



EAST COAST RAILWAY

मुख्य कार्मिक अधिकारी का कार्यालय/

Office of the Chief Personnel Officer

द्वितीय तल, - 751 017

Rail Sadan, IInd Floor, Bhubaneswar-751 017

स्थापना क्रमांक/ Estt. Srl. No. 20/2017
पूतरे/कार्मिक/आर/ECOR/Pers/R/Selection.

RBE No.-15/2017

Date: 30.03.2017

सेवा मे,

सभी प्रमुख विभागाध्यक्षों/समन्वयक विभागाध्यक्षों, पू त रे/भुवनेश्वर

मं.रे.प्र/व.मं.का.अधिकारी/मं.का.अधिकारी-खोरधारोड,वालातेरू, संबलपुर,

मु.कारखाना प्रबंधक/कारखाना कार्मिक अधिकारी- मंचेश्वर, अतिरिक्त रजिस्ट्रार/रेल दावा अधिकरण,

व.का अधिकारी(नि)/भुवनेश्वर

महा सचिव/इकोर श्र. कां., महा सचिव/इकोर श्र. यू.,

महा सचिव/एआई ओ बी सी आर ई ए, महा सचिव/ ए आई एस सी एस टी आर ई ए

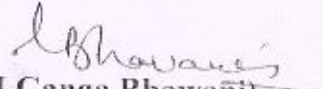
विषय /Sub: Syllabus for professional paper for Selection from Group 'C' to Group 'B' posts in EDP Centres/IT Department of Railways/Production Units.

पूतरे के विषय क्रमांक/ECOR's Subject Serial No.-EPS-2/2017

उपर्युक्त विषय पर बोर्ड पत्र सं E(GP)2016/2/25 दिनांक 27.02.2017 की प्रतिलिपि सूचना, मार्गदर्शन एवं आवश्यक कार्रवाई हेतु अग्रेषित है।

A copy of the Board's No. E(GP)2016/2/25 dated- 27.02.2017 on the above quoted subject is forwarded herewith for information, guidance and necessary action.

Encl: As above,


(M.Ganga Bhawani)

Dy.Chief Personnel Officer(IR&W)
For Chief Personnel Officer

प्रतिलिपि प्रेषित/Copy to :

- 1) महाप्रबंधक के सचिव/पूर्व तट रेलवे, भुवनेश्वर
- 2) मुकाधि/मुकाधि(प्रशा.), उप म.प्र. अध्यक्ष(रेलवे भर्ती प्रकोष्ठ)
- 3) उप मुख्य प्रबंधक(सू.प्रौ.), उप मुकाधि(औ.सं.एवं कल्याण), वकाधि(इंजी.)
- 4) वकाधि(मुख्या.), वकाधि(स्टाफ), वकाधि(राज. एवं न्याया.)
- 5) मुकाधि के निजी सचिव/सहा.कार्मिक अधि.(मुख्या.-1),सहा.कार्मिक अधि.(कल्याण), सहा.कार्मिक अधि.(बिल), सहा.कार्मिक अधि

2886
3/3/17

(42)

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
(RAILWAY BOARD)

CFO

58
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2/3

RB-465
क्र.सं./Sl.No.....
दिनांक/Date... 2/3/17
आपक्षर/Initial..... R

RBE NO.: 15 /2017

No.E(GP) 2016/2/25

New Delhi, dt: 27.02.2017 as/R
for Dy CFO-Prod.

East central Railway

at least CFO(A)

The General Managers,
All Indian Railways and Production Units.

CFO
3/3

Sub: Syllabus for professional paper for Selection from Group 'C' to Group 'B' posts in EDP Centres/IT Department of Railways/ Production Units

Ref: Railway Board's letter No. E(GP) 2003/2/41 dated 20.05.2004.

A revised syllabus for professional paper for Selection for promotion from Group 'C' to Group 'B' posts in EDP Centres/IT Department of Railways/Production Units is enclosed for guidance. This may be given wide publicity and circulated amongst the eligible candidates.

- The revised syllabus shall be effective from the date of issue of this letter. However, Selections which have been notified, need not be disturbed.
- Please acknowledge receipt.

Encl: As above

M. Saluja
(MEENAKSHI SALUJA)
DY.DIRECTOR, ESTT.(GP)III
RAILWAY BOARD

Syllabus for Selection from Group 'C' to Group 'B' posts in EDP Centres/IT Department of Railways/Production Units

**Establishment Rules &
Financial Rules**

50 Marks

Professional Subject:

100 Marks

The Candidates are expected to supplement their experience by a few hours of study on each topic and in this regard certain websites for reference purpose have also been indicated.

Professional Subject:

1. Basics of computing and information Processing

1.1 Business Data Processing

1.1.1. Basic features of off-line systems, transaction processing systems, management information systems, decision support systems. Graphical user interfaces and presentation of information.

1.1.2. Full familiarity with word processor, spreadsheet package, presentation package, email Client and web-browser. Basics of data storage in a database management system.

1.2 Computer organisation and Data structures

1.2.1. Fundamentals of digital logic circuits, binary number system, registers and counters, microprocessor architecture, memory and input/output devices, basics of assembly language.

1.2.2. Data types, stacks, queues, linked lists and other basic data structures, searching and sorting algorithms, and basic idea of complexity.

1.2.3. Basic features of PCs and servers, printers, backup devices.

2. Operating system, DBMS and networking concepts (candidates are expected to specialize in any one area out of Operating Systems, DBMS, or Networking, with a basic idea of all three areas)

2.1. Basics of operating systems (proficiency in one Unix flavour or one Windows Server version is expected)

2.1.1. The file system, process management, memory management, system administration concepts, networking tools in operating systems, OS level backup and archival, retrieval and disaster management.

2.1.2. Unix flavours, the vi editor, shell programming, basics of grep and awk, user management, security features in Unix, Linux.

2.1.3. The Windows operating system, including basics of Windows server; file management, FAT, FAT32 and NTFS, user management, the active directory, the Windows registry.

2.2. Basics of DBMSs

2.2.1. The relational model, ER model, database normalization concepts.

2.2.2. Basics of SQL, simple queries, joins, nested queries, grouping, query parsing, indexing concepts.

2.2.3. Database administration, tuning concepts, locking and concurrency control, transaction roll-back and roll forward, database backup and archival.

2.2.4. Proficiency in any one DBMS out of Oracle, Sybase, SQL Server, covering the concepts given above.

2.3 Networking and data communication concepts

2.3.1. Basics of data communication, transmission media, network topologies, the OSI seven layer model, TCP/IP concepts.

2.3.2. LANs and LAN devices, concepts of IEEE 802.3, IEEE802.11b, LAN media, switching, basics of LAN design.

2.3.3. WANs and WAN devices, concepts of routing, switched and packet networks, signal multiplexing methods, network management.

2.3.4. Basics of network security, the Internet, Internet security, viruses, worms and malicious code, intrusion detection.

3. Software development

3.1. Basics of systems analysis and design

3.1.1. Modular application design; methods to elicit user requirements; DFDs, ERDs and process mapping methodologies; screen, report and menu design.

3.1.2. Basic idea of component based design, interface design, directory services, web services, object orientation.

3.2. **Application Development** (Proficiency is expected in any one GUI tool, 3GL, or COBOL, with a basic idea of all three)

3.2.1. Using GUI front-end tools, screen building, connecting to back-end databases, and report-writing (any one of VB, D2K/iDS, Power Builder, or other standard GUI tool).

3.2.2. Application development in a structured 3 GL (C, Java, C++, C#) programme constructs in 3 GLs, data types, memory management working with files, working with databases, using standard libraries; the JVM and CLR.

3.2.3. Application development in COBOL, COBOL data structures, file handling in COBOL, sorting and merging, managing databases using COBOL, reporting and screen development.

3.3. **Software engineering concepts**

3.3.1. Software development cycle, basics of software sizing and estimation, software project management, project risk management (basic idea), system audit and security, disaster management strategies.

3.3.1. Basics of software testing and quality assurance, test plans, block box and white box testing, module and integration testing, verification, validation and inspection.

3.3.2. Basics of software testing and quality assurance, test plans, black box and white box testing, module and integration testing, verification, validation and inspection.

3.3.3. Basics of information security, encryption, digital signatures, PKI.

4. **Other Topics in IT (for persons operating in specialized areas)**

4.1. **Basics of CAD/CAM**

4.1.1. Graphic devices, 2-D geometry and display algorithms, graphic operations, 3-D rendering, animation, graphic standards.

4.1.2. CAD basic, 2-D drafting, surfacing, 3-D solid modelling (proficiency in using a CAD package):

4.1.3. FEA, part programme generation (proficiency in using FEA and part program generation tools.

4.2. Basics of embedded software

- 4.2.1. Firmware devices, coding and burning, embedded OS, embedded application software, basics of PLCs, ladder logic, using PLC program development tools, data loggers etc.

5. EDP centres in Indian Railways

5.1. Data Centre basics

- 5.1.1. Data centre basic design features, secure areas and access control, workspace planning; air-conditioning and humidity control; rack-mounted servers and other devices, structured cabling, clean power supply and earthing, UPS basics.
- 5.1.2. Data centre operations manual, backup strategies, disaster management, basic housekeeping and filing of records.

5.2. IT applications in Indian Railways (as per areas of working of the candidate)

- 5.2.1. FMIS, Payroll, Workshop system, Inventory control system, Traffic accounts system: detailed knowledge of processes.
- 5.2.2. SDT applications: PRIME/AFRES, PMIS, MMIS, PAS, FAS, OSS: knowledge of processes.
- 5.2.3. PRS, UTS, NTES, FOIS: Basic working.
- 5.2.4. Locally developed applications: for example STORMS, PURSYS, PINS, EASY, PLANS, FACT in RCF; Stores, finance and workshop applications in RWF, DLW, ICF etc.
- 5.2.5. Other developments on Railways: MIS applications, IR websites, Internet ticketing, IVRS.

6. ICT Infrastructure

6.1 Server Consolidation and Virtualization.

(searchservervirtualization.techtarget.com)

6.2 Virtualization Systems: VMWare, RHEV, Citrix, Open Stack etc.

(www.redhat.com)

6.3 Software Defined Data Centre and Networks

(<https://en.wikipedia.org>)

(<https://en.wikipedia.org>)

12. **Cyber Security Laws and Guidelines**

(<http://www.cyberlawsindia.net>)

12.1. IT Act

(<http://www.itlaw.in>)

12.2. MHA Guidelines

(<http://mha.nic.in/policy-guidelines>)

12.3. NCIIPC Guidelines

(<http://cis-india.org>)

12.4. CERT-IN Guidelines

(<http://www.cert-in.org.in>)

12.5. Digital India Policies

(<http://meity.gov.in>)

12.6. Social Media Guidelines

(<http://meity.gov.in>)

12.7. Password Policy

(<https://mail.nic.in>)

12.8. Guidelines for India Government Websites (GIGW)

(<http://guidelines.gov.in>)

13. **Use of Social Media**

13.1. Twitter

(<https://twitter.com/twitter>)

13.2. Facebook

(www.facebook.com/)

13.3. You Tube

(<https://in.youtube.com/>)

13.4. Google+ etc.

(<http://www.zigzigger.blogspot.in>)

14. **Website Development**

14.1. HTML5

(<http://www.w3schools.com>)

14.2. XML

(<http://www.xmlfiles.com/xml/>)