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 confirming 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.dry density=bulk density/(1+moisture content)
b.Bulk density =dry density/(1+moisture content)
c. dry density =bulk density*(1+moisture content)
d.Bulk density*(1+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.6month
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 कृप्या 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 डॉकूमेंट्स) 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 नियामानुसार 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)