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**Question Paper for written Examination for Selection of Group 'B'
AEE against 30% Quota (LDCE) in Electrical Department.**

Paper-II

(Professional subject, Establishment & Financial Rules)

Date: 08.04.2018

Time allotted: 03 hours

Maximum marks: 150.

INSTRUCTIONS

- (A) Candidate is not to write his name, Roll Number, Signature or mark etc anywhere inside the answer book and extra-sheet(s), except on the sheet at the space provided, failing which the candidature will be cancelled.
- (B) Candidates should use ink/dot pen (Black/Blue). Use of multicolour pens/sketch pens etc, may lead to cancellation of the candidature.
- (C) Please write answers either in English or Hindi.
- (D) Candidate is to ensure signature of Invigilator/Officer-in-charge on the answer book and also on extra sheets, if any.
- (E) Candidates must submit the answer-book only on completion to the invigilator.
- (F) In case any unfair means are adopted, the candidature will be forfeited.
- (G) All parts of a question must be answered before attempting another question. Otherwise, parts of a question interposed by answer of another question may not be evaluated.
- (H) Extra sheet(s) should be taken after completion of main answer book only and should be attached to the last page of answer book.
- (I) All sections are compulsory.
- (J) Marks allotted to each question in every section are indicated against each.

विद्युत विभाग में ग्रुप 'बी' (30%) सहायक विद्युत इंजीनियर सीमित विभागीय प्रतियोगी परीक्षा के चयन के लिए लिखित परीक्षा का प्रश्न पत्र

पत्र-II

दिनांक 08.04.2018
अधिकतम अंक: 150.

निर्धारित/आवंटित समय : 03 घंटे

निर्देश:

- (क) अभ्यर्थी दिए गए स्थान में पत्रक पर छोड़कर उत्तर पुस्तिका तथा अतिरिक्त पत्रक के अंदर कहीं भी अपना नाम, अनुक्रमांक, हस्ताक्षर या अंक इत्यादि न लिखें, ऐसा नहीं करने पर पात्रता रद्द/निरस्त कर दी जायेगी।
- (ख) अभ्यर्थी स्याही/डॉट पेन (ब्लैक/ब्लू) का प्रयोग करें। मल्टीकलर पेन/स्केच पेन इत्यादि का प्रयोग पात्रता को रद्द/निरस्त कर सकता है।
- (ग) कृपया उत्तर अंग्रेजी अथवा हिन्दी में लिखें।
- (घ) अभ्यर्थी को उत्तर पुस्तिका तथा अतिरिक्त पत्रक, यदि कोई हो, पर निरीक्षक/प्रभारी अधिकारी के हस्ताक्षर को सुनिश्चित करना है।
- (च) अभ्यर्थी, पूरा होने पर ही उत्तर पुस्तिका निरीक्षक को प्रस्तुत करें।
- (छ) अनुचित साधन/तरीके अपनाये जाने पर अभ्यर्थी अपनी पात्रता खो देंगे।
- (ज) किसी प्रश्न के सभी भाग के उत्तर किसी अन्य प्रश्न को पूरा करने के पूर्व करें। अन्यथा, किसी प्रश्न के भाग का किसी अन्य प्रश्न के उत्तर द्वारा अंतर-हस्तक्षेप करने पर उसका मूल्यांकन नहीं किया जायेगा।
- (झ) अतिरिक्त पत्रक मुख्य उत्तर पुस्तिका के समाप्त करने के बाद ही लिए जाएँ तथा उसे उत्तर पुस्तिका के अंतिम पृष्ठ में संलग्न किए जाएँ।
- (ट)
- (ठ) किसी प्रश्न के लिए निर्धारित अंक प्रत्येक प्रश्न के सामने निर्दिष्ट हैं।

SECTION-I

Attempt **only five** questions out of following **nine** questions but **not more** than **two** questions from a **group of three** questions starting from question No.1. **Each** question carries **10 (TEN)** marks. Groups are defined as 1-3,4-6,7-9.

1. Draw a single line diagram of 25kV and 1500/750V DC system of a WAG7 class of locomotive with brief of minimum 5 equipments used in the circuit.
2. Draw an auxiliary power circuit of WAP4 class of locomotive with brief description of its working.
3. Write 10 important steps a loco pilot observes from the time he leaves his house and till sign off at destination.
4. Draw a single line diagram of typical 132/25kV Traction substation and a short write up on any five items of the substation.
5. What are different types of ATDs? Explain their importance in OHE design and adjustments?
6. What are the important points noted during foot by foot survey of any Railway electrification work?
7. Draw a sketch of power supply system of Air Conditioned 2 tier coach with a brief write up on any five equipment of the system.
8. What are the different protection used in AC coach for electrical and refrigeration cycle?
9. What are the different types of lamps used for illumination and explain their comparison with lux level, energy efficiency, CRI and cost?

SECTION-II

Attempt only **THREE** questions out of following **SIX** questions. Each question carries **10 (Ten)** Marks.

1. What are the advantages of regenerative braking as compared to Dynamic rheostatic braking?
2. What are the different schedule inspection of an electric locomotive and measures adopted for its satisfactory execution?
3. What are the different electronic devices used in WAG9 class of locomotive and their function?
4. Write note on the various features of 132/25 kV Traction transformer. Describe the function of different relays provided for the protection of this Traction Transformer.
5. What are the features and parts of Cantilever assembly.
6. How negative bonding is checked in a TL coach and its importance in fire prevention?
7. What are different types of cables used in electrical power distribution system and specific features of each?

SECTION-III

Attempt only **THREE** questions out of following **FIVE** questions. Each question carries **FIVE** marks .

1. What are important features of electrical tariff and measures taken to reduce its implications?
2. Comparison between RMPU vs Underslung mounted AC Coach.
3. Comparison between Regulated versus Un-regulated OHE.
4. Comparison between GTO vs IGBT.
- 5.
6. Three phase Traction Motor Vs DC Series Traction Motor.
7. Note on Sub-Sectioning and Paralleling Post (SSP) of Double line section.
8. Comparison of Window Air Conditioner and Split Air Conditioner

SECTION-IV

Attempt only **Five** questions out of **SIX** questions given as 1,2,3 etc in this section. Each question carries **TEN** Marks.

1. Write short note on the following
 - a) SOP
 - b) August Review
 - c) Zero based budgeting
 - d) Consolidated fund of India
 - e) PF advance
2. How cordial Industrial Relation is maintained in Railways? Elaborate different tiers of negotiation.
3. State what these abbreviations stand for-(attempt any ten only)
 - a. WWW b. CBI c. UNESCO d. RITES e. RMPU f. CORE g. MEMU
 - h. CLW i. ECR j. RUB k. CLW l. WHO m. SBI.
4. How the Railway employees are classified under HOER? How the Duty Hours, Rest, Overtime are provided to the Railway employees under HOER.
5. Write short notes on any three of the following-
 - i) Paternity Leave
 - ii) Procurement of non-stock items
 - iii) Special Casual Leave
 - iv) ISO 9001-2000
 - v) Workmen's Compensation Act
 - vi) Staff Benefit Fund
6. Write short notes on any three of the following five topics-
 - a. What are the various purposes for which permanent withdrawals are admissible from Provident Fund?
 - b. What are the various kinds of estimates? Mention briefly at what stage each is framed.
 - c. List the circumstances in which station earnings could be utilized to meet railway expenditure.
 - d. What are the various types of tenders? Under what circumstances, each type of tender is adopted?

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- e. Black listing of the company doing business with Railway.

SECTION-V

Write short notes on any **three** of the following **seven** topics. Each topic carries FIVE Marks.

- i) Running Rooms and their necessity.
- ii) Comparative role of Vigilance Department and Audit Department
- iii) Categorisation of Voltages as per Electricity Act
- iv) MEMUs and their operation
- v) Training of safety staff
- vi) Role of a supervisor
- vii) Spot purchase of material.