1.4 m main line OHE
- (d) 0.9 m. turnout OHE & 0.9 m main line OHE

5.3 At turnout structure , It is general practice to give encumbrance of 1.4 m to the turnout OHE & 0.9 m to the main line OHE due to

- (a) To maintain proper tension.
- (b) To accommodated section insulator in turnout OHE
- (c) To maintain proper stagger.
- (d) None of the above.

5.4 Maximum permissible relative gradient of contact wire in two adjacent span shall not be greater than on main lines

- (a) 1.5 mm /m. (b) 2 mm /m. (c) 3 mm /m. (d) 4 mm /m.

5.5 Maximum permissible relative gradient of contact wire in two adjacent span shall not be greater than on sidings

- (a) 2 mm /m. (b) 3 mm /m. (c) 4 mm /m. (d) 5 mm /m.

CHAPTER 6 - OHE HEIGHT OF CONTACT WIRES, LEVEL CROSSING GATE

6.1 In AC traction, minimum height of contact wire under ROB/FOB from rail level to permit “C” class ODC

- (a) 4.92 m (b) 4.80 m (c) 4.65 m (d) 5.03 m

6.2 In AC traction, height of contact wire at support from rail level (regulated OHE) with 50 mm pre sag in contact wire is

- (a) 5.50 m (b) 5.55 m (c) 5.60 m (d) 5.65 m

6.3 In AC traction, height of contact wire at support from rail level (regulated OHE) with 100 mm pre sag in contact wire is

- (a) 5.50 m (b) 5.55 m (c) 5.60 m (d) 5.75 m

6.4 In AC traction, height of contact wire from rail level in Car shed is

- (a) 5.60 m (b) 5.65 m (c) 5.75 m (d) 5.80 m

6.5 In AC traction, normal height of the catenary wire at support from rail level (regulated OHE) with 100 mm pre sag in contact wire is about

- (a) 7.20 m (b) 7.75 m (c) 7.25 m (d) 7.45 m

6.6 In AC traction, height of contact wire (unregulated OHE) for 40° to 65° degree centigrade area is

- (a) 5.5 m (b) 5.55 m (c) 5.6 m (d) 5.75 m

CHAPTER 7 -OHE DROPPERS & OTHER OHE CONDUCTORS

7.1 Droppers are used for

- | | |
|--------------------------------------|-------------------------|
| (a) Leveling the contact wire | (b) To maintain stagger |
| (c) Reduced the sag in catenary wire | (d) None of the above |

7.2 Droppers are made out of

- (a) Annealed copper (b) Hard drawn copper
- (c) Cadmium copper (d) Bronze

7.3 Diameter of inclined dropper in bracket assembly is

- (a) 7 mm (b) 5 mm
- (c) 9 mm (d) 6 mm

7.4 In AC traction , how many droppers in 72 m span length

- (a) 9 Droppers (b) 10 Droppers
- (c) 8 Droppers (d) 12 Droppers

7.5 In AC traction , how many droppers in 58.5 m span length

- (a) 9 droppers (b) 8 droppers
- (c) 7 droppers (d) 6 droppers

7.6 In AC traction, how many droppers in 54 m span length

- (a) 8 Droppers (b) 7 Droppers
- (c) 6 Droppers (d) 5 Droppers

7.7 In AC traction ,how many droppers in 35 m. non standard span length

- (a) 5 Droppers (b) 4 Droppers
- (c) 6 Droppers (d) 3 Droppers

7.8. what is the purpose of the rigid dropper?

- a)To maintain encumbrance b) to take the load of contact wire
- c)To distribute the current between catenary and contact wire d)None of the above

7.9. how many strands are there in large span wire?

- a) 19 b)133 c) 37 d)238

7.10. what is the max tensile strength of the electrolytic copper?

- a) 42kgs/sq mm b)50 kgs/sq mm c)63kgs/sq mm d)70kgs/sq mm

CHAPTER 8 - OHE

STAGGER

8.1 The displacement of contact wire with respect to the pantograph axis is called

- (a) Implantation
- (b) Stagger of contact wire
- (c) Gradient of contact wire
- (d) Sag

8.2 Maximum stagger is allowed at mid span is

- (a) 229 mm
- (b) 200 mm
- (c) 152 mm
- (d) 100 mm

8.3 Contact wire is placed in zig- zag manner in entire span length , why ?

- (a) To avoid formation of groove on pantopan strip
- (b) Uniform rubbing of pantopan strip within current collection zone
- (c) To avoid breakdown due to formation of groove in pantopan strip
- (d) All of the above

8.4 Which factor affects the stagger of contact wire ?

- (a) Blow-off
- (b) Versine
- (c) Track slewing
- (d) All of the above

8.5 The displacement of contact wire from its original position due to wind pressure across the track is called

- (a) Blow-off
- (b) Versine
- (c) Stagger
- (d) Super elevation

8.6 On tangent track, contact stagger is 200 mm at support, what will be the catenary stagger?

- (a) 300 mm
- (b) 200 mm
- (c) 100 mm
- (d) Zero

8.7 On curved track , contact stagger is 300 mm. at support, what will be the Maximum allowable catenary stagger

- (a) 300 mm
- (b) 200 mm
- (c) 100 mm
- (d) Zero

8.8 The offset of the track centre from the chord joining the two adjacent points at the track centre is called

- (a) Super elevation
- (b) Versine
- (c) Blow-off
- (d) Span length

8.9 Versine “V” is calculated by the formula

Where, L = span length R= radius of curvature of track

- (a) $V = L / 8R$
- (b) $V = L^2 / 4R$

(c) $V = 2L / R$

(d) $V = L^2 / 8R$

CHAPTER 9 -OHE REGULATED/UNREGULATED OHE

9.1 In regulated OHE, how much tension is kept in OHE

- (a) As per tension / temperature chart (b) 3000 kg
(c) 2000 kg (d) 1500 kg

9.2 Distance between anti-creep point & anchoring structure should not be more than

- (a) 1600 m. (b) 1500 m.
(c) 750 m. (d) 600 m.

9.3 Regulated OHE is suitable for the speed

- (a) Above 100 KMPH (b) Less than 100 KMPH
(c) Upto 80 KMPH (d) Upto 90 KMPH

9.4 Unregulated OHE is suitable for the speed

- (a) Above 100 KMPH (b) Less than 60 KMPH
(c) Upto 80 KMPH (d) Upto 100 KMPH

CHAPTER 10 - OHE DIFFERENT OHE SYSTEMS, PRE SAG AND ELASTICITY OF OHE

10.1 In simple catenary system, the system of stringing of OHE conductors in the form of ?

- (a) A solid groove contact wire only
(b) A solid groove contact wire & one solid catenary wire
(c) A solid , without grooved contact wire & one stranded catenary wire
(d) A solid grooved contact wire & one stranded catenary wire

10.2 In system of stringing of polygonal OHE, the supporting mast holds

- (a) A solid groove contact wire only
- (b) A solid groove contact wire & one solid catenary wire
- (c) Stranded catenary wire only
- (d) A solid grooved contact wire & one stranded catenary wire

10.3 Which system is polygonal OHE system?

- (a) Simple catenary system
- (b) Compound catenary system
- (c) Stitched catenary system
- (d) All of the above

10.4 In polygonal system of OHE, which factor decide to choose any system
Such as (simple catenary, compound catenary etc.)

- (a) Height of OHE
- (b) Wind pressure zone
- (c) Speed & current carrying capacity
- (d) All of the above

10.5 In simple catenary system (regulated) , without pre sag in contact wire is suitable upto the maximum speed

- (a) 80 kmph
- (b) 100 kmph
- (c) 120 kmph
- (d) 140 kmph

10.6 In simple catenary system (regulated) , with 50 mm pre sag in contact wire is suitable upto the maximum speed

- (a) 80 kmph
- (b) 100 kmph
- (c) 120 kmph
- (d) 140 kmph

10.7 In simple catenary system (regulated) , with 100 mm pre sag in contact wire is suitable upto the maximum speed

- (a) 160 kmph
- (b) 100 kmph
- (c) 120 kmph
- (d) 140 kmph

10.8 Compound catenary system is suitable upto the maximum speed

- (a) 160 kmph
- (b) 100 kmph
- (c) 120 kmph
- (d) 190 kmph

10.9 Stitched catenary system (10 Y) is suitable upto the maximum speed

- (a) 160 kmph
- (b) 140 kmph
- (c) 120 kmph
- (d) 190 kmph

10.10 Composed compound catenary system is suitable upto the maximum speed

- (a) 160 kmph
- (b) 100 kmph
- (c) 250 kmph
- (d) 190 kmph

10.11 Compound catenary system consists of

- (a) Catenary & contact wire
- (b) Auxiliary catenary & contact wire

- (c) Main catenary, auxiliary catenary & contact wire
- (d) Contact wire

CHAPTER 11-OHE OVERLAP AND NEUTRAL SECTION

11.1 An arrangement of OHE over a track, where two sets of OHE conductors are run parallel to each other for a short distance & provide smooth passage for pantograph, is called

- (a) Turnout
- (b) Crossover
- (c) Overlap
- (d) Neutral section

11.2 Insulated overlap is required for

- (a) OHE sectioning purpose
- (b) To kept OHE in current collection zone at curve
- (c) To maintain height of OHE conductors
- (d) All of the above

11.3 In AC traction, distance between two OHE's conductor in insulated overlap is kept

- (a) 500 mm.
- (b) 380 mm.
- (c) 300 mm.
- (d) 200 mm.

11.4 In AC traction, distance between two OHE's conductor in un-insulated overlap is kept

- (a) 375 mm
- (b) 300 mm
- (c) 150 mm
- (d) 200 mm

11.5 Un-insulated overlap is provided in OHE because

- (a) To restrict span length
- (b) To restrict tension length
- (c) Quick isolation of OHE
- (d) All of the above

11.6 In AC traction, how many spans are required to construct an overlap on tangent track

- (a) One span
- (b) Two span
- (c) Three span
- (d) Four span

11.7 In AC traction, how many spans are required to construct an overlap on curve track

- (a) One span
- (b) Two span
- (c) Three span
- (d) Four span

11.8 Normally, insulated overlap are employed at the location

- (a) SSP
- (b) FP
- (c) Booster transformer's location
- (d) All of the above

11.9 In four span insulated overlap, the distance between the centre of the four span insulated overlap & anticreep should not be more than

- (a) 800 m
- (b) 750 m
- (c) 600 m
- (d) 450 m

11.10 Why distance between the centre of the four span insulated over lap & anti-creep restricted up to 600 m ?

- (a) To ensure satisfactory clearance between bracket assembly
- (b) To maintain uniform tension
- (c) Proper gradient of contact wire
- (d) Blow- off within limit

CHAPTER 12 - OHE TURN OUTS & CROSSOVERS

12.1 Which is related to mechanical clearance

- (a) At cross over, min track separation for erecting section insulator
- (b) Implantation
- (c) ODC
- (d) all of the above

12.2 Which type of turn out is best for main line

- (a) Over lap type (b) Knuckle type
- (c) Cross type (d) None of the above

12.3 At the obligatory location, turn out contact wire is keptmm above from the main line contact wire

- (a) 100 mm (b) 50 mm
- (c) 20 mm (d) 5 mm

12.4 The arrangement of over lap type turn out will be in

- (a) One span (b) Two spans
- (c) Three spans (d) Four spans

12.5 The arrangement of knuckle type turn out will be in

- (a) One span (b) Two spans
- (c) Three spans (d) Four spans

12.6 The arrangement of cross type turn out will be in

- (a) One span (b) Two spans
- (c) Three spans (d) Four spans

12.7 Which type of turn out is most suitable for high speed OHE

- (a) Knuckle type (b) Cross type
- (c) Over lap type (d) All of the above

- 12.8. What is the clearance between two OHE in an un insulated overlap?
- a) 100mm b) 200mm c) 300mm d) 500mm

CHAPTER 13 - OHE

SECTION INSULATOR, 25 KV AC JUMPERS

13.1 A device, which installed in contact wire to separate two elementary section & provide smooth passage for pantograph is called

- (a) Insulated overlap (b) Section insulator
(c) Bracket Assembly (d) Cut-in insulator

13.2 At section insulator location, encumbrance should not be less than

- (a) 152 mm (b) 320 mm
(c) 450 mm (d) 600 mm

13.3 At the location of section insulator, stagger of contact wire should be

- (a) zero (b) 200 mm
(c) 300 mm (d) 380 mm

13.4 At the location of section insulator, maximum stagger of contact wire may be allowed

- (a) 50 mm (b) 100 mm
(c) 200 mm (d) 300 mm

13.5 Which insulator is used in section insulator assembly

- (a) Sectioning insulator (b) Cut in insulator
(c) 9- ton insulator (d) Stay tube insulator

13.6. Minimum clearance between section insulator assembly and adjacent track is

- (a) 5.3 m (b) 5 m
(c) 4.751 m (d) 4.725 m

13.7 Section insulator works like an insulated overlap with a major difference

- (a) Can be negotiated only at low speed (b) Can be negotiated only at high speed
(c) Can be negotiated at normal speed (d) None of the above

13.8 Suitable location of section insulator from the mast on turnout OHE is

- (a) Between $\frac{1}{3}$ & $\frac{1}{10}$ th of span length (b) Between $\frac{1}{3}$ & $\frac{1}{5}$ th of span length
(c) Between $\frac{1}{5}$ th & $\frac{1}{10}$ th of span length (d) Between $\frac{1}{2}$ & $\frac{1}{3}$ span length

13.9 Track separations of section insulator when free ends of runners towards center of the turnout?

- (a) 1.72 m (b) 1.92 m
- (c) 1.65 m (d) 1.46 m

13.10 Track separations of section insulator when free ends of runners away from center turnout?

- (a) 1.72 m (b) 1.65 m
- (c) 1.52 m (d) 1.45 m

13.11 Maximum speed under section insulator with trailing end runner at the direction of traffic is

- (a) 120 KMPH (b) 80 KMPH
- (c) 60 KMPH (d) 40 KMPH

13.12 Maximum speed under section insulator with facing end runner at the direction of traffic

- (a) 110 KMPH (b) 80 KMPH
- (c) 60 KMPH (d) 40 KMPH

13.13 Horizontal clearance between two runners of ac section insulator is

- (a) 500 mm (b) 460 mm
- (c) 320 mm (d) 200 mm

13.14 A bend is given to section insulator's runner, the displacement of bend runner from its straight position is

- (a) 100 mm (b) 72 mm
- (c) 60 mm (d) 40 mm

13.15 In AC traction , Which jumper distribute the current between catenary wire & contact wire

- (a) "C" Jumper (b) "F" jumper
- (c) "G" jumper (d) "S" jumper

CHAPTER 14 - OHE BRACKET ASSEMBLY

14.1 Cantilever assembly, both insulators are located nearer to the mast

- (a) To avoid contamination due to steam & diesel locomotives
- (b) To hold the tubes in proper tension
- (c) To Cantilever assembly is swiveling type
- (d) To avoid transferring the weights on OHE

14.2 The arrangement of the cantilever assembly depends upon the

- (a) Height of contact wire (b) Setting distance

- (c) Stagger (d) All of the above

14.3 The arrangement of the cantilever assembly does not depend upon the

- (a) Height of contact wire (b) Super elevation
(c) Encumbrance (d) None of the above.

14.4 The tubes of the cantilever assembly are made out of

- (a) Aluminum bronze (b) Aluminum
(c) Electrolyte copper (d) Galvanized steel

14.5 Which is not a part of the cantilever assembly ?

- (a) Steady arm (b) Adjuster sleeve
(c) Anti wind clamp (d) PG clamp

14.6 What will be the remaining length of the bracket tube beyond the centre of the catenary suspension bracket for future adjustment?(As per RDSO letter no.TI/OHE/GA/3013 dated14.05.3013)

- (a) 400 mm to 300 mm (b) 400 mm to 100 mm
(c) 150 mm to 200 mm (d) 50 mm to 100 mm

14.7 In cantilever assembly, what should be the minimum distance between register arm hook clamp & top of the bracket tube insulator

- (a) 100 mm (b) 150 mm
(c) 200 mm (d) 300 mm

14.8 In cantilever assembly, in case of push off, projection of register arm beyond the steady arm clamp should be (As per RDSO letter no.TI/OHE/GA/3013dated14.05.3013)

- (a) 50 mm to 300 mm (b) 150 mm to 200 mm
(c) 150mm to 400 mm (d) 250 mm to 500 mm

14.9 In cantilever assembly, distance between the bottom of contact wire & register arm axis in normal steady arm should be on tangent track (As per RDSO letter no. TI/OHE/GA/3013 dated14.05.3013)

- (a) 50 mm to 300 mm (b) 100 mm to 400 mm
(c) 150 mm to 400 mm (d) 200 mm to 250 mm

14.10 In cantilever assembly, distance between the bottom of contact wire & register arm axis (bend tubular steady arm & BFB steady arm) should be on curve (As per RDSO letter no.TI/OHE/GA/3013dated14.05.3013)

- (a) 50 mm to 300 mm (b) 250 mm to 320 mm
(c) 150 mm to 250 mm (d) 250 mm to 500 mm

14.11 In cantilever assembly, distance between register arm tube & anti wind clamp strap should be

- (a) 3 to 5 cm (b) 5 to 9 cm
(c) 9 to 12.5 cm (d) 15 to18 cm

CHAPTER 15 - OHE ELECTRICAL CLEARANCES AND LIGHTNING ARRESTOR

15.1 Minimum electrical clearance long duration (vertical) between live & earth for 25 kV AC is..... As per Rly BD'LN0 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.

- (a) 500 mm (b) 250 mm
- (c) 270 mm (d) 220 mm

15.2 Minimum electrical clearance long duration (horizontal) between live & earth for 25 kV AC is..... As per Rly BD'LN0 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.

- (a) 340 mm (b) 250 mm
- (c) 270 mm (d) 220 mm

15.3 Minimum electrical clearance short duration (vertical) between live & earth for 25 kV AC is..... As per Rly BD'LN0 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.

- (a) 390 mm (b) 200 mm
- (c) 220 mm (d) 340 mm

15.4 Minimum electrical clearance short duration (horizontal) between live & earth for 25 kV AC

is..... As per Rly BD'LN0 2011/CEDO/SD/IRSOD/Elect/02 dated 14.03.2012. ACS No.-7 to the Indian Railway SOD(BG) 2004.

- (a) 390 mm (b) 270 mm
- (c) 200 mm (d) 340 mm

15.5 Minimum working clearance(danger zone) for 25 kV AC is

- (a) 500 mm (b) 1.0 m
- (c) 2.0 m (d) 3.0 m

CHAPTER 16 - OHE BONDING & EARTHING

16.1 In AC traction return current flows through

- (a) Traction rail only (b) Earth only
- (c) Either traction rail or Earth (d) None of the above

16.2 In AC traction, track bonding is done upto the distance either side from the FP

- (a) 5 km (b) 3 km

- (c) 2 km (d) 1 km

16.3 In AC traction, cross section area of GI/MS flat for track bonding

- (a) 200 mm² (b) 240 mm²
(c) 300 mm² (d) 350 mm²

16.4 “Non current carrying parts of electrical machine is connected to the general mass of the earth through suitable size of the conductor” is called

- (a) Muffing (b) Overlapping
(c) Earthing (d) Lightning arrester

CHAPTER 17 - OHE MAST, FABRICATED MAST AND PORTALS

17.1. what is the extra clearance obtained with special portals like BFB or G uprights?

- a) 300mm b) 200mm c) 250mm d) 100mm

17.2. what is the height of muffing for OHE foundation?

- a) 300mm b) 200mm c) 150mm d) 100mm

17.3. what is the type of mast used in place of N-type portal if adequate clearance is not available?

- A) N/BFBU b) G type c) P type d) None the above

17.4. Size of RSJ Mast

- (a) 152 mm x 152 mm (b) 203 x 203 mm
(c) 152 mm x 203 mm (d) 300 mm x 152 mm

17.5 Size of BFB Mast

- (a) 152 mm x 152 mm (b) 200 x 200 mm
(c) 400 mm x 400 mm (d) All of above

17.6. Which is K- series mast

- (a) K- 150 (b) K-200 (c) K-250 (d) All of above

17.7. Width of K-series mast

- (a) 152 mm (b) 200 mm (c) 250 mm (d) 300 mm

17.8 cross section of Latest TTC mast

- (a) 152 mm (b) 250 mm (c) 2235x300 mm (d) 250x300 mm

17.9 Size of “N” type portal

- (a) 450 x 450 mm (b) 550 x 550 mm.
(c) 300 x 300 mm. (d) 400 x 250 mm.

17.10 Size of “O” type portal

- (a) 450 x 450 mm (b) 550 x 550 mm
(c) 300 X 300 mm (d) 600 x 600 mm

17.11 Size of “R” type portal

- (a) 450 x 450 mm (b) 550 x 550 mm.
(c) 600 x 600 mm. (d) 650 x 650 mm.

17.12 Size of “P” type portal

- (a) 450 x 450 mm (b) 550 x 550 mm
(c) 300 x 300 mm (d) 400 x 250 mm

17.13 Size of “G” type portal

- (a) 450 x 450 mm (b) 400 x 400 mm
(c) 600 x 600 mm (d) 400 x 250 mm

17.14 Size of Special BEB portal

- (a) 152 x 152 mm (b) 152 x 304 mm
(c) 200 x 200 mm (d) 300 x 300 mm

17.15 In BFB mast

- (a) Flange & depth (web) same (b) Small flange & large web
(c) Large flange & small web (d) Can not say

CHAPTER 18 - OHE FOUNDATIONS

18.1 Side bearing foundation is used, where soil bearing pressure is more than

- (a) 1000 kgf / m² (b) 5000 kgf / m²
(c) 10,000 kgf / m² (d) 25000 kgf / m²

18.2 In side bearing foundation , the

- (a) Bending movement on the mast is resist by the soil at base only

- (b) Bending movement on the mast is resist by the soil both sides of the foundation only
- (c) Bending movement on the mast is not only resisted by the soil at the base but also by the both sides of the foundation
- (d) All of above

18.3 When forces causing bending movement towards the track the shoulder width should not be less than for side bearing foundation

- (a) 0.1 m (b) 0.3 m
- (c) 0.5 m (d) 0.6 m

18.4 When forces causing bending movement away from the track the shoulder width should not be less than for side bearing foundation

- (a) 0.2 m (b) 0.3 m
- (c) 0.4 m (d) 0.5 m

18.5 Side gravity foundation is used where

- (a) Soil bearing pressure in more than 11000 kgf / m² and shoulder width is not sufficient
- (b) Soil bearing pressure is less than 11000kgf/ m² and shoulder width is not sufficient
- (c) Soil bearing pressure is less than 11000kgf/ m² and shoulder width is sufficient
- (d) All of above.

18.6 In side gravity foundation, to resist pressure developed due to Bending Movement (B.M) the base width of the foundation block extended in the

- (a) Outer side only (b) In side only
- (c) Both side only (d) None of the above

18.7 In pure gravity foundation, the

- (a) Bending movement on the mast is resist by the soil of base only
- (b) Bending movement on the mast is resist by the soil of base and one side foundation
- (c) Bending movement on the mast is resist by the soil of base and two side of foundation
- (d) Bending movement on the mast is resist by the soil of both side of the foundation

18.8 Black cotton (BC) soil is having peculiar characteristics, i.e.

- (a) When the soil is wet it swells
- (b) When the soil is wet it exerts upward pressure
- (c) When the soil is dry, cracks are developed in the soil
- (d) All of the above

18.9. what is the mast used for anchor location?

- a) 8''x8'' b) 8''x6'' c) both a and b d) none of the above

18.10 The length of mast below rail level for regulated OHE should not be less than.

- (a) 1.75 m (b) 1.85 m
- (c) 1.90 m (d) 2.1 m

CHAPTER 19 - OHE

IMPLANTATION

19.1 Implantation is also known as

- (a) Skip distance (b) Setting distance (c) Clear span (d) Track separation

19.2 Implantation in open (Main) line is (older)

- (a) 2.21 m (b) 2.36 m (c) 2.50 m (d) 2.75 m

19.3 Implantation in yard (old) is

- (a) 2.21 m (b) 2.36 m (c) 2.50 m (d) 2.75 m

19.4 Implantation in yard (new) is

- (a) 2.21 m (b) 2.75 m (c) 2.50 m (d) 3.0 m

19.5 Implantation at platform (B.G.) is

- (a) 4.75 m (b) 4.00 m (c) 5.20 m (d) 3.0 m

CHAPTER 20 -OHE OHE INSULATORS & CLASSIFICATION OF INSULATIONS AND VOLTAGES

20.1 Solid core insulators, which are used in OHE mostly made of

- (a) Porcelain (b) Glass (c) Fiber (d) P.V.C.

20.2 In 25 kV AC traction, Stay tube insulator is used in cantilever assembly in between

- (a) Mast fitting & stay tube (b) Mast fitting & bracket tube
(c) Bracket tube & register arm (d) Register arm & stay tube.

20.3 In 25 kV AC traction, Bracket tube insulator is used in cantilever assembly in between :-

- (a) Mast fitting & stay tube (b) Mast fitting & bracket tube
(c) Bracket tube & register arm (d) Register arm & stay tube

20.4 9-Ton insulator is used mainly

- (a) To support catenary & contact on structure (b) Anchoring of OHE conductors
(c) Support cross span wire (d) Support in section insulator assembly

20.6 Where post insulators are used ?

- (a) Isolator switch assembly only
(b) Both in Isolator switch & to maintain clearance under ROB/FOB
(c) In Section insulator assembly
(d) In Cantilever assembly

20.7 Post insulator is also known as

- (a) Tie rod insulator (b) 9- tones insulator
- (c) Section insulator (d) Pedestal insulator

20.8 Sectioning insulator is used in

- (a) Cantilever assembly (b) Section insulator
- (c) Switch assembly (d) Under ROB/FOB

20.9 Tie rod insulator is used in

- (a) Cantilever assembly (b) Section insulator
- (c) Isolator Switch assembly (d) Under ROB/FOB

20.10 Tie rod insulator is used in isolator switch assembly in between

- (a) Operating rod & moving blade (b) Operating rod & fix contact
- (c) Switch body & fix contact (d) Switch body & moving contact

CHAPTER 21-OHE

Over Dimension Consignment (ODC)

21.1 A consignment has length, width & height such that one or more of these parameters infringes standard moving dimensions at any point from start to destination , then the consignment is called

- (a) Over design consignment (b) Over dimension consignment
- (c) Out dimension consignment (d) Over dimension coach

21.2 For broad gauge, standard moving dimension for length is

- (a) 13716 mm (b) 13726 mm (c) 13736 mm (d) 13763 mm

21.3 For broad gauge, standard moving dimension for height at centre is

- (a) 2134 mm (b) 2193 mm (c) 2743 mm (d) 2134 mm

21.4 For broad gauge, standard moving dimension for height at corner is

- (a) 2134 mm (b) 2193 mm (c) 2743 mm (d) 2134 mm

21.5 For broad gauge, standard moving dimension for width is

- (a) 2834 mm (b) 2997 mm (c) 2797 mm (d) 2754 mm

21.6 For broad gauge, standard moving dimension for top width is

- (a) 570 mm (b) 1676 mm (c) 743 mm (d) 610 mm

CHAPTER 22 - OHE

AUTO TENSIONING DEVICE (ATD)

22.1 What do mean by the “regulating ratio” of Auto Tensioning Device (ATD) ?

- (a) Counter weight : pulleys weight
- (b) Weight of OHE in one span length
- (c) Tension in OHE : counter weight
- (d) Tension in contact wire : counter weight

22.2 What will be the “regulating ratio” of winch type Auto Tensioning Device (ATD) ?

- (a) 1:1 (b) 2:1 (c) 3:1 (d) 5:1

22.3. what is the name of jumper to avoid theft of OHE?

- a) anti theft jumper (b) in span jumper (c) continuity jumper (d) f jumper

22.4 What will be the “regulating ratio” of 3 pulley block system type ATD ?

- (a) 1:1 (b) 2:1 (c) 3:1 (d) 5:1

22.5 ATD & its parameters is design for the standard temperature

- (a) 40°C (b) 160°C (c) 350°C (d) 650°C

22.6 In winch type ATD, the measurement ‘Y’ is the distance between

- (a) Rail level & bottom of the counter weight
- (b) Top of muff & bottom of the counter weight
- (c) Centre of fixed pulley & top of the counter weight
- (d) None of the above

22.7 In 3- pulley block ATD, the measurement ‘Y’ is the distance between

- (a) Rail level & bottom of the counter weight
- (b) Top of muff & bottom of the counter weight
- (c) Centre of fixed pulley & top of the counter weight
- (d) None of the above

22.8 In winch type ATD, the measurement ‘Z’ is the distance between

- (a) Drum centre to centre of movable pulley
- (b) Nearest face of the structure to drum centre
- (c) Nearest face of the structure to the centre of movable pulley
- (d) None of the above

22.9 In 3- pulley block system ATD, the measurement ‘X’ is the distance between

- (a) Centre of 1st fixed pulley to centre of movable pulley
- (b) Nearest face of the structure to fixed pulley centre
- (c) Nearest face of the structure to centre of movable pulley
- (d) Centre of middle fixed pulley to movable pulley centre

22.10. what is the tension provided in anti creep wire?

- a) 1700 kgs (b) 1300 kgs (c) 2000 kgs (d) 1000 kgs

- 22.11 In winch type ATD, the counter weight is
(a) 400 kg (b) 465 kg (c) 440 kg (d) 665 kg
- 22.12. what is the tension provided in cross feeder wire?
a) 1700 kgs b) 400kgs c) 2000 kgs d)1000 kgs
- 22.13. In 3- pulley block type ATD, the counter weight is
(a) 400 kg (b) 465 kg (c) 440 kg (d) 665 kg
- 22.14. In 3- pulley block type ATD (new), the measurement 'X' at 35^o C is
(a) 1250 mm (b) 1300 mm (c) 1150 mm (d) 1050 mm
- 22.15. In 3- pulley block type ATD(old), the measurement 'X' at 35^o C is
(a) 1250 mm (b) 1300 mm (c) 1150 mm (d) 1050 mm
- 22.16. In 3-pulley block type ATD(new & old), the measurement 'Y' at 35^o C is
(a) 2600 mm (b) 2500 mm (c) 2450 mm (d) 2300 mm
- 22.17 In winch type ATD, the measurement 'Z' at 35^o C is
(a) 1250 mm (b) 1300 mm (c) 1150 mm (d) 1050 mm
- 22.18 In winch type ATD, the measurement 'Y' at 35^o C is
(a) 2600 mm (b) 2500 mm (c) 2450 mm (d) 2300 mm

CHAPTER 23 - OHE OHE MAINTENANCE

- 23.1 Current collection test is carried out in OHE to find out
(a) Current carrying capacity of catenary wire
(b) Current carrying capacity of contact wire
(c) Current carrying capacity of different jumpers
(d) Location of sparking during movement of pantograph
- 23.2 Current collection test is carried out during
(a) Before monsoon (b) During monsoon
(c) After monsoon (d) Night only
- 23.3 Places, where sparking takes place during current collection test .What may be the reason of sparking ?
(a) OHE is not proper (b) Track is not proper
(c) Rolling stock is not proper (d) All of the above or either (a) or(b) or (c)
- 23.4 Places, where sparking takes place during current collection test .What may be the reason of

sparking on account of OHE ?

- (a) Kink in OHE
- (b) Improper gradient of contact wire
- (c) Improper tension in OHE conductors
- (d) All of the above

23.5 How current collection test is carried out with live OHE ?

- (a) A mirror is fixed in rear cab of a loco & get reflection of the panto & OHE from cab
- (b) 8- wheeler tower wagon with equipped such facilities
- (c) Recording car
- (d) All of the above

23.6 The current collection test is carried out by the depot in-charge over his entire section within

- (a) One month
- (b) Three months
- (c) Six months
- (d) One year

23.7 The current collection test is carried out by the AEE/TRD over his entire section within

- (a) One month
- (b) Three months
- (c) Six months
- (d) One year

23.8 Object of the AOH is

- (a) At random checking
- (b) Parts should be as new as first installed
- (c) To rectify the defects ,which are developed during one year service
- (d) All of the above

23.9 Object of the POH is

- (a) Permanent overhauling
- (b) Maintenance free
- (c) To rectify the deficiencies ,which is developed during service
- (d) To become fittings as new one as first time introduced

CHAPTER 24 -OHE MAINTENANCE BLOCKS & OHE BREAKDOWNS

24.1 Traffic block is granted to the OHE supervisors for heavy maintenance work by

- (a) Section controller in consultation with the TPC
- (b) TPC in consultation with the section controller
- (c) Section controller with the permission of TPC
- (d) TPC with the permission of section controller

24.2 Power block is granted to the OHE supervisors for heavy maintenance work by

- (a) Section controller in consultation with the TPC
- (b) TPC in consultation with the section controller
- (c) Section controller with the permission of TPC
- (d) TPC with the permission of section controller

24.3 During traffic block, which type vehicles movement is blocked in traffic block section ?

- (a) Electric hauled
- (b) Diesel hauled
- (c) Steam hauled
- (d) All of the above

24.4 During power block, which type vehicles movement is blocked in power block section ?

- (a) Electric hauled
- (b) Diesel hauled
- (c) Steam hauled
- (d) All of the above

24.5 Which type of power block is required for daily routine maintenance work of OHE in main line ?

- (a) Pre-arranged power block
- (b) Local power block
- (c) Emergency power block
- (d) All of the above

24.6 Which type of power block is required for daily routine maintenance work of OHE in secondary line ?

- (a) Pre-arranged power block
- (b) Local power block
- (c) Emergency power block
- (d) All of the above

24.7 In locally arranged power block, supply of the siding or yard is shut down by

- (a) TPC
- (b) Section controller
- (c) Yard master
- (d) OHE in charge, who required power block

CHAPTER 25 - OHE

ELECTRICAL CROSSING OF THE RAILWAY TRACKS

25.1 What do you mean by “Electrical Crossing of the Railway tracks” ?

- (a) Underground electrical power line crossing across Rly. tracks
- (b) Over head electrical power line crossing across Rly tracks
- (c) Both (a) & (b)
- (d) OHE crossing across LC gate

25.2 All electrical crossing between 650 volt & 11 kV for category ‘C’ shall have to be by means of

- (a) Underground cable
- (b) Overhead conductors
- (c) Either ‘A’ or ‘B’
- (d) None of the above

25.3 Normally overhead crossing has to be allowed at 90 ° angle to the track, but in special cases maximum deviation is allowed upto

- (a) 15 °
- (b) 30 °
- (c) 45 °
- (d) 60 °

25.4 The distance between the centre line of the nearest track & supporting structure (i.e. crossing span) should not be less than in over line cases

- (a) Height of the supporting structure
- (b) Height of the supporting structure + 6 meters
- (c) Height of the supporting structure + 5 meters
- (d) Height of the supporting structure + 10 meters

CHAPTER 26 - OHE

GENERAL AND SAFETY RULES FOR OHE

26.1 When the tower wagon engine is 'ON' position, driver may leave the tower wagon for a period

- (a) Only 5 minutes
- (b) Only 10 minutes
- (c) Only 15 minutes
- (d) Cannot leave the tower wagon

26.2 Choose the correct sequences of action which followed by TPC in case of section not holding 25 kV power supply

- (1) Isolate the healthy section on adjacent track on the same route length
- (2) Identify the faulty section and isolate it after that.
- (3) In case mid section driver is not in communication and section controller advised for switching on the OHE supply, TPC should on the OHE supply 5 minutes after the OHE tripping.
- (4) Energize healthy section on the advice of section controller
- (5) Advise section controller about isolation of faulty & healthy section
- (a) 2- 1- 5 – 4 - 3 (b) 1- 2- 3 – 4 - 5
- (c) 3 - 5- 4 – 1- 2 (d) 2- 1- 4 –5- 3

26.3 Competency certificate issued to the tower wagon driver shall be valid from the date of the issue for a period of

- (a) one year (b) two year (c) three year (d) four year

26.4 The tower wagon shall work on the line in the block section or in the station yard under the direct supervision of a TRD official not below the rank of the

- (a) AEE (b) SSE (c) SE (d) JE-II

26.5 When more than one tower wagons are working in the same block section, which instructions should be followed

- (a) T/W's should not move at speed more than 10 kmph & should be ready to stop.
- (b) Both T/W's, when entering or clearing the block section, both T/W's should maintain a minimum distance of 120 meters to each other.
- (c) After completion of the work the official in- charge of the T/W, who entered last in the section shall certify at the clearing station about clearance of the section by the last T/W.
- (d) All of the above.

26.6 Tower wagon in-charge will be responsible to ensure

- (a) T/W is fit condition & all tools, emergency store are available on the T/W
- (b) Conversant with the operation of the T/W and its various equipments
- (c) All safety precautions are taken during movement of T/W
- (d) All of the above

26.7 First aid box & printed board regarding electrical shock treatment are essential in the

- (a) OHE depots
- (b) T/W & wiring special train
- (c) Work shop
- (d) All of the above

26.8 Permit To Work (PTW) is essential for working on 25 kV AC OHE or near OHE within

- (a) 1 m
- (b) 2 m
- (c) 3 m
- (d) 4 m

26.9 Protection of cross over as per Station Working Rules (SWR), ensure

- (a) Longitudinal protection
- (b) Lateral protection
- (c) Longitudinal & Lateral protection both
- (d) none of the above

26.10 Which point is related to “Earthing before commencement of work” ?

- (a) At least two earthing & the distance between two earthing should not be more than 1000 m.
- (b) Earthing cable should be renewed, if more than 20% strands are broken & the continuity of the cable between the top clamp and the bottom clamp should be checked fortnightly
- (c) The earthing cable should be flexible & able to withstand short circuit current
- (d) All of the above.

26.11 Which rules are applicable for ladder working in OHE ?

- (a) Ropes used with ladders should be of cotton or jute and held by one person on the ground & ropes should be used to pass tools and materials. No one should stand directly below a work spot under a ladder
- (b) More than one person shall not normally allowed on a ladder & in emergency condition , more than two person should not be allowed on ladder
- (c) Ladder should never be allowed to fall or rest against contact wire and insulator
- (d) All of the above

26.12 In the vicinity of the 25 kV AC OHE, the heavy induction is developed on -----, which parallel to the 25 kV AC OHE.

- (a) Metallic roof of the platform
- (b) Fencing near the track
- (c) Any other conductor
- (d) All of the above.

CHAPTER 27 - OHE ID NUMBERS

27.1 . what is the C jumper PG clamp ID number?

a)1030 b)1040 c)1070 d)1080

27.2. . what is the F jumper PG clamp ID number?

a)1030 b)1040 c)1070 d)1080

27.3 . what is the G jumper PG clamp ID number?

a)1030 b)1040 c)1070 d)1080

27.4 . what is the Bridle wire PG clamp ID number?

a)1030 b)1040 c)1070 d)6170

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1. ABBREVIATIONS - PSI

1. Expand NDR?

a) Neutral Drop Relay

c) Neutral Differential Relay

b) Neutral Down Relay

d) Neutral Displacement Relay

2. Expand OIP?

a) Oil Insulation Paper

c) Oil Immersed Paper

b) Oil Impregnated Paper

d) Oil Isolating Paper

3. Expand BX?

- a) Bus coupler interruptor
- c) Bus cutting interruptor

- b) Bus crossing interruptor
- d) Bus contact interruptor

4. Expand HRC?

- a) High Return Current
- c) High Rupturing Capacity

- b) High Rate of Current
- d) High Rupturing Current

2. Ratings of Equipments – PSI

1. What is the rating of Auxiliary transformer used at LC gates?

- a) 10KVA b) 5KVA c) 100KVA d) All of the above

2. What is the Latest rating of Type-II PT?

- a) 25KV/100V, 30VA b) 27.5 KV/110V, 100VA
- c) 25KV/100V, 100VA d) 25KV/110V, 100 VA

3. What is the rating of 132KV CT?

- a) 132KV, 400-200/5A, 30VA b) 132KV, 200-100/5A, 30VA
- c) 132KV, 300-200/5A, 30VA d) 132KV, 600-200/5A, 30VA

4. What is the rating of Station type LA used in 25KV system?

- a) 42KV b) 27KV c) 25KV d) 47KV

3. Purpose of Equipments - PSI

1. What is the purpose of Auxiliary transformer at stations?

- a) 230V supply to CLS b) 230V supply to one Light and Fan in ASM room
- c) both a & b d) None of the above

2. What is the purpose of 100KVA AT at TSS?

- a) 230V supply for Oil filter plant
- b) 230V supply for lights and fans
- c) 230V supply for heaters & battery charger
- d) All of the above

3. What is the purpose of 132KV CB in TSS?

- a) To isolate Transformer Bay from 132KV end
- b) For switching operation on 132KV side
- c) Both a& b
- d) None of the above

4. What is the purpose of Turret CT?

- a) To insulate the terminals from tank b) For differential protection
- c) Both a& b d) None of the above

4. Measuring Units - PSI

1. What is the measuring unit of contact resistance?

- a) Micro ohms b) Ohms c) Kilo ohms d) Mega ohms

5. Measuring Instruments - PSI

1. What is the meter used for inductance measurement of reactors?

- a) LCR meter b) inductance meter c) both a&b d) None of the above

6. Quantity of Equipments - PSI

1. How many number of 132KV DPIs available in TSS?

- a) 2 Nos b) 4 Nos c) 5 Nos d) Nil

2. How many number of 25kV CTs available in TSS?

- a) 7 Nos b) 8 Nos c) 5 Nos d) 4 Nos

7. Data on PSI Equipment – PSI

1. Overload capacity of Traction power transformer?
a) 50% overload for 15minutes b) 100% overload for 5minutes
c) both a&b d) None of the above

2. What is the permissible interval of time between two Successive overloads?
a) 1hr b) 2hrs c) 3hrs d) 4hrs

3. The taps of the tap changer used in traction transformer varies from
a) +10% To -15% in steps of 5% b)+10% To -10% in steps of 5%
c) +15% To -10% in steps of 5% d)+15% To -15% in steps of 5%

4. What is the flashpoint of transformer oil?
a)135 °C b)145°C c)150 °C d)155 °C

5. What is the specific gravity of electrolyte when cell is fully discharged condition?
a)1.150 b)1.210 c)1.300 d) 1.400

6. What is the reason for the shedding of active material of positive plates of cell?
a) Under charging b) fully charged c) discharged d) over charging

7. What is the cell voltage to be maintained to increase battery life?
a) 2.15V b) 2.00V c) 2.10V d) 2.20V

8. What is the rate of charging to be maintained for the better life of battery?

- a) 4mA/Ah b) 3mA/Ah c) 2mA/Ah d) 1mA/Ah

9. What is the electrolyte condition when battery is under trickle charging condition?

- a) Small bubbles rise slowly from plate to surface of electrolyte
b) Bubbles are much larger and reach the surface at a higher rate
c) Small bubbles rise fast from plate to surface of electrolyte
d) Bubbles are much larger and reach the surface at a slower rate.

10. What is new cell voltage when it is fully charged condition?

- a) 2.6 to 2.75 Volts b) 2.5 to 2.9 Volts c) 2.6 to 2.9 Volts d) 2.5 to 2.75 Volts

11. What is the temperature correction of hydrometer readings of specific gravity when temperature is above 27°C?

- a) For each 1 degree C above 27 degree C add 0.0007 to the observed reading
b) For each 1 degree C above 27 degree C deduct 0.0007 to the observed reading
c) For each 1 degree C above 27 degree C add 0.007 to the observed reading
d) For each 1 degree C above 27 degree C deduct 0.007 to the observed reading

8. Relays - PSI

1. Which relay will act when a fault is there very close to TSS?

- a)OCR b)DPR c)WPC d) Delta I relay

2. Which will happen when a fault across on the phase of 132KV side?

- a) LV CB will trip b) Both HV & LV CB will trip
- c) HV CB will trip d) Capacitor bank CB will trip

3. Which relay will act when short circuit occurs on OHE at farthest point of feeding zone?

- a)OCR b)DPR c)WPC d) Delta I relay

9. Safety - PSI

1. What type of Latest fire extinguisher is used for Oil fires?

- a) Dry Chemical Powder b) CTC c) Carbon Dioxide d) None of the above

2. Clearance between 25KV bus bar to ground?

- a) 4.5m b) 3.8m c) 2.6 m d) 4.0 m

3. What happens if CT secondary becomes open circuit?

a) High voltage induces in the secondary circuit

b) CT bursts

c) No output from CT

d) both a&b

10. Definitions - PSI

1. Voltage rating of LA is given by the formula?

a) $1.1 \times 0.8 \times \text{line to line voltage}$

b) $1.2 \times 0.9 \times \text{line to line voltage}$

c) $1.1 \times 0.9 \times \text{line to line voltage}$

d) $1.2 \times 0.8 \times \text{line to line voltage}$

ANSWERS - PSI

CHAPTER-1

(ABBREVIATIONS)

- 1) D 2) B 3) A 4) C

CHAPTER-2

(Ratings of equipments)

- 1) B 2) B 3) A 4) A

CHAPTER-3

(Purpose of equipments)

- 1) C 2) D 3) B 4) B

CHAPTER-4

(Measuring Units)

- 1) A

CHAPTER-5

(Measuring Instruments)

- 1) C

CHAPTER-6

(Quantity of equipments)

- 1) C 2) A

CHAPTER-7

(Data on PSI equipment)

- 1) C 2) C 3) A 4) B 5) A 6) D 7) A 8) D 9) A
10) D 11) A

CHAPTER-8

(Relays)

- 1) A 2) C 3) B

CHAPTER-9

(Safety)

- 1) A 2) B 3) D

CHAPTER-10

(Definitions)

- 1) A

1. ABBREVIATIONS -RC

1. What is FMVFT?

- a) Frequency Modulated Voice Frequency Telegraph
- b) Frequency Modulated Variable Frequency Telegraph
- c) Frequency Modulated Voice Frequency Technique
- d) Frequency Modulated Voice Frequency Telesignal

2. What is CPU?

- a) Core Processing Unit
- b) Control Processing Unit
- c) Central Processing Unit
- d) Command Processing Unit

3. Expand RCC?

- a) Remote Call centre
- b) Remote Command Centre
- c) Rapid Control Centre
- d) Remote Control Centre

4. Expand TPC?

- a) Train Power Controller
- b) Traction Phone controller
- c) Traction Power circuit
- d) Traction Power Controller

5. Expand SRC?

- a) Supervisory Remote Control
- b) Supervisory Rapid Control
- c) Section Remote Control
- d) Supervisory Remote Controller

6. Expand RTU?

- a) Remote Telephone Unit
- b) Remote Testing Unit
- c) Remote Terminal Unit
- d) Remote Train Unit

7. Expand FEP?

- a) Front Execution Processor
- b) Front End Processor
- c) Front End Programmer
- d) Front End Printer

8. Expand CP?

- a) Communication Processor
- b) Central Processor
- c) Control Processor
- d) Communication Protocol

9. Expand MMI?

- a) Modern machine Interface
- c) Man Machine Interface

- b) Modified Machine Interface
- d) Multi Machine Interface

2. RC DATA

1. What is the name of the equipment used to convert digital information to analog information?

- (a) Transducer (b) Modem (c) Digital Meter (d) All of the above.
2. What is the name of the equipment to convert the energy in one form to another form?
- (a) Oscillator (b) Transformer (c) Transducer (d) None of the above
3. Which relay recognizes the dead line and live line?
- (a) OCR (b) Panto flash over relay (c) WPC (d) DPR
4. What type of cooling is provided for the power supply unit at RC?
- a) Forced Cooling b) Natural air cooling c) Oil Cooling d) None
5. How many AI card are provided at SP RTU?
- (a) 2 (b) 3 (c) 1 (d) 4
6. How many types of input interface cards are available in logic chassis of SCADA?
- (a) 2 (b) 1 (c) 4 (d) NIL
7. What is the voltage level of status and alarm signal of field devices?
- (a) 230 V (b) 110V (c) 74V (d) 24V
8. What is the communication scheme adopted for MODEMS used for SCADA?
- (a) Frequency Shift keying (b) Amplitude Modulation
(c) Frequency modulation (d) None of theses
9. What is the transmission capacity of the MODEM used in SCADA?
- (a) 230 baud (b) 100 baud (c) 600 baud (d) 30 baud
10. How many Type - I tele signals can be sensed at TSS for relay WPC/DPR/OCR?
- (a) 2 (b) 3 (c) 6 (d) 1

11. How many Type – II tele signals can be sensed during 25kv feeder PT fuse failure?
(a) 2 (b) 3 (c) 5 (d) 1

12. What is meant by volatile memory?

- a) The memory which retains its content when power is switched off
- b) The memory which is Permanent
- c) The memory which is Static
- d) The memory which loses its content when power is switched off

ANSWERS

CHAPTER-1

ABBREVIATIONS

1) A 2) C 3) D 4) D 5) A 6) C 7) B 8) A 9) C

CHAPTER-2

RC DATA

1) B 2) C 3) B 4) B 5) C 6) C 7) B 8) A 9) C 10) C
11) A 12) D

INDEX – TOWER CARS

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3	PURPOSE OF TOWER WAGON PARTS	02
4	SAFETY	02
5	ENGINE MAINTENANCE SCHEDULE	01
	TOTAL	12

Tower cars

1. Abbreviations –

1. Expand IC ENGINE?

- | | |
|-------------------------------|-------------------------------|
| A) Internal combustion engine | B) Integral Combustion Engine |
| C) Internal control engine | D) both A and B |

2. Expand ECR?

- | | |
|-----------------------------|----------------------------|
| A) Excitation common relay | B) Effective control relay |
| C) Excitation control relay | D) None of the above |

3. Expand DETC?

- | | |
|--------------------------------|------------------------------|
| A) Diesel Engine Tower Car | B) Dual Engine Tower Car |
| C) Diesel Electronic Tower Car | D) Diesel Electric Tower Car |

4. Expand RFF?

- | | |
|-----------------------------|------------------------------|
| A) Rectifier Function Fault | B) Restricted Function Fault |
| C) Rectifier fuse failure | D) both a and c |

2. Tower Cars Specifications

1. Which Tower car has Vacuum break system?

- a) Mark-II b) Mark-III c) Mark-IV d) both b&c

2. Which Tower car has air brake system?

- a) Mark-II b) Mark-III c) Mark-IV d) both b&c

3. Which Tower car has Twin pipe air brake system?

- a) Mark-II b) Mark-III c) DHTC d) DETC

3. Purpose of Tower wagon parts

1. What is the purpose of DEAD MAN HANDLE?

- A) Ensures Safety of Tower Car B) Ensures Of Brake Failure
- C) Failure of Power Supply D) Ensures Failure of Motor

2. What is the purpose of Crank Shaft in Diesel engine?

- A) Converts Circular Motion into Linear Motion
- B) Converts Linear Motion into Rotary Motion
- C) Converts Rotary Motion into Circular Motion
- D) Converts Mechanical Motion into Electrical Motion

4. Safety – T/cars

1. Maximum speed with which Tower car should be driven when checking height and stagger of contact wire?

- a) 20Kmph b) 15Kmph c) 10Kmph d) 5Kmph

2. Maximum speed with which Tower car should be driven with the platform in raised condition?

- a) 20Kmph b) 15Kmph c) 10Kmph d) 5Kmph

5. Engine maintenance schedules – T/Cars

1. What is the frequency of Tower car B check?

- a) Every day
- b) 300 Hrs or 6 Months whichever is earlier
- c) 1500 Hrs or 1 Year whichever is earlier
- d) 6000 Hrs or 2 years whichever is earlier

ANSWERS – Tower Cars

Abbreviations – Tower cars

1)A 2)C 3)D 4)C

Tower Cars Specifications

1)A 2)D 3)D

Purpose of Tower Wagon Parts

1)A 2)B

Safety – T/Cars

1)C 2)D

Engine Maintenance Schedules-T/cars

1)B

INDEX – MISCELLANEOUS

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2	SPECIFICATIONS & DRAWINGS	02
3	SC Rly HQ.SPECIAL DRIVES	01
4	General	5
	TOTAL	09

1. RDSO'S SMIs :

1. What is the SMI No. of “ Maintenance Instruction for Provision of Pipe on Hex tie rod of Auto Tensioning Device “ to avoid panto entanglements caused due to sag is
 - a) TI/MI/0029/Rev.3
 - b) TI/MI/0035/ Rev.1
 - c) TI/MI/0028/ Rev.2
 - d) TI/MI/0035/Rev.o

2. SPECIFICATIONS & DRAWINGS

1. Diametre of Latest HDGC Contact wire of 150 sq.mm is

- a) 12.24 +/- 0.16 mm b) 12.50 +/- 0.15 mm c) 14.50 +/- 0.20 mm d) None of the above.

2. No. of Strands & Each strand dia. Of 40 sq.mm Discharge Rod cable is

- a) 238 No, 0.04 mm b) 248 No., 0.40 mm C) 258 No, 0.48 mm d) None of the above

3. SC Rly HQ. SPECIAL DRIVES

1. What is the SPECIAL DRIVE No issued for Joint Checking of Locomotives for any Abnormality?

- a) Special Drive No. 61 b) Special Drive No. 62 c) Special Drive No. 64 d) None of the above.

ANSWERS – MISCELLANEOUS

1. RDSO's SMIs :

- 1) B

2. SPECIFICATIONS & DRAWINGS

- 1) C 2) B

3. SC Rly. HQ. SPECIAL DRIVES :

1) B

1.General

1.To manage the functioning of the school GM can engage

- a) Part-time teacher
- b) Substitute teacher
- c) A & B both
- d) None

2. In very special circumstances, which authority can revert an officiating employee in relaxation of the time of 18months.

- a) PHOD

- b) DRM
- c) GM
- d) Rly.Board

3. Black board can be included in which group/category of teaching-aids

- a) Audio-aids
- b) Video-aids
- c) Audio-Video aids
- d) None

4. An authoritarian level teaching is

- a) Teacher-centered
- b) Trainee-centered
- c) Experience based
- d) None

5. Emotional adjustment of trainee's is effective in

- a) Personality formation
- b) Class teaching
- c) Discipline
- d) All of the above

Q.1	B
Q.2	C
Q.3	B
Q.4	A
Q.5	D

SUMMARY : TOTAL QUESTIONS :- 300 No.

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Total-----**300**
