

QUESTION PAPER - I

WRITTEN EXAMINATION FOR SELECTION FOR PROMOTION FROM GROUP 'C' TO GROUP 'B' SERVICE TO THE POST OF AEN/NR(GR. B) AGAINST 30% QUOTA IN CIVIL ENGINEERING DEPARTMENT, NORTHERN RAILWAY.

DATE OF EXAMINATION: 03.11.2018

Assessment Year : 2017-19

MAXIMUM MARKS: 150

TIME ALLOWED : 03 HRS.

1. There are three sections (A, B, & C) in the question paper. **Section A is compulsory. Answer only two questions from Section B & C each.** Answer Total Six questions. Any extra question attempted after six 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. In MCQ, please write question number followed by answer in Capital Letters. Cutting, overwriting & erasing in MCQs is not permitted.
4. Candidates having found writing name/leaving any other identification marks in Answer Sheet shall be ignored while evaluation/ disqualified.
5. Answers may be written either in English or in Hindi.
6. In case of any ambiguity in the Hindi version, the English version is to be considered authentic.

SECTION – A (Compulsory)

Q.1	Answer the correct option:-	35x1 = 35 marks
(i)	India and which country have agreed to undertake the Indus Waters Treaty tours in the Indus basin on both sides, to resolve issues on the various hydroelectric projects? A) Afghanistan B) Pakistan C) China D) Bangladesh E) None of these.	
(ii)	India and which country announced a working group for Gaganyaan, ISRO's first manned mission at the sixth edition of Bengaluru Space Expo, on 6 th Sept, 2018? A) Germany B) France C) Russia D) China E) None of these.	

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(iii)	Supreme Court decriminalized part of the law under Section ____ of the IPC (Indian Penal Code) which criminalises consensual unnatural sex, on 6 th Sep. 2018? A) Section 123 B) Section 234 C) Section 377 D) Section 256 E) None of these.	
(iv)	Indian Air Force for the first time successfully conducted mid-air refueling of which fighter jet by Indian Air Force's Russian built Il-78 tanker, on 6 th Sept, 2018? A) Tejas MK I fighter jet B) Sukhoi Su 30MKI fighter jet C) Dassault Rafale fighter jet D) Prabhat 6S fighter jet E) None of these.	
(v)	Where was India-US Ministerial 2+2 Dialogue held on Sept.6, 2018? A) New York, United States B) New Delhi, India C) Washington DC, United States D) Mumbai, India E) None of these.	
(vi)	The government has made Pradhan Mantri Jan Dhan Yojna (PMJDY) an open-ended scheme, and has doubled the over-draft limit for account holders to ____? A) Rs.10,000 B) Rs.20,000 C) Rs.15,000 D) Rs.30,000 E) None of these.	
(vii)	Minister of Railways & Coal, Piyush Goyal has launched a mobile app named ____ of Indian Railways e-procurement system'(IREPS) that offers information and data related to e-tendering and e-auction activities of Indian Railways? A) Spoorthi B) Aapoorti C) Rail Mithra D) Rail Shiksha E) None of these.	
(viii)	India and which country signed an implementation agreement on "MOBILISE YOUR CITY"(MYC) to reduce their Green House Gas (GHG) emissions, on 9 th Sept, 2018? A) Germany B) United States C) France D) Australia E) None of these.	
(ix)	National Rail and Transportation Institutes (NRTI), the first of its kind university on the transport sector in India, has started functioning from which city? A) Bengalauru	

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	B) Chennai C) Vishakapatnam D) Vadodara E) None of these.	
(x)	Who won the men's singles title at the US Open (tennis) 2018, that was held in New York City, United States, from 27th August to 9th Sept. 2018? A) Novak Djokovic B) Juan Martin del C) Roger Federer D) Rafael Nadal E) None of these.	
(xi)	Name the web portal that has been launched by Minister of railways and Coal, Piyush Goyal to enable Corporate and PSUs to contribute to up gradation through Corporate Social Responsibility funds? A) Rail Samskari B) Rail Sahyog C) Rail Fund D) Rail Promo E) None of these.	
(xii)	Sardar Singh, former Indian captain, has announced his international retirement from which game? A) Cricket B) Football C) Hockey D) Basket Ball E) None of these.	
(xiii)	Name the Indian who won gold medal in 10m Air Pistol Men Junior event and also beat his own world record with a score of 245.5, at the 52nd ISSF World championship held in Changwon, Republic of Korea? A) Arjun Singh Cheema B) Vijayaveer Singh C) Udayaveer Singh D) Saurabh Chaudhary E) None of these.	
(xiv)	Which country launched the world's first hydrogen-powered train, on 17th Sept, 2018? A) China B) Japan C) Germany D) United States E) None of these.	
(xv)	For design of a septic tank, volume of sewage tank is calculated based on per capita sewage volume as (for 100 users) A) 3 cft B) 1.5 cft C) 5 cft D) 10 cft E) None of these.	
(xvi)	According to the Hook's law, stress is proportional to : A) Strain B) Inverse of strain	

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	C) Square root of strain D) Square of strain E) None of these.	
(xvii)	Bending moment at a hinged joint is : A) Maximum B) Zero C) Half of maximum D) Double of maximum E) None of these.	
(xviii)	In cement mortar of 1:3 ratio, with one cubic metre of sand, the number of cement bags would be: A) 13.8 B) 9.87 C) 5.48 D) 7.18 E) None of these.	
(xix)	Yield of source for design of water supply scheme should be such that normal daily requirement is available in: A) 6-8 hours B) 10-12 hours C) 12-16 hours D) 20 hours E) None of these.	
(xx)	Standard gauge is: A) 1676 mm B) 1435 mm C) 1000 mm D) 1500 mm E) None of these.	
(xxi)	First Commander in Chief in India A) Sam Manekshaw B) Rob Lockhart C) K.M.Kariappa D) S.M.Srinagesh E) None of these.	
(xxii)	First Elected President in India: A) Dr. S.Radha Krishnan B) Dr. Rajindra Prasad C) Zakir Hussain D) V.V.Giri E) None of these.	
(xxiii)	First Miss Universe in India: A) Priyanka Chopra B) Lara Dutta C) Gul Panog D) Susmita Sen E) None of these.	
(xxiv)	First Women Chief Minister in India: A) Mayavati B) Indira Gandhi C) Sucheta Kripalani	

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	D) Jaya Lalita E) None of these.	
(xxv)	First Women Judge of Supreme Court in India: A) Indira Banerjee B) Meera Saheb Fatima Beebi C) Indu Malhotra D) Ruma Pal E) None of these.	
(xxvi)	First Women to go in space in India: A) Sunita Williams B) J.L. Kavandi C) Susan Still D) Dr. Kalpana Chawla E) None of these.	
(xxvii)	Indira Gandhi was assassinated in: A) 1974 B) 1984 C) 1994 D) 2004 E) None of these.	
(xxviii)	In cricket, the two sets of wickets are: A) 18 yards apart B) 20 yards apart C) 22 yards apart D) 24 yards apart E) None of these.	
(xxix)	Name of author of the Book 'Discovery of India' is: A) Mahatma Gandhi B) Sardar Patel C) Jawahar Lal Nehru D) Rabindra Nath Tagore E) None of these.	
(xxx)	Name of author of the book "Godaan" is : A) Kalidas B) Munshi Prem Chand C) Vikram Seth D) Arundhati Roy E) None of these.	
(xxxi)	Name of author of the book "Shakuntalam" is: A) Sarat Chandra Chattopadhyay B) Amrita Pritam C) Chetan Bhagar D) Kalidas E) None of these.	
(xxxii)	When was the first IPL was played: A) 2013 B) 2012 C) 2014 D) 2011 E) None of these.	

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(xxxiii)	When was the first train run in India? A) 16.04.1863 B) 16.04.1843 C) 16.04.1853 D) 16.04.1847 E) None of these.	
(xxxiv)	Name the longest river in the World? A) Sutluj River B) Nile River C) Mississippi River D) Amazon River E) None of these.	
(xxxv)	Ms. P.V.Sandhu associated with? A) Hockey B) Tennis C) Badminton D) Shooting E) None of these.	

प्र० 2.	क. हिंदी शिक्षण योजना के अंतर्गत कर्मचारियों के लिए कौन-कौन सी निर्धारित परीक्षा है और उनका शैक्षिक स्तर क्या है?	4 अंक
	ख. हिंदी दिवस कब मनाया जाता है और क्यों ?	3 अंक
	ग. राजभाषा नियमों के अंतर्गत किन कार्यालयों को अधिसूचित किया जाता है?	4 अंक
	घ. निर्धारित हिंदी परीक्षा पास करने पर किसी कर्मचारी को क्या-क्या प्रोत्साहन मिलते हैं ?	4 अंक

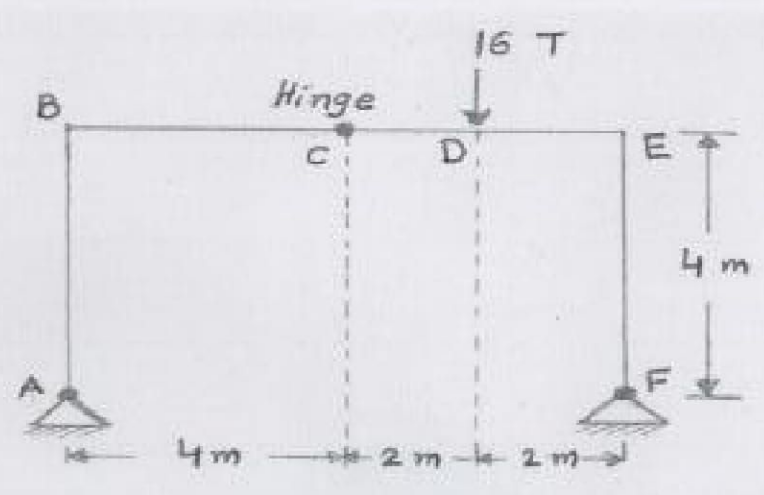
OR

Q.2	Write the full form of: i) ADB ii) COFMOW iii) IRPSM iv) PCDO v) LARGEES vi) UNESCO vii) FOIS viii) PMIS ix) PREM x) IRCEP xi) CRIS xii) MRTS xiii) CBDT xiv) FSSAI xv) MNREGA	15X1=15 marks
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SECTION – B

Attempt any two questions:-

Q.3	Analyse the following frame structure shown in figure and draw bending moment diagrams. 	25 marks
Q.4	Design a square section column using M-15 concrete and mild steel bars to carry an axial load (P) of 30,000 Kg. Effective length of column (l_{eff}) = 4.0m. Assume permissible stresses in direct compression in M-15 concrete (σ_{cc}) and in mild steel bars (σ_{sc}) as 40 and 1300 kg/cm² respectively. As per IS code $P = C_R (\sigma_{cc} A_c + \sigma_{sc} A_s)$ Where A_c and A_s are areas of cross-section of concrete and steel respectively, $C_R = \text{Reduction Coefficient} = 1.25 - (l_{eff} / 48b) \geq 1.0$ b = lateral dimension of column. Sketch the arrangement for longitudinal and lateral reinforcement.	25 marks
Q.5	What are the main sources of water supply? Why is "Chlorination" necessary? What do you understand by the terms plain or simple chlorination, super-chlorination, break-point chlorination and de-chlorination? When are these employed?	25 marks

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SECTION – C

Attempt any two questions:-

Q. 6	Write short notes on any five of the following:- I. Railway Affecting Works II. Safe bearing Capacity III. Final Location Survey IV. Steps involved in Mix design of Concrete V. ZF Gear Box VI. Four point lining system of tamping machine 09-3x	5x5=25 marks
Q. 7 (i)	Write short note on Well foundation for bridges, indicate various elements and their functions in well foundation.	15 marks
(ii)	Draw and label different components of Well foundation.	10 marks
Q. 8	Write short notes on any five of the following:- I. Water Cement Ratio II. Specification of track ballast III. Working of ALC IV. Scour and its calculation V. Drawdown of a Tubewell VI. Advantages & disadvantages of pre-stress concrete.	5x5=25 marks

Prof.