

QUESTION PAPER

FOR SUPPLEMENTARY WRITTEN EXAMINATION FOR SELECTION FOR PROMOTION FROM GROUP 'C' TO GROUP 'B' SERVICE TO THE POST OF AEN (GROUP 'B') AGAINST 70% QUOTA IN CIVIL ENGINEERING DEPARTMENT.

DATE OF EXAMINATION

:

15.03.2008

Maximum Marks: 150

Time Allowed: 03 Hrs.

1. **Only six questions are to be answered.**
2. **All questions carry equal marks and as per indicated against each.**
3. **All the questions should be answered only in the Answer Sheet and no question is to be answered in Question Paper. No mobile phone, calculator should be in your possession.**
4. **Do not write your name in Answer Sheet or any other identification marks, which if found shall disqualify you.**

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प्रश्न 1.

- (अंक 5X5=25)
- (क) राजभाषा नीति को लागू करने की दृष्टि से भारत को कितने क्षेत्रों में बांटा गया है। बिहार, गुजरात एवं कर्नाटक किन क्षेत्रों में आते हैं।
- (ख) हिन्दी व अहिन्दी भाषी राज्यों में सूचना पट्ट नामपट्ट आदि के लिए भाषाओं को किस क्रम से लिखा जाता है।
- (ग) हिन्दी शिक्षण योजना के अन्तर्गत कर्मचारियों के लिए कौन-कौन सी निर्धारित परीक्षा है और उसका शैक्षिक स्तर क्या है।
- (घ) हिन्दी में कार्यसाध्यक ज्ञान प्राप्त कर्मचारियों से क्या अभिप्राय है।
- (ङ) हिन्दी में प्रवीणता प्राप्त कर्मचारी से क्या अभिप्राय है।

[Signature]

Contd.. Page- 2

Q.2

- a) Strengthening of sub-structure of a Railway Bridge by Jacketting. (5)
- b) Describe Cement Pressure Grouting & Guniting. (5)
- c) One pier of a bridge 3x12m on 5m high embankment is to be rebuilt. Suggest temporary arrangements and precautions to be taken. Make neat sketches. (15)

Q.3 Write short notes to the point:-

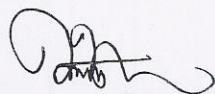
- a) What is category I and category II distressed bridges? What is the inspection schedule for distressed bridges (category I and category II) by Inspector (concerned), ADEN/ABE & DEN/Sr. DEN? (5)
- b) Explain in brief CRN, ORN and URN Numbers. (5)
- c) Describe to the point the method of carrying out detailed inspection of 76.2 m open web through girder made of riveted steel. Indicate also the main defects to be noted. (15)

Q.4 Write short notes to the point on any five:- (Marks: 5x5=25)

- a) What are the main hydraulic, mechanical and electrical systems on a CSM 09-32 TT Machine?
- b) What are the equipments that a Push Trolley must carry?
- d) Pre-tamping and post-tamping operations for tamping machines working.
- e) Design mode working of CSM
- f) Working of Track Tamping machines in track circuited and electrified sections
- g) Different types of Track Machines available on Northern Railway, their use and rated out-put per effective block hour
- h) What is DGS (Dynamic track stabilizer) and how it is supposed to help in stabilizing track behind a BCM?

Q.5 Write short notes to the point on: - (Marks: 5x5=25)

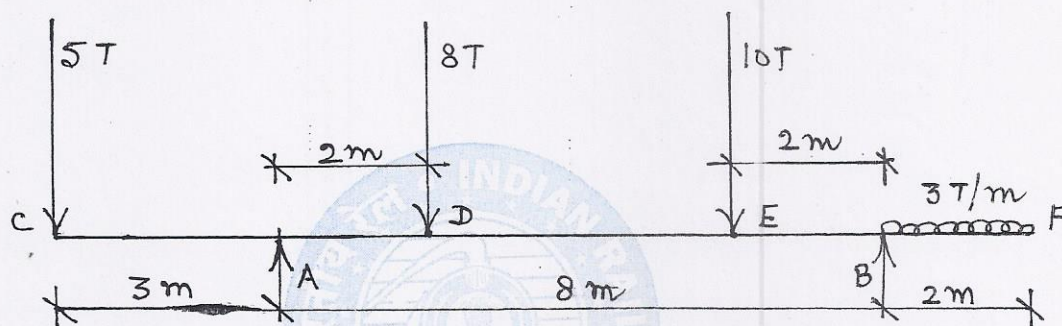
- a) What are the criteria and priority for manning of un-manned level crossing?
- b) What are the rules for working of a level crossing closed to road traffic normally and open to road traffic normally?



- c) Speed breakers and Rumble strips at level crossings
- d) What safety equipments/appliances are maintained at level crossings?
What is their frequency of inspection by PWIs and AENs?
- e) What are the duties of gateman as per IRPWM?

Q.6 Answer any one: - (25)

- Workout maximum bending moment and shear force & draw bending moment & shear force diagram for the loads on a beam in the sketch below:



OR

- Calculate the maximum permissible speed on a curve of high speed B.G. group 'A' route having the following particulars:

a)	Degree of curve	-	1
b)	Super elevation	-	80 mm
c)	Length of transitioned curve	-	120 metres
d)	Maximum speed of the section likely to be sanctioned	-	160 Kmph

Q.7 Answer any one: - (25)

- A railway colony of 1000 houses is to be provided with piped water supply taking water from a nearby river. Work out the broad scheme of pumping, filtration, storage and distribution of water. Make out neat key plan also.

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OR

- A section of track with caked ballast is to be renewed (CTR) by PQRS. Explain how the renewal will be carried out, starting from setting up of depot. Also make neat & dimensioned sketch of the PQRS depot.

Q.8 Write short notes to the point in brief on any five: -(Marks: 5x5=25)

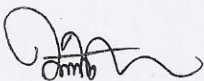
- a) Difference between Selection, Suitability and Trade Test
- b) Difference between Settlement pass & post retirement pass
- c) Procedure to be followed for imposing Major Penalty
- d) Different types of leave available to a Railway employee.
- e) Ex-gratia and compensation in case of a Railway accident involving injuries, casualties.
- f) Direct recruitment quota for group 'C' staff
- g) Stock sheet & how the stock sheet is liquidated?

Q.9

- i) You have been asked to submit a proposal for construction of an auditorium of 500 seating capacity for your Divisional Headquarter for inclusion in Works Programme 2009-10. Write with brief justification and abstract of cost for submitting the same with a covering letter to your DEN/Sr. DEN. (15)
- ii) What is the categorization of encroachments on Railways? Describe the procedure for removing various categories of encroachments. (10)

Q.10

- i) An express train meets with a mishap on a double line section in between stations resulting in derailment of some coaches, leading to casualties (deaths & injuries) among the passengers. As AEN you are the first officer to reach the site. Give in detail the steps to be taken by you, in order of priority, on reaching the accident site, till restoration of traffic. (15)
- ii) What are summer precautions and inspections in LWR/CWR territory? (5)
- iii) Duties of Assistant Engineer/ Assistant Divisional Engineer in brief as detailed in Chapter I of IRPWM? (5)



QUESTION PAPER

FOR WRITTEN EXAMINATION FOR SELECTION FOR PROMOTION FROM GROUP 'C' TO GROUP 'B' SERVICE TO THE POST OF AEN (GROUP 'B') AGAINST 70% QUOTA IN CIVIL ENGINEERING DEPARTMENT

DATE OF EXAMINATION : 25.09.2010

Maximum Marks: 150

Time allowed: 03 Hrs.

1. Only six questions are to be answered. Select two questions from Section 'A' and four questions 'from Section 'B'.
2. All questions carry marks as per indicated against each.
3. All the questions should be answered only in the Answer Sheets and no question is to be answered in Question Paper. No mobile phone should be in your possession.
4. Do not write your name in Answer Sheet or any other identification marks, which if found shall disqualify you.

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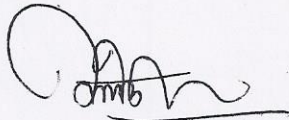
SECTION - A

Answer any two Questions:-

प्रश्न 1

(5 x 3 = 15)

- ✓(क) हिन्दी दिवस कब और क्यों मनाया जाता है ?
- ✓(ख) हिन्दी में प्रवीणता प्राप्त कर्मचारी से क्या अभिप्राय है ?
- (ग) हिन्दी में कार्यसाधक का ज्ञान प्राप्त कर्मचारियों से क्या अभिप्राय है ?
- ✓(घ) हिन्दी सप्ताह क्यों मनाया जाता है ?
- R ✓(ङ) राजभाषा अधिनियम की धारा 3(3) के अन्तर्गत आने वाले विभिन्न प्रकार के कागजातों के नाम लिखें । यह भी उल्लेख करें कि नियमानुसार उक्त कागजात को अनिवार्यतः किस भाषा में जारी किया जाना चाहिए ?


25/09/10

Q.2 Describe, in detail, the procedure for imposing a major penalty on a Group 'D' railway employee, under D & A Rules, for long unauthorized absence. (15) ✓ 0

Q.3 Describe the duties of open line ADEN point wise in brief. What are the main items for inspection and what are the main schedules of inspections of open line ADEN? Also describe the duties of open line ADEN in case of derailment of passenger train leading to minor injuries to passengers when the derailment takes place as a result of miscreant activities. (15)

SECTION - B

Answer any four questions:-

Q.4

- a) How detailed inspection of major/important Railway bridges is done by ADEN? Briefly describe each item starting from foundation to track on bridges and its approaches. (15) ✓ 0
- b) Briefly explain painting of steel work of girder bridges, their surface preparation, and choice of suitable paint (depending on corrosion proneness of area) and precautions to be taken during painting. (15) ✓ 0

Q.5 Write short notes on any five :- (5 x 6 = 30)

- a) Cant deficiency and cant excess
- b) Switch Expansion Joints and Buffer Rails
- c) Safety precautions to be taken for maintenance of LWR/CWR during extreme hot weather and extreme cold weather.
- d) USFD testing of rails and welds


25/09/10 2

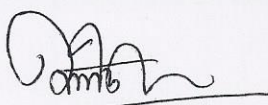
- e) Pre-tamping attention, Attention during tamping and Post-tamping attention
- f) Describe the working of T-28 (Points & Crossing renewals) machine with example of a renewal of one point in single line electrified section.
- g) What are main differences between (i) Ballast Cleaning Machines (ii) Shoulder Ballast Cleaning Machine and (iii) P & C Ballast Cleaning Machine
- h) Describe working of track machines in track circuited and in electrified sections.

Q.6

- a) What is Vacuum Dewatered Concrete? Describe the procedure of platform resurfacing by VDC and precautions to be taken for quality work? (10)
- b) Describe controlled concrete and also the procedure of designing concrete mix for M-40 strength. (10)
- c) How is water cement ratio important in any type of concreting? How can we achieve workability of concrete with low water cement ratio and under what circumstances is this needed? (10)

Q.7 Write short notes on any five :- (5 x 6 = 30)

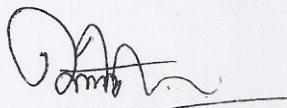
- a) Explain bearings, types of bearings, procedure for oiling & greasing of bearings and safety precautions while greasing bearings.
- b) Strengthening of track on approaches of all major/important bridges on B. G.
- c) Over Dimensioned Consignments (ODC) and their classification.
- d) What is the difference between push trolley, motor trolley and material lorry? How material lorry is loaded with rails to be worked out and how is push trolley to be worked in section with limited visibility?


25/09/13

- e) Monsoon Patrolling, duties of Patrolman, Equipments, Patrol Book & Patrol Charts.
- f) Rules for working of level crossings closed to road traffic normally and open to road traffic normally.
- g) Briefly describe various aspects which should be covered in Project Report for Track Renewal Work?
- h) Briefly describe various types of training Courses for Permanent Way Staff

Q.8 Write short notes on any five :- (5 x 6 = 30)

- a) Level Crossing Indicators for both trains and road users for manned/unmanned level crossings. Draw neat sketches showing details.
- b) What safety equipments/appliances are maintained at level crossings? What is frequency of inspection by PWIs and ADENs?
- c) You have been asked to make out an action plan for reducing/elimination of level crossings in your section. What options are available for elimination of manned/unmanned level crossing gates? Briefly describe each.
- d) Criteria for Rail renewal. Briefly describe each.
- e) Distressed bridges, their classification, speed restrictions and signs of distress for each category.
- f) Scour depth and flood protection works.
- g) Draw a sketch indicating temporary speed restriction boards for deep screening work indicating the distances for BG Track.
- h) Procedure for installing a glued insulated joint in LWR/CWR track


 25/09/10

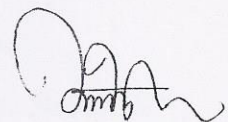
Q.9

- a) What is a septic tank? Draw a neat sectional elevation of a septic tank. (10)
- b) Design a septic tank for a small colony of 100 persons with daily sewerage flow of 135 liters per head per day. Draw a neat sketch also. (10)
- c) Draw a neat sketch of a pressure filter and discuss its salient features. (10)

Q.10 Write short notes on any five :-

(5 x 6 = 30)

- a) What records are maintained for issue of Railway stores to contractors executing Railway works?
- b) What is a stock sheet and how stock sheet is liquidated?
- c) Difference between selection, suitability and trade test.
- d) What is an estimate? Briefly describe various types of estimates.
- e) For what types of emergencies money can be drawn from station earning? Also explain the procedure to be followed.
- f) Distinguish between metalizing and galvanizing
- g) Pressure grouting and guniting
- h) Importance of departmental verification of stores and what is its frequency?


25/09/16

QUESTION PAPER

**FOR SUPPLEMENTARY WRITTEN EXAMINATION FOR
SELECTION FOR PROMOTION FROM GROUP 'C' TO
GROUP 'B' SERVICE TO THE POST OF AEN(GROUP 'B')
★ AGAINST 70% QUOTA IN CIVIL ENGINEERING
DEPARTMENT.**

DATE OF EXAMINATION : 26-2-2011

Maximum Marks: 150

Time allowed: 03 Hrs.

1. Only six questions are to be answered. Select two questions from Section 'A' and four questions from Section 'B'.
2. All questions carry marks as per indicated against each.
3. All the questions should be answered only in the Answer Sheets and no question is to be answered in Question Paper. No mobile phone should be in your possession.
4. Do not write your name in Answer Sheet or any other identification marks, which if found shall disqualify you.

SECTION - A

Answer any two questions.

प्रश्न 1.

(अंक 5X3=15)

- (क) हिंदी व अहिंदी भाषी राज्यों में सूचना पट्ट/नामपट्ट आदि के लिए भाषाओं को किस क्रम से लिखा जाता है ?
- (ख) हिंदी शिक्षण योजना के अन्तर्गत कर्मचारियों के लिए कौन-कौन सी निर्धारित परीक्षा हैं और उनका शैक्षिक स्तर क्या है ?

①

म.सं. 26/2

- (ग) राजभाषा नियमों के अंतर्गत क,ख एवं ग क्षेत्र से क्या अभिप्राय है ?
 (घ) राजभाषा नियमों की अंतर्गत किस प्रकार के कार्यालय को अधिसूचित किया जाता है ?
 ✓(ङ.) राष्ट्रभाषा और राजभाषा में क्या अंतर है?

Q.2 What are main items of inspection and what are main schedule of inspection of Incharge (i) SE/JE (P.Way) (ii) SE/JE(Works) and (iii) SE/JE(Bridge)
 (5x3) = 15

Q.3 Indicate the following for the B.G. Schedule of Dimensions.

- (i) Minimum distance centre to centre of tracks
 (a) For existing works 2
 (b) For new works 2
- (ii) Minimum depth of space for wheel flange from rail level. 1
- (iii) Minimum horizontal distance from centre of track to any structure from rail level to 305 mm above rail level
 (a) For existing works 2
 (b) For new works or alterations to existing works 2
- (iv) Minimum horizontal distance from centre of track to any structure except a platform
 (a) For existing works from 305 mm above rail level to 4420 mm above rail level. 2
 (b) For new works or alterations to existing works
 (1) From 305 mm above rail level to 1065 mm 2
 (2) From 1065 mm above rail level to 3355 mm 2

(2)

नमो

SECTION - B

Answer any four questions:

- Q.4. a) When an existing LWR is required to be distressed ? 5
- b) Describe the method/steps of distressing the existing LWR track using Rail tensors alongwith precautions to be taken. 25
- Q.5. a) Describe the method/steps for USFD testing of AT weld joint. 10
- b) What is TGI Value of track and how it is used for planning of track maintenance. 10
- c) What are criteria for manning of unmanned level crossing ? 5
- d) What are main specifications of track ballast. 5
- Q.6 a) What is cant deficiency and what are considerations to limit it ? 4
- b) What are limiting values (on BG line) of maximum cant, maximum cant deficiency, maximum cant excess, maximum cant gradient, maximum rate of change of cant and maximum cant deficiency permitted on Turnout ? $6 \times 2 = 12$
- c) What are tolerances (with limits) to be checked after AT welding of rail ? 7
- d) What are criteria for rail renewal of 60 kg & 52kg rails ? 7
- Q.7. a) Describe the constitution of Colony Care Committee/Colony Committee and frequency of holding the meeting of committee. 5
- b) Why disinfection of drinking water is necessary? Describe two methods of disinfection of water generally adopted on Railway system and precautions to be taken. 10
- (c) What are advantages of Rain Water harvesting ? Describe any one method of rain water harvesting with sketches. 10

③

$\pi = 3.14$

(d) Short note on maintenance of Land Boundary along the Track. 5

Q.8. Write short notes on any six of the following: (6x5)=30

- (i) Limitation of continuing LWR on girder bridges.
- (ii) Works requiring CRS sanction.
- (iii) Steps to be taken for water conservation in Railway Colony and Station.
- (iv) Pot cum PTFE Bearing.
- (v) Inspection of composite bridge girders.
- (vi) System working of Dip Lorry on single line section.
- (vii) Reconditioning of CMS crossing.
- (viii) 25T-2008 Loading Standard.
- (ix) Danger level and free board of Bridge.
- (x) Ballast Cleaning Machine.

Q.9 Design a flat RCC slab for room size of 3m x 5m to be used for Office building with an imposed live load of 500 kg/sqm. Details of reinforcement bars to be shown on sketch. Required data may be suitably assumed. ✓

30

Q.10 What checks (major itemwise) you will make while carrying out inspection of a major bridge having 61.0M triangulated girders. Indicate the defects which require immediate attention. ✓

30

11/2/21

(4)

QUESTION PAPER

**WRITTEN EXAMINATION FOR SELECTION FOR PROMOTION FROM
GROUP 'C' TO GROUP 'B' SERVICE TO THE POST OF AEN(GR. B) AGAINST
70% QUOTA IN CIVIL ENGINEERING DEPARTMENT, NORTHERN
RAILWAY.**

DATE OF EXAMINATION:

01.08.2015

MAXIMUM MARKS:

150

TIME ALLOWED : 03 HRS.

1. Answer total **Seven** questions. Question No. 1 is compulsory. Any extra question attempted after **seven** will not be evaluated.
 2. All questions carry marks as indicated against each.
 3. All questions should be answered only in the Answer Sheet and no question is to be answered in Question Paper.
 4. Candidates having found writing name/leaving any other identification marks in Answer Sheet shall be liable to be disqualified.
 5. Answer of Objective Type questions having cutting, overwriting, erasing, scoring off a ticked answer in multiple choice and ticking another answer will not be evaluated.
 6. Answers may be written either in English or in Hindi.
 7. In case of any ambiguity in the Hindi version, the English version is to be considered authentic.
-

Q.1 Write correct Answer (Reproduce answer in full):- (1.5 x 20 = 30)

- (i) "Accident Drill" is organised by:
- a. Engg. Officers
 - b. Operating Officers
 - c. Engg. & Operating Officers
 - d. None of these

- (ii) The percentage passing through or retained on the sieve shall be determined by....:
- a. Weight
 - b. Volume
 - c. None of these
- (iii) In areas where corrosion is severe, finishing coat consist of
- a. two coats of aluminum paint conforming to IS -2074
 - b. two cover coat of red oxide paint conforming to IS-123
 - c. either of the above
 - d. None of these
- (iv) The setting and hardening of cement after addition of water is due to:
- a. The presence of gypsum
 - b. binding action of water
 - c. hydration of some of the constituent compounds of cement
 - d. evaporation of water
 - e. None of the above
- (v) A tender which is received after the opening of tenders is called.....tender
- a. Delayed Tender
 - b. Late Tender
 - c. Solarity Tender
 - d. none of above
- (vi) When outer rail of curve is raised over inner rail, the X-level difference between them is called:
- a. Actual cant
 - b. Unevenness
 - c. Positive cant
 - d. Negative cant
- (vii) The holder of yellow pass is entitled to travel in:
- a. A.C.3tier
 - b. A.C.2tier
 - c. first class
 - d. None of these

- (viii) The side slope of the formation in embankment/cutting depends on :
- a. Shearing strength of soil & its angle of repose
 - b. Angle of repose
 - c. Bearing capacity of the soil
 - d. None of the above
- (ix) Temp. destressing during deep screening LWR is done at a temperature below max. rail temperature:
- a. 20C
 - b. 15C
 - c. 10C
 - d. 5C
- (x) The allowable shear stress of 90UTS rail i.e.:
- a. 142.9
 - b. 156
 - c. 172
 - d. None of these
- (xi) Total No. of Train running 1 DAY ON I.R.
- a. 11,000
 - b. 9,000
 - c. 13,000
 - d. None of these
- (xii) Weight of pretension concrete sleeper for 60 kg. rails in kgs:
- a. 286.4
 - b. 288.5
 - c. 380
 - d. 300
- (xiii) Minimum standard distance bet. centre to centre of trackz
- a. 4725mm
 - b. 4560mm
 - c. 4265mm
 - d. none of above

- (xiv) Relationship between dry density and bulk density of soil is
a. $\text{dry density} = \text{bulk density} / (1 + \text{moisture content})$
b. $\text{Bulk density} = \text{dry density} / (1 + \text{moisture content})$
c. $\text{dry density} = \text{bulk density} * (1 + \text{moisture content})$
d. $\text{Bulk density} * (1 + \text{moisture content})$
- (xv) Timber for doors shall be free from:
a. Boxed heart
b. Pitchpockets
c. Bark pockets
d. All of above
- (xvi) PWI Incharge push trolley quota is:
a. Once a week
b. Once a fortnight
c. Once a month
d. Twice a month
- (xvii) The limiting loss of section in 90R rail is...:
a. 2.5%
b. 4.5%
c. 5.0%
d. 6.5%
- (xviii) Max. no. of machines which can work in one block section:
a. Two
b. Four
c. Five
d. Six
- (xix) Life of portion is of.....:
a. 4 month
b. 6 month
c. 12 month
d. 24 month

(xx) Formula for calculation of SE is:

- a. $GV^2/124R$
- b. $GV^2/125R$
- c. $GV^2/126R$
- d. $GV^2/127R$

Q.2 कृपया किन्ही चार प्रश्नों का उत्तर दें ? (4 x 5= 20)

- i) धारा 3(3)कब से लागू हुई इसके अंतर्गत क्या प्रावधान हैं। कौन-कौन से प्रलेख (लिगल डॉक्यूमेंट्स) हिंदी व अंग्रेजी में जारी होना अनिवार्य है ?
- ii) राजभाषा नियम 2011 के अनुसार हमारे देश को कितने भागों में वर्गीकृत किया गया ? दिल्ली किस वर्गीकृत क्षेत्र के अंतर्गत आता है ? दिल्ली से मुल प्रत्राचार व पत्रों का जबाव नियमानुसार किस भाषा में अपेक्षित हैं ? कश्मीर, पांडीचेरी एवं लक्ष्यद्वीप किस वर्गीकृत क्षेत्र में हैं ?
- iii) क्षेत्र 'क' के अंतर्गत कौन-कौन से राज्य आते हैं ?
- iv) What is Monsoon patrolling and how is it to be carried out as per P.Way Manual? Para No. of IRPWM be mentioned.
- v) One Goods Train of 58 BoxN with CC+ 8+2 loading runs for 365 days in a year, how much million tone of traffic will it constitute?

Q.3 When is an employee taken up under D&AR rules in Railways? What are the Standard Form Numbers for Suspension, Major Penalty and Minor Penalty? Please specify all minor penalties and all major penalties. Upto what grade AEN can suspend an employee under his control. (20)

Q.4 What are the responsibilities of PWI Incharge and Open Line AEN and Schedules of their Inspection for track on LWR, level crossings, turn outs and bridges. (20)

Q.5 Write short notes on any four: (4 x 5 = 20)

- i) Glued Joints in track;
- ii) AT Welds including wide gap welding;
- iii) Improved SEJ;
- iv) Thick Web switches;
- v) TGI values & OMS peaks.

Q.6 Write short notes on any four: (4 x 5 = 20)

- i) Classification of defects in rails and welds under USFD testing and precautions for safety.
- ii) Summer precautions;
- iii) Rail renewal criteria;
- iv) Procedure for destressing of LWR;
- v) Numerical Rating System for Bridge Conditions.

Q.7 Write short notes on any four: (4 x 5 = 20)

- ✓ i) Typical Bending Moment Diagram and Reinforcement details in a Cantilever beam.
- ii) USFD testing frequency of rails and welds.
- iii) Approximate Route Kms of Indian Railways & Northern Railway and difference in Route Kms, Running Kms & Track Kms.
- iv) What are the reasons for Rail Fracture and how it can be prevented? What is the criteria of rail fractures for renewals?
- v) Inspection of different types of Bridge Bearings.

Q. 8 a) Write the procedure for protection of Dip lorry movement showing protection diagram.

b) Write the scheduled Speed restrictions after BCM and normalization of speed. Please calculate approximate length of track under speed restriction at BCM site on any given day, if the effective block hours are 02 hrs per day.

(10 x 2 = 20)

Q. 9 a) Write the Responsibilities of various departments to prevent encroachment on Railway Land premises and Rules for fixing boundary pillars.

b) Write the steps for PQRS or TRT working including restriction of speeds and its normalization.

(10 x 2 = 20)

Q.10 Design a slab of 6 m x 3 m assuming live load 500 Kg per sqm and M20 grade concrete (any other parameter required may please be assumed). The designed reinforcement details should be shown in a diagram. (20)

QUESTION PAPER

**WRITTEN EXAMINATION FOR SELECTION FOR PROMOTION FROM GROUP 'C'
TO GROUP 'B' SERVICE TO THE POST OF AEN(GR. B) AGAINST 70% QUOTA
IN CIVIL ENGINEERING DEPARTMENT, NORTHERN RAILWAY
(Assessment Period 1998-99)**

DATE OF EXAMINATION: 10.10.2015

MAXIMUM MARKS: 150

TIME ALLOWED : 03 HRS.

1. Answer total **seven** questions. Question No. 1 is compulsory. Any extra question attempted after **seven** will not be evaluated.
2. All questions carry marks as indicated against each.
3. All questions should be answered only in the Answer Sheet and no question is to be answered in Question Paper.
4. Candidates having found writing name/leaving any other identification marks in Answer Sheet shall be liable to be disqualified.
5. Answer of Objective Type questions having cutting, overwriting, erasing, scoring off a ticked answer in multiple choice and ticking another answer will not be evaluated.
6. Answers may be written either in English or in Hindi.
7. In case of any ambiguity in the Hindi version, the English version is to be considered authentic.

Q.1 Write correct Answer (Reproduce answer in full):- (20 x 1.5 = 30)

1. When carrying out sieve analysis the screen shall be kept.....and shaken vigorously:
 - a. Inclined
 - b. Vertical
 - c. Horizontal
 - d. None of these

2. The percentage passing through or retained on the sieve shall be determined by.....:
 - a.Weight
 - b.Valume
 - c.None of these.
3. The ballast between the sleeper is called:
 - a.Shoulder ballast
 - b.Ballast cushion
 - c.Crib ballast
 - d.None of these.
4. A Railway bridge having total waterway 18m. or more is called
 - a.major bridge
 - b.minor bridge
 - c.important bridge
 - d.None of these
5. MBG loading stands for
 - a.Mineral Broad gauge loading
 - b.Modified broad gauge loading
 - c.Medium Broad gauge loading
 - d.none of above
6. Which of the following is not a type of bridge based on type of span
 - a. Simply supported
 - b. Cantilever
 - c. Continuous
 - d. Trusses
 - e. All of above
7. Dynamic Augment is
 - a. Wind effect on railway bridges
 - b. Temperature effect on railway bridges
 - c. Impact Effect on railway bridges
 - d. Rolling effect on railway bridges.

8. The arrangement for the safe custody of imprest money rest entirely with the
 - a. Imprest holder
 - b. Office superindendent
 - c. Chowkidar
 - d. concerning clerk.
9. In acquisition of railway land if any departure from the rules is contemplated the specific approval should be obtained from
 - a.GM
 - b.DRM
 - c.Railway Board
 - d.CRS
10. Steel and timber structures with roof trusses will be inspected by IOW once in.....during prescribed month
 - a.A year
 - b.5 years
 - c.6 months
 - d.No shedule specified
11. The permanent rail closure in high speed routes shall not be less than:
 - a. 4m
 - b.7.5m
 - c.6.5m
 - d.5.5m
12. The height of 60kg rail i.e.....mm:
 - a.142.9
 - b.156
 - c.172
 - d.None of these
13. The service life of 60 kg. 90 UTS rails is in GMT::
 - a.550
 - b.650
 - c.800
 - d.None of these

14. The expansion of UTS:
- a. Ultimate tensile strength
 - b. Universal testing scheme
 - c. Ultimate tested specimen
 - d. None of these
15. Gradient on which LWR can be laid should not be steeper than:
- a. 1 in 250
 - b. 1 in 200
 - c. 1 in 150
 - d. 1 in 100
16. The welded rail passes through yards including p & c is known as:
- a. SWR
 - b. LWR
 - c. CWR
 - d. None of above
17. Formula for thermal force in LWR/CWR:
- a. $L\alpha(t_p - t_o)$
 - b. $E A \alpha t / r$
 - c. $E A \alpha t$
 - d. None of above.
18. Track "Below Average" is categorised when TGI is:
- a. <20
 - b. <30
 - c. <36
 - d. None of above.
19. T.G.I. for Ideal track is:
- a. 240
 - b. 180
 - c. 300
 - d. None of these

20. The limiting loss of section for 60 kg. rails is...%:

- a.4%
- b.6%
- c.8%
- d.None of above

प्रश्न सं० 2 . Write short Notes on any four:-

(4x5 = 20)

- (क) राजभाषा अधिनियम की धारा 3 (3) के अन्तर्गत आने वाले विभिन्न प्रकार के कागजातों के नाम लिखें। यह भी उल्लेख करें कि नियमानुसार उक्त कागजात को अनिवार्यतः किस भाषा में जारी किया जाना चाहिए ?
- (ख) राजभाषा नियमों के अन्तर्गत किस प्रकार के कार्यालय को अधिसूचित किया जाता है?
- (ग) राष्ट्रभाषा और राजभाषा में क्या अन्तर है ?

short notes

DLI/82-(1)d)

✓ HOER Act.

LI/82-(3)e)

✓ Pass rules & different types of passes with eligibility criteria.

short notes

Q.3 Write short Notes on any four:-

(4x5 = 20)

DLI 81-①

I. Criteria for rail renewal

LI 83-②

II. Initial & final setting time of concrete

LI 83-⑥

III. Pre & post stressed concrete structures.

LI 84-②

IV. ✓ Define super elevation, cant deficiency, cant excess & equilibrium cant.

LI 84-⑤

V. Numerical rating of bridges after inspection.

Q.4 Write short Notes on any four:-

(4x5 = 20)

LI-⑤-②

I. Stress free temperature

LI-⑤-⑦

II. Reconditioning of CMS crossing

LI-⑤-⑧

III. Classification of bridges as important, major, minor and culvert

LI-8-⑧

IV. Earnest money and security money

LI-8-⑬

V. Monsoon patrolling

Q.5 Write short Notes on any four:-

(4x5 = 20)

- L-210-5 I. Fracture Repairs in LWR Track
1-812-5 II. Permitted location of LWR
11-814-3 III. Pre and post tamping works.
1-816-1 IV. Quality of drinking water
1-816-4 V. Hot weather patrolling.

3-311 CQ.6 Write Short Notes on any four of the following :

(4x5 = 20)

- 1/BDCM → I. Location of Engineering indicators used for long duration Works:
a) Train to stop dead.
b) Train to pass at restricted speed.
2-85 (ii) ADEN/PTK II. Action to be taken during an accident involving causality.
2-85 (iii) ADEN/PTK III. Action to be taken during heavy rainfall and flood in the section.
1-83(c)-(a) IV. Protection of level crossing gate in on emergency.
2-84-1 V. Write classification of level crossings.

Q. 7 Write answer of the following:-

(2x10 = 20)

- 2 ADEN/PTK (a) What are the various preventive measures to reduce that corrosion of rails in corrosion prone area. Explain in detail?
5 ADEN/LDA (b) How to calculate the safe speed on curves. What are the limits of cant excess and cant deficiency? Explain in detail?

F2R Q.8. Write answer of the following:-

(2x10 = 20)

- ADEN/UHP (a) Design mode working of CSM.
ADEN/BSB (b) Fabrication of Glued joint INSITU.

ADEN/JRC

- 5 Q. 9 Describe TSR, TRR, CTR, TWR, TBTR and TFR in brief and also describe which of these can be done with the second hand serviceable materials. (1x20 = 20)

ADEN/JRC

- 3 Q. 10. Describe the track relaying works by PQRS or TRT machine including pre and post relaying activities? (1x20 = 20)

QUESTION PAPER

**SUPPLEMENTARY WRITTEN EXAMINATION FOR SELECTION FOR
PROMOTION FROM GROUP 'C' TO GROUP 'B' SERVICE TO THE POST OF
AEN(GR. B) AGAINST 70% QUOTA IN CIVIL ENGINEERING DEPARTMENT,
NORTHERN RAILWAY
(Assessment Period 2014-15)**

DATE OF EXAMINATION: 09.01.2016

MAXIMUM MARKS: 150

TIME ALLOWED : 03 HRS.

1. Answer total **seven** questions. Question No. 1 is compulsory. Any extra question attempted after **seven** will not be evaluated.
2. All questions carry marks as indicated against each.
3. All questions should be answered only in the Answer Sheet and no question is to be answered in Question Paper. *no mobile phones are permitted.*
4. Candidates having found writing name/leaving any other identification marks in Answer Sheet shall be liable to be disqualified.
5. Answer of Objective Type questions having cutting, overwriting, erasing, scoring off a ticked answer in multiple choice and ticking another answer will not be evaluated.
6. Answers may be written either in English or In Hindi.
7. In case of any ambiguity in the Hindi version, the English version is to be considered authentic.

Q.1	Write correct Answer (Reproduce answer in full):-	20x1.5 = 30 marks
(i)	If L is length of a rail and R is the radius of a curve, the versine V for the curve, is a) $V = L/4R$ b) $V = L^2/4R$ c) $V = L^2/8R$ d) $V = L^2/16R$ e) $V = L^2/6R$	

(ii)	<p>Pick up the incorrect statement from the following:</p> <ul style="list-style-type: none"> a) Sleepers hold the rails at proper gauge on straights b) Sleepers provide stability to the permanent way c) Sleepers act as an elastic cushion between rails and ballast d) Sleepers transfer load of moving trains to ballast e) None of these. 	
(iii)	<p>Coning of wheels</p> <ul style="list-style-type: none"> a) prevent lateral movement of wheels b) provide smooth running of trains c) avoid excessive wear of inner faces of rail d) all the above. 	
(iv)	<p>The slipping of driving wheels of locomotives on the rail surface causes</p> <ul style="list-style-type: none"> a) wheel burns b) hogging of rails c) scabbing of rails d) corrugation of rails 	
(v)	<p>Two important constituents in the composition of steel used for rail are</p> <ul style="list-style-type: none"> a) Carbon and silicon b) Manganese and phosphorous c) Carbon and manganese d) Carbon and sulfur 	

(vi)	Gauge is the distance between a) Center to center of rails b) Running faces of rails c) Outer faces of rails d) None of the above	
(vii)	The height of the rail for 52 kg rail section is a) 143 mm b) 156 mm c) 172 mm d) 129 mm	
(viii)	Fish plate is in contact with rail at a) Web of rail b) Fishing plane c) Head of rail d) Foot of rail	
(ix)	A Railway bridge having total waterway 18m. or more is called a) major bridge b) minor bridge c) important bridge d) None of these	
(x)	Dynamic Augment is a) Wind effect on railway bridges b) Temperature effect on railway bridges c) Impact Effect on railway bridges d) Rolling effect on railway bridges	
(xi)	The height of 60kg rail i.e.....mm: a)142.9 b)156 c)172 d)None of these	

(xii)	The total service life of 52kg(72UTS)rail in terms of GMT: a)350 b)250 c)525 d)None of these	
(xiii)	Tilting of rails is done at a slope of a) 1 in 30 b) 1 in 20 c) 1 in 10 d) None of them	
(xiv)	Points and crossings on other than passenger lines are to be inspected once in a) 3 months b) 4 months c) 6 months d) None of these	
(xv)	Frequency of OMS recording for Rajdhani route is once a) In 2 months b) In 3 months c) In 4 months d) In 6 months	
(xvi)	OMS peak above ____g is called bad spot: a) 0.2 g b) 0.25 g c) 0.3 g d) 0.35 g	
(xvii)	Value of Ride Index for planned maintenance: a) 3.25 b) 3.5 c) 3.75 d) 4.00	

(xviii)	Minimum period after which form may be struck for under sides of beams and arches upto 6 mtr. Span with OPC is: a) 7 days b) 2 days c) 5 days d) 14 days	
(xvix) (XIX)	If the R.L. of a B.M. is 100.00 m, the back-sight is 1.215 m and the foresight is 1.870 m, the R.L. of the forward station is : a) 99.345 m b) 100.345 m c) 100.665 m d) 101.870 m	
(xx)	For category 'A' stations, the annual passenger earning should be : a) Rs. 10 crores or more b) Rs 06 crores or more c) Rs 03 crores or more d) Less than Rs. 03 crore.	
Q.2	Write short notes on any four of the following:- a) Repair of rail fracture. b) Breathing length in a LWR. c) Grow more food campaign. d) Water Cement ratio. e) Curing of concrete.	4 x 05 = 20 marks
Q.3	Write short notes on any four of the following:- a) Elimination of Unmanned L-Xing. b) Imprest store. c) Stock Sheet. d) T.M.S. e) Classification of railway station.	4 x 05 = 20 marks
Q.4	Write short notes on any four of the following:- a) Material Modification. b) Analysis of rates.	4 x 05 = 20 marks

	c) Protection of rail from liner biting.	
	d) Sleeper cribs.	
	e) Explain design mix concrete and nominal concrete etc.	
Q.5	Write short notes on any four of the following:-	4 x 05 = 20 marks
	✓ a) Monsoon Patrolling.	
	✓ b) Numerical rating system of bridges.	
	c) राजभाषा नीति को लागू करने की दृष्टि से भारत को कितने क्षेत्रों में बांटा गया है।	
	d) निर्धारित हिंदी परीक्षा पास करने पर किसी कर्मचारी को क्या-क्या प्रोत्साहन मिलते हैं।	
	e) हिंदी सप्ताह क्यों मनाया जाता है।	
Q.6 (a)	An express train meets with a mishap on a double line section in between stations resulting in derailment of some coaches, leading to casualties (deaths & injuries) among the passengers. As AEN you are the first officer to reach the site. Give in detail the steps to be taken by you, in order of priority, on reaching the accident site, till restoration of traffic.	15 marks
(b)	What are summer precautions and inspections in LWR/CWR territory?	05 marks
Q.7(a)	Describe in detail, the procedure for imposing a major penalty on a Group 'D' railway employee, under D&A Rules, for long unauthorized absence.	10 marks
(b)	How detailed inspection of major/important Railway bridges is done by ADEN? Briefly describe each item starting from foundation to track on bridges and its approaches.	10 marks
Q. 8(a)	Briefly explain painting of steel work of girder bridges, their surface preparation, and choice of suitable paint (depending on corrosion proneness of area) and precautions to be taken during painting.	10 marks
✓ (b)	What is Vacuum Dewatered Concrete? Describe the procedure of platform resurfacing by VDC and precautions to be taken for quality work?	10 marks

Q. 9(a)	Describe the method/steps for USFD testing of AT weld joint.	10 marks
(b)	What is TGI Value of track and how it is used for planning of track maintenance?	10 marks
Q.10(a)	What are criteria for manning of unmanned level crossing?	05 marks
(b)	What are main specifications of track ballast?	05 marks
(c)	What are limiting values (on BG line) of maximum cant, maximum cant deficiency, maximum cant excess, maximum cant gradient, maximum rate of change of cant and maximum cant deficiency permitted on Turnout?	10 marks