

বি, সি, এস (সাধারণ শিক্ষা) ক্যাডারভূক্ত কর্মকর্তাদের  
সিনিয়র স্কেলে পদোন্নতি পরীক্ষার সিলেবাস।

তৃতীয় পত্র

বিষয় : কৃষি বিজ্ঞান

মোট নম্বর : ১০০

উদ্দেশ্য ১। বাংলাদেশ শিক্ষার বিভিন্ন স্তরের কৃষি বিজ্ঞানের সিলেবাস পর্যালোচনা এবং যথার্থতা সম্পর্কে মতামত ও স্বপক্ষে যুক্তি উপস্থাপন।

বিভিন্ন স্তরের কৃষি বিজ্ঞান বিষয়ক সিলেবাসের তাত্ত্বিক ও ব্যবহারিক পাঠদান পদ্ধতি, কলাকৌশল ও ব্যবহৃত শিক্ষাপ্রণালীর পর্যালোচনা ও মতামতের পক্ষে যুক্তি উপস্থাপন, মূল্যায়ন পদ্ধতি ও কলা কৌশল প্রয়োগের যথার্থতা পর্যালোচনা;

উদ্দেশ্য ২। কৃষি পরিধি-পরিসর ও বাংলাদেশের এর গুরুত্ব, বাংলাদেশের কৃষির সমস্যা ও সমাধান; বাংলাদেশে কৃষি শিক্ষার গুরুত্ব ও স্তরক্রম, কৃষি শিক্ষার সম্ভাবনা ও ভবিষ্যৎ।

উদ্দেশ্য ৩। বাংলাদেশের অর্থনীতিতে কৃষির ভূমিকা, কৃষি উন্নয়ন প্রকল্প তৈরীকরণ ও পরিসংখ্যানের ব্যবহার, খামার ও খামার পরিচালনা, সমবায় ও কৃষি ঋণ; কৃষি প্রকল্প উন্নয়নমূলক যুব প্রশিক্ষণ-সংস্থা, কার্যক্রম ও প্রক্রিয়া; কৃষি উন্নয়নমূলক বিভিন্ন সংস্থা ও তাদের কার্যাবলী।

উদ্দেশ্য ৪। বাংলাদেশের জলবায়ু ও কৃষি ঋতু, মৃত্তিকার উপাদান, শ্রেণী বিভাগ ও মৃত্তিকা অঞ্চল, মাটির উৎপাদন ক্ষমতা ও উর্বরতা; ভূমিকর্ষণ ভূমিক্ষয়, পানি সেচ-নিকাশ ও পানি-বদ্ধতার বিভিন্ন দিক।

—কৃষি জমিতে বা ফসলে সার প্রয়োগের উদ্দেশ্য, সারের প্রকারভেদ ও প্রয়োগ পদ্ধতি।

উদ্দেশ্য ৫। উদ্ভিদের শ্রেণী বিভাগ, উদ্ভিদ দেহের বিভিন্ন তন্ত্র ও শারীর বৃত্তীয়/জৈবনিক প্রক্রিয়াসমূহ, উদ্ভিদের খাদ্যোপাদানের প্রকারভেদ ও কার্যাবলী, এদের অভাব বা অতিরিক্ততাজনিত প্রতিক্রিয়া ও তা দূরীকরণের উপায় এবং উদ্ভিদের খাদ্যোপাদান গ্রহণ প্রক্রিয়া।

—উদ্ভিদের বিভিন্ন ধরনের বংশ বিস্তার ও এর গুরুত্ব, বীজ সংরক্ষণ, শোধন ও বপন, চারা উৎপাদন ও রোপণ।

সমন্বিত ফসল সংরক্ষণ ব্যবস্থাপনা।

বাংলাদেশের প্রধান প্রধান ফসল, শাকসবজি ও ফল ফুলের চাষাবাদ পদ্ধতি সংরক্ষণ ও বাজারজাতকরণ প্রক্রিয়া।

উদ্দেশ্য ৬। পরিবেশের ভারসাম্য রক্ষায় কৃষি, বনজ সম্পদ, সামাজিক ও কৃষি বনায়ন, বিভিন্ন প্রজাতির বিলুপ্তির ক্ষতিকর প্রভাব এবং এদের সংরক্ষণের প্রয়োজনীয়তা ও উপায়। মৌমাছি ও রেশম গুটির চাষ।

উদ্দেশ্য ৭। মৎস্য সম্পদ সংরক্ষণ, মাছ চাষের বিভিন্ন দিক; হাঁস-মুরগী পালনের গুরুত্ব, পদ্ধতি এবং প্রধান প্রধান রোগ ও তার প্রতিকার, গবাদী পশু পালনের গুরুত্ব, পদ্ধতি এবং প্রধান প্রধান রোগ ও তার প্রতিকার।

বি, সি, এস (সাধারণ শিক্ষা) ক্যাডারভূক্ত কর্মকর্তাদের

সিনিয়র স্কেলে পদোন্নতি পরীক্ষার সিলেবাস।

তৃতীয় পত্র

বিষয়ঃ মার্কেটিং

মোট নম্বর : ১০০

- ১। বাজারজাতকরণ অনুধাবন : বাজারজাতকরণ কি? বাজারজাতকরণ ও উৎপাদন, বাজারজাতকরণ অধ্যয়নের পদ্ধতিসমূহ, বাজারজাতকরণ ব্যবস্থাপনা, বাজারজাতকরণ ব্যবস্থাপনায় দর্শন, বাজারজাতকরণের দুরূহ ও আওতা, বাজারজাতকরণের কার্যাবলী ও কার্যসম্পাদনকারিগণ, বাজারজাতকরণের পদ্ধতির লক্ষ্যসমূহ, বাজারজাতকরণের দ্রুত অভিযোজন।
- ২। বাজারজাতকরণ পরিবেশ : ব্যস্তিক পরিবেশ, সমস্টিক পরিবেশ, বাজারজাতকরণ পরিবেশের প্রতি সাড়া দান।
- ৩। উদ্ভিদ বাজার নির্বাচন : বাজারের সংজ্ঞা প্রদান, চলতি বাজার চাহিদা পরিমাপ, ভবিষ্যৎ চাহিদার পূর্বভাস প্রণয়ন, বাজারসমূহ, বাজার বিভক্তিকরণ, বাজার লক্ষ্য নির্দিষ্টকরণ, বাজারে অবস্থান গ্রহণ।
- ৪। পণ্য সিদ্ধান্ত ও ব্যবস্থাপনা : পণ্য, পণ্যের শ্রেণীবিভাগ, একক পণ্য সিদ্ধান্ত, পণ্য লাইন সিদ্ধান্ত, পণ্য মিশ্রণ সিদ্ধান্ত, নতুন পণ্য উন্নয়ন কৌশল, পণ্য জীবনচক্র কৌশল।
- ৫। মূল্য সিদ্ধান্ত ও কৌশল : মূল্য নির্ধারণের বিবেচ্য বিষয়সমূহ, মূল্য নির্ধারণের সাধারণ অ্যাপ্রোচসমূহ, নতুন পণ্যের মূল্য নির্ধারণ কৌশলসমূহ, পণ্য-মিশ্রণ মূল্য নির্ধারণ কৌশল, মূল্য সমন্বয় কৌশল, মূল্য পরিবর্তন।
- ৬। বাজারজাতকরণ তথ্য ব্যবস্থা এবং বাজারজাতকরণ গবেষণা : বাজারজাতকরণ তথ্য ব্যবস্থার প্রয়োজনীয়তা, বাজারজাতকরণ তথ্য ব্যবস্থা কি? তথ্য প্রয়োজন নির্ধারণ, তথ্য উন্নয়ন, বাজারজাতকরণ গবেষণার আওতা, বাজারজাতকরণ গবেষণার প্রক্রিয়া, তথ্য বিতরণ।
- ৭। সেবা বাজারজাতকরণ : সেবা বাজারজাতকরণ, সেবার বৈশিষ্ট্য, সেবা বিক্রেতার বাজারজাতকরণ কৌশলসমূহ, সেবা বাজারজাতকরণের কৌশলগত পরিকল্পনা।
- ৮। অব্যবসায়ী প্রতিষ্ঠানে বাজারজাতকরণ : অব্যবসায়ী প্রতিষ্ঠানের বাজারজাতকরণের প্রকৃতি ও আওতা, বাজারজাতকরণের প্রতি অব্যবসায়ীদের মনোভাব, অব্যবসায়ী বাজারজাতকরণের জন্য কৌশলগত প্রোগ্রাম উন্নয়ন, বাজারজাতকরণ বাস্তবায়ন।
- ৯। বাজারজাতকরণ যোগাযোগ পদ্ধতি : ফলপ্রসূ যোগাযোগ উন্নয়নের পদক্ষেপসমূহ, সামগ্রিক প্রমোশন বাজেট এবং মিশ্রণ নির্ধারণ।

**Marks.**

I.	HEALTH POLICY								10
	Knowledge about Health Policy of GOB (Government of Bangladesh).								
II.	HEALTH AND FAMILY PLANNING SERVICE STRUCTURE								20
	-Organisation of Ministry of Health and Population Control								
	-Organisation of Health Services from DGHS to field level								
	-Organisation of the Population Control Directorate								
	-Job description of all level officers/staffs of DGHS								
	-Different Institutional Positions and numbers								
III.	PROFESSIONAL KNOWLEDGE								55
1.	Promotion of Health and Prevention of diseases								15
	-Primary Health Care								
	-Expanded Programme of Immunisation								
	-Disease control								
2.	Curative								15
	-Medicine								15
	-Surgery								
	-Gynae and Obstetrics								13
3.	Medicolegal affairs								15
	-All sorts of Medicolegal affairs								
	-Medical Board								
	-Police & Jail Code								
4.	Family Planning and MCH Programme								10
	-Concept of MCH Based FP								
	-Professional Knowledge on VSC procedure, side-effects managements, etc								
IV.	ADMINISTRATION								15
1.	Management								5
	-Staff and Office Management								
	-Knowledge about Field Programme								
2.	System of Procurement and Storage								5
	-Knowledge about Local and Foreign Procurement								
	-Knowledge about Store Management								
3.	Information and Data Collection								5
	-Knowledge about Information collection and onward transmission.								

## PAPER-III

## FOR B. C. S (INFORMATION) CADRE

*Total Marks-100*

## (1) B. C. S. (Information : General)

## CHAPTER-1

- (a) Concept of Communication/Information Science.
- (b) Objectives and purpose of communication.
- (c) The role of Information.
- (d) Role of mass communication in national development.
- (e) The network of Mass Communication.
- (f) Code of Ethics in communication.
- (g) Reception and dissemination of information—national and global.
- (h) Media situation in Bangladesh.

## CHAPTER-II

- (a) Message development—selecting the contents of the message and mode of presentation to suit the need, aptitude and temperament of the audience.
- (b) Implementation of communication programme in keeping with national objectives.
- (c) Feedback, Research and Evaluation.

## CHAPTER-III

- (a) Role of the Press in Bangladesh : its role as an instrument of national development.
- (b) Newspapers and periodicals in Bangladesh.
- (c) News treatment, editing.
- (d) Editorial trends.

## CHAPTER-IV

- (a) Scope and impact of broadcasting in Bangladesh.
- (b) Radio as a tool of information, education and motivation.
- (c) Producer's role production process, content of programmes and management.
- (d) Radio programme areas.
- (e) Process of preparation, production and presentation of news.
- (f) Objectivity in news.
- (g) Emergence of Television as a broadcasting discipline.
- (h) Film as a medium of entertainment, education and motivation.
- (i) Nature and scope of various forms of films; feature films and documentary films.
- (j) Film Censorship.
- (k) Role of the Department of films and the FDC.
- (l) Public relationing as a discipline.
- (m) Role of Public Relations Officers, their target audience and behavioural objectives.
- (n) Role of Public Relations Officers attached with different Ministries.
- (o) Folk media in the Cultural evaluation of Bangladesh.

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## (2) FOR B.C.S (INFORMATION : TECHNICAL)

Total Marks—100

- (a) Media Technology—its role and impact.
- (b) Understanding the broadcasting system and a comprehensive knowledge of the broadcasting techniques and equipment.
- (c) Engineering management in the media.
- (d) Role of the engineering branch in different media and at various stages and phases.
- (e) Preparation and interpretation of layouts and technical drawings.
- (f) Handling of various equipment at different stages of media programme production.
- (g) Use of satellites for reception and transmission broadcasts.
- (h) Maintenance of equipment and installations.
- (i) Handling of breakdowns and safety and security measures.
- (j) Transmitting system of sound.
- (k) Video Transmitting system.

## PAPER-III

## FOR B.C.S (LIVESTOCK) CADRE

Total Marks—100

Subject	Marks
GROUP-A Development Programmes and Departmental activities .. .. .	25
GROUP-B Veterinary Science .. .. .	30
GROUP-C Animal Husbandry .. .. .	30
GROUP-D Basic knowledge related to Vety. Science and Animal Husbandry.. .. .	15
<b>Total</b>	<b>100</b>

GROUP-A Development programmes and Departmental activities will include the study of the following :—

- (i) Project identification and preparation. Analytical expression of PP (Project Proforma) and its various components, preparation of model project profile;
- (ii) Processing of project documents for approval. Financial limitations of the authorities to approve the scheme, categories thereof.
- (iii) Monitoring, reporting and evaluation of the project.
- (iv) Methods for calculating Net Present Value (NPV) working out of Economic EIRR (Economic Internal Rate of Return). Finding out critical path method work (CPM), PERT method (Programme evaluation and Review technique NET WORK analysis. Analysis of the cost and benefit Ratio).

GROUP-B Vety-Science :— This includes identification of the economically important Animal diseases such as Viral, Bacterial parasitological Nutritional and other common ailments.

To find out the epidemiological link between diseases, process and pattern, their effects on livestock productivity. Disease control prevention and eradication. Different types of biological products, such as Vaccine Sera and their uses and their quality.

**GROUP-C : Animal Husbandry : This includes the following :**

- (1) Identification of problem of small, medium and large-scale farming and their remedies.
- (2) Selection of animals including goat and sheep for genetical improvement of the local breeds for milk, meat and draft power.
- (3) Selection of Poultry and Duck for genetical improvement of the birds through cross-breeding.
- (4) Outline of breeding policy in Bangladesh through A. I. for milk, meat and draft power.
- (5) improvement of local feeds and fodders and to establish National Fodder Policy.
- (6) Co-operative farming and its impact on the socio-economic condition of Bangladesh.

**GROUP-D : Basic knowledge related to Veterinary Science and Animal Husbandry.**

- (a) Principle of Disease Control, Keeping quality of vaccine and vaccination programming.
- (b) Small-scale Dairy/Poultry farming in the Private Sector.
- (c) Lists of the common diseases of animals and poultry in Bangladesh.
- (d) Methods of extension services to private owners for the improvement of Live stock wealth, fodder cultivation and Disease problems.

### PAPER-III

#### FOR B.C.S (POLICE) CADRE

*Total Marks—100*

#### (A) LAW :

*Total Marks—15*

##### 1. Bangladesh Penal Code

###### **Sections :**

**Chapter-IV**—Sec. 76, 79, 80, 81, 82, 83, 84, 85, 86, 94, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106.

**Chapter-VI**—Sec. 120A.

**Chapter-XIV**—Sec. 299, 300, 301, 302.

**Chapter-XVII**—Sec. 378, 382, 390, 391, 396, 397, 399, 402, 403, 405, 409, 415, 425, 445, 458.

**Chapter-XVIII**—Sec. 463.

**Chapter-XXI**—Sec. 499

**Chapter-XXIII**—Sec. 511.

##### 2. Criminal Procedure Code

*Total Marks—15*

###### **Sections :**

Chapter-VI—Sec. 42, 44

Chapter-V—Sec. 46, 47, 48, 54, 55, 59, 61, 63

Chapter-VI—Sec. 68, 75, 87, 88, 89.

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Chapter-VIII—Sec. 107, 109, 110.

Chapter-IX—Sec. 127, 128, 129.

Chapter-X—Sec. 133.

Chapter-XI—Sec. 144.

Chapter-XII—Sec. 145, 146.

Chapter-XIII—Sec. 149, 150, 151, 152, 153.

Chapter-XIV—Sec. 154, 155, 156, 157, 164, 165, 166, 167, 174, 175, 176.

Chapter-XXV—Sec. 337, 338.

Chapter-XXXIX—Sec. 496, 497.

Chapter-XLI—Sec. 512.

Chapter-XLVI—Sec. 551, 565.

#### **Evidence Act**

*Total Marks—10*

##### **Sections :**

Chapter-I—Sec. 3, 4

Chapter-II—Sec. 5, 6, 7, 8, 9, 10, 11, 14, 15, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 29, 30, 32 (1), 35, 45, 47, 48, 50, 51, 54.

Chapter-IV—Sec. 59, 60.

Chapter-V—Sec. 62, 63, 65.

Chapter-VII—Sec. 102, 112, 114.

Chapter-IX—Sec. 118, 119, 122, 123, 124, 125, 126, 132, 133.

Chapter-X—Sec. 137, 138, 157, 159, 161, 162, 163, 164, 165.

#### **Minor Acts**

*Total Marks—10*

(a) The Police Officers (Special Provision) Ordinance, 1976.

(b) The Prevention of Corruption Act, 1947.

(c) Government Servant Conduct Rule (Discipline and appeal) 1979.

#### **Accounts**

*Total Marks—10*

(a) Handling of cash Account.

#### **(10) FUNCTIONS OF S.B:**

*Total Marks—15*

(a) Intelligence—Working of S.B/D.S.B

#### **(11) GENERAL SUBJECTS :**

*Total Marks—25*

(a) Inspection—its object and utility.

(b) Police-public relation.

(c) Police Ethics and Etiquette.

(d) Juvenile Delinquency—its effects on society.

(e) Police and Press

- ১। পোষ্ট অফিস ম্যানুয়েল ১ম খণ্ড (১৮৯৮ সনের পোষ্ট অফিস আইন ১৯৬১ সনের পোষ্ট অফিস বিধি) পোষ্ট অফিস ম্যানুয়েল ৪র্থ খণ্ড (সংস্থাপন সংক্রান্ত বিধিসমূহ, ১৬ ও ১৭.....অধ্যায়), পোষ্ট অফিস ম্যানুয়েল ৫ম খণ্ড (পোষ্ট অফিস ও আর, এম এস সাধারণ নিয়মাবলী, অভিযোগ, ক্ষয়ক্ষতি সংক্রান্ত তদন্ত ও ফৌজদারী কার্যক্রম সংক্রান্ত নিয়মাবলী), পোষ্ট অফিস ম্যানুয়েল ৮ম খণ্ড (পোষ্ট অফিস ও আর, এম, এস এর তদারকী, কর্মকর্তাদের দায়িত্ব ও কর্তব্য এবং সাধারণ প্রশাসন সংক্রান্ত নিয়মাবলী)। ৪০ নম্বর
- ফৌজদারী দণ্ড বিধি (Cr.P.C) সাক্ষ্য আইন (Evidence Act)।
- ২। পোষ্ট অফিস গাইড, পোষ্ট অফিস ম্যানুয়েল ৬ষ্ঠ খণ্ড সাব-একাউন্ট সংক্রান্ত ১০ম অধ্যায় ছাড়া। পোষ্ট অফিস ম্যানুয়েল ৭ম খণ্ড (রেলওয়ে মেইল সার্ভিস সংক্রান্ত সাধারণ বিধিসমূহ), পোষ্ট অফিস ইনস্যুরেন্স বিধি।..... ৩০ নম্বর
- ৩। পোষ্ট অফিস ম্যানুয়েল ৬ষ্ঠ খণ্ড (মুখ্যতঃ সাব-একাউন্ট সংক্রান্ত ১০ম অধ্যায়), প্রাথমিক হিসাব কোড (Initial Account Code Vol-1) আর্টিকেল-১—১১, ১৪, ১৮; ২১, ২৪, ২৫, ৩২, ৩৬, ৩৭, ৭৯, ৮০, ৮৬, ৯৩, ১৪৫, ১৪৬, ১৬৫ এ, ১৬৫বি, ২৫৬এ, ২৯১, ২৯২, মূল বিধি ও অনুপূরক বিধি (Fundamental Rules, Supplementary Rules) এফ, আর ৯—১৮, ২২—২৬, ১০৫—১০৮, এম, আর ১৭, ২২, ২৩, ২৫, ২৯—৪৬, ১১৬, ২৯৩। (C.S.R Pension Chapter)। ৩০ নম্বর

## PAPER-III

## FOR B.C.S. (PUBLIC HEALTH ENGINEERING) CADRE

Total Marks—100.

**A. Water Supply Engineering :**

Introduction of Hydrological Cycle. Availability of fresh water in the Universe, Marks 50  
Ground water hydrology, Hydraulics of wells, well design, well constructions, Pumping and development. Different technologies of well drilling (including bigger dia wells) and related practices in well constructions. Water quality of Ground water, Probable pollution of Ground water, Various treatment methods of Ground water. Surface water source and quality Various treatment methods of surface water, Disinfection of water.

Population projections water demand, Water collection, Storage, Transportation and distribution to consumers, Design criteria of various treatment methods. Different types of pipes and fittings, Maintenance of water works. Status and programme of Rural and Urban water supply in Bangladesh, Problems and probable solutions. Various pumps and pumping stations.

**B. Sanitation and Sewerage Engineering :**

Marks 30

Characteristics of domestic sewerage. Various on site sanitation technologies practiced in Bangladesh, Treatment of sewerage in septic tanks, Design of domestic and storm water Sewers, Status of Rural and Urban Sanitation in Bangladesh.

**C. Design of R.C.C. structure, Supervision of civil construction works.**

Marks 20

## PAPER-III

## FOR B.C.S. (PUBLIC WORKS) CADRE

Total Marks—100.

**(a) For Civil Engineers.****(1) Functional Planning of Buildings :****1.1 Man-made environment.****1.2 General principles of site selection.**



- 1.4. Planning Regulations and By-laws.
- 1.5. Principles of Planning.
- 1.6. Orientation of Building—Factors effecting orientation—Orientation criteria under Bangladeshi conditions—Optimum Orientation of Buildings.
- (2) **Functional requirement of a building and its components :**
  - 2.1. Basic requirements of a building as a whole.
  - 2.2. Building components and their basic requirements.
- (3) **Soil—their investigation and testing :**
  - 3.1. Types of soils—their characteristics, nature, classification and identification.
  - 3.2. Soil investigation—its objectives or purposes.
  - 3.3. Methods of soils exploration.
  - 3.4. Testing of soil for bearing capacity.
  - 3.5. Methods of determining bearing capacity.
  - 3.6. To verify the given bearing capacity of the soil.
  - 3.7. Methods of improving bearing capacity of soils.
- (4) **Foundations :**
  - 4.1. Characteristics of a good foundation.
  - 4.2. Types of foundations and general procedure in their structural Design,—Open foundations, Raft foundation, Deep foundation, Pile foundation, Foundation on expansive soil and made up grounds and in other special conditions.
  - 4.3. Causes of failure in foundations and remedial measures.
- (5) **Building materials—their quality and testing :**
- (6) **Masonry Construction :**
  - 6.1. Brick masonry, Reinforced brick masonry and composite masonry.
  - 6.2. Types of Bonds in brick work.
  - 6.3. Thickness of wall—slenderness Ratio of.
  - 6.3 Retaining Walls and Breast walls.
  - 6.4 Methods of construction of Arches and their stability considerations.
  - 6.5 General principles to be observed in brick masonry.
- (7) **Damp-proofing Termite-proofing and Fire protection :**
  - 7.1. Cause and effect of Dampness in buildings.
  - 7.2. Techniques and methods of damp prevention in basement floors, walls and roof.
  - 7.3. General principal and methods of termite proofing.
  - 7.4. Important considerations in Fire protection and general measures of Fire safety in buildings.
- (8) **Concrete Technology.**
  - 8.1. Properties of cement concrete—materials used in Reinforced cement concrete (R.C.C.) work.
  - 8.2. Basic assumption in the Theory of R.C.C. and detailed structural design of all structural members like R.C.C. raft, columns, beams, slabs, stairs, lintels, etc.
  - 8.3 Steel reinforcement.
  - 8.4 Precast concrete—their advantages.
  - 8.5 Proportioning of concrete, grading of aggregates, water-cement ratio, workability, estimating yield of concrete, mixing the materials of concrete, Transportation and placing, consolidation and curing of concrete and covering of reinforcement.
  - 8.6 Joints (i) Construction joints and (ii) Expansion and contraction joints in concrete.

**(9) Multistoried and Framed structures :**

- 9.1. Technique, advantages and problems of Tall buildings.
- 9.2. Concept and advantages of Framed structure

**(10) Doors and Windows :**

- 10.1. Operational classification of Doors and Windows—their types, size, numbers and locations in rooms.
- 10.2. Fixtures and fastening details.

**(11) Flooring :**

- 11.1. Factors effecting choice of floor and their technique and design in ground and upper floors.

**(12) Roofs and Roof coverings :**

- 12.1. Classification of roofs.
- 12.2. Types of pitched roofs—roof coverings for pitched roof with methods of securing it against uplift.
- 12.3. Trusses—Technique and desing of both steel and timber trusses.
- 12.4. Types of Flat roofs or Terrace roofs—Construction methods thereof.
- 12.5. Water-proofing of Flat roofs.
- 12.6. Shell Roof and Folded-plate Roof.
- 12.7. Drainage of Roofs.

**(13) Building Finishes :**

- 13.1 Plastering, Pointing, Painting, Varnishing, Distempering and miscellaneous finishes.
- 13.2 Characteristics and properties of ideal Paint and Varnish.
- 13.3 Properties and process of distempering.
- 13.4 Ventilation in buildings.

**(14) Plumbing services :**

- 14.1 Planning of Plumbing system.
- 14.2 Ventilation system and sewerage system of sanitation.
- 14.3 Sanitary fittings and Appliances.
- 14.4 Drainage Plants of buildings, site improvement and land-scaping.

**(15) Pavement of Roads :**

- 15.1 Suitability and type of pavements—Flexible pavements and Rigid pavements.

**(16) Engineering Specification, Rate analysis, Project estimate and schedule, memorandum of measurement; Valuation of structures.****(17) Technique of Project management and construction management at site.****(18) P.W. System of Accounts :**

- 18.1 Classification of Transactions.
- 18.2 Head of Accounts.
- 18.3 Cash.
- 18.4 Stores.
- 18.5 Stock.
- 18.6 Works accounts

## (2) FOR ELECTRICAL/MECHANICAL ENGINEERS

*Total Marks—100.*

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- 1 **General outlines of planning and preparation of design of the Electrical/Mechanical installations of buildings :**
  - 1.1 Source of power and its nature, accessibility and survey.
  - 1.2 Preparation of site layout plan for power in-take.
  - 1.3 Load estimation and calculation.
- 2 **Distribution of Electrical Power:**
  - 2.1. General outline of power distribution system : Ring or Radial, underground or overhead, advantage and disadvantages of each method.
  - 2.2. Methods and installation details of overhead line construction, both of 11 Kilovolts and medium voltage.
  - 2.3. Design consideration of overhead lines : Calculation of conductor size and other Electrical/Mechanical parameters of overhead line.
  - 2.4. Materials used for overhead line construction and their specifications :
    - (i) Steel poles
    - (ii) Cross-arm
    - (iii) Conductors
    - (iv) Insulators
    - (v) Other line members.
- 3 **Types and characteristics of underground cables used upto 33 kilovolts : PILC, PVC, XLPE, etc.**
- 4 **Use and selection of appropriate type of cables compatible with environmental factors :**
  - (i) Underground
  - (ii) Underwater marine applications
  - (iii) Through pipes/conduits
  - (iv) In high temperature conditions
  - (v) In chemically corrosive atmosphere.
- 5 **Jointing method of different types of cables : Materials required for jointing of cables.**
- 6 **Method of installation of different types of cables with advantages and disadvantages.**
- 7 **Detection of cable faults, various methods of cable fault localisation.**
- 8 **Sub-station and Sub-station equipment :**
  - 8.1. Physical and Structural arrangement of Sub-station Building.
  - 8.2. General arrangement and layout of equipment in the Sub-station at the load centre.
  - 8.3. Installation methods of equipment in the sub-station.
  - 8.4. Provision of ventilation drainage, Fire-fighting equipment and other services facilities in the sub-station.
- 9 **Circuit breaker and switch gear :**
  - 9.1. Types of isolating and switching devices : Simple isolators, fuse incorporated isolators, circuit breakers, floor mounted switch gears etc., their working principles and constructional features.
  - 9.2. Types of circuit breaker : Bulk oil, minimum oil, Air-circuit breakers, vacuum circuit breakers, moulded case and miniature circuit breakers—their characteristics and working principles and constructional features.
  - 9.3. General principles of short circuit protection by circuit breakers and by fuses : The process of Arc-extinction in circuit breakers.
  - 9.4. Commissioning procedures and testing of switch gears.

## 5. **Protection Relaying and protection of Electrical Equipment :**

- 5.1 General Principles of protective relaying.
- 5.2 Types of protection by relays : Over current, short-circuit under voltage, earth fault protection.
- 5.3 Time vs.current characteristics of different types of relays and fuses.
- 5.4 Types of fuses : Simple and H.B.C. types, their construction, operational characteristics, selection and application in the practical field.
- 5.5 Framing specification of relays and fuses.

## 6. **Over Voltage Protection :**

- 6.1 General principles of over voltage protection.
- 6.2 Lighting protection : Types of lighting arresters their constructions characteristics and application in the field.
- 6.3 System earthing and protection from switching surges.
- 6.4 Investigation into the Electrical break-down processes in solids, liquids and gases by over voltage.

## 7. **Earthing and earth fault protection :**

- 7.1 General principles and purpose of earthing.
- 7.2 Methods of earthing of :
  - (i) Sub-station equipment, motor and generators.
  - (ii) Wiring installations.
  - (iii) Domestic and household electrical equipment.
- 7.3 Tests and measurement of earth resistance.

## 8. **Electrical wiring installation :**

- 8.1 General methods and principles of wiring.
- 8.2 Load calculation, voltage drop calculations, selection of cables and wires from the current rating tables of cable-manufactures.
- 8.3 **Methods of wiring :** Surface, concealed through pipes, through ducts, in the trunking bus system requirement of installation methods—joint box and looping in systems.
- 8.4 Selection and framing specification of wiring materials and accessories. Wires and cables, battens, boards, PVC pipes/Steel conduits, bus-bars, BDB'S FDB'S main switch etc.
- 8.5 Methods of main circuit and sub-circuit protection in wiring.
- 8.6 Methods of selection of discharge lamp ballasts, starters, capacitors, etc.
- 8.7 Capacity tests and characteristics of ceiling fans, exhaust fan and blowers etc.
- 8.8 Commissioning tests of wiring installations :
  - (i) Installation resistance test by megger ;
  - (ii) Earth continuity tests ;
  - (iii) Polarity tests.

## 9. **Interior and Exterior lighting :**

- 9.1. General principles and specification of good lighting on the basis of utility.
- 9.2. Definition of terms like Candie power, Lumen, illumination, Luminous flux, Luminous intensity, brightness, glare, contrast, reflectance, colour-rendering index, utilisation factor, maintenance factor etc.
- 9.3. Basic Laws of Illumination, Rules and formulae for calculation of illumination of interior space and surface

- 9.5. Types of lamps : Incandescent, fluorescent, high and low pressure mercury-vapour, high and low pressure sodium (SDN), (SOX) lamps, halogen and metal halide lamps, constructional features, characteristics and application of all these lamps.
- 9.6. Method of selection of light fittings and fixtures from manufacturer's manual.
- 9.7. Method of measurement of illumination level by Lux-meters and by other optical methods.
10. **Static and Rotating heavy electrical machineries :**
  - 10.1. Operation, installation and maintenance of power transformers, transformer oil tests temperature records etc. Methods of improving di-electric strength of transformer oil.
  - 10.2. Factors responsible for deterioration of di-electric strength of transformer and switch gear oils.
  - 10.3. Method of improving the di-electric strength of transformer and switch gear oils.
  - 10.4. Method of installation of power transformer. Grounding of power transformers.
  - 10.5. Condition for parallel operation of power transformers.
  - 10.6. Protection of power transformers.
  - 10.7. Operation, installation and maintenance of Standby Diesel Engine Generators.
  - 10.8. Switchboards and protection of generators.
  - 10.9. Operation, maintenance and selection of induction motors for various applications.
  - 10.10. Different types of motor protective starters, their functional characteristics and construction.
  - 10.11. Operation, maintenance and selection of Power Factor Improvement Plants.
11. **Water pumping installations :**
  - 11.1. Water pumping calculations : Total Static and Dynamic head (Calculation of total head).
  - 11.2. Operational characteristics of Centrifugal pumps.
  - 11.3. Operation and maintenance of various types of pumps :
    - (i) Horizontal and Vertical shaft multistage Centrifugal pumps.
    - (ii) Vertical hollow shaft Deep Well turbine pump.
    - (iii) Submersible and semi-submersible electric water pumps for use in bore-holes.
12. **Automobile Engineering and related topics :**
  - 12.1. General working principle and description of internal combustion engines (both sparkignition i. e. petrol engine and compression ignition, i. e., diesel engines).
  - 12.2. Description of carburation and fuel ignition system in petrol engines.
  - 12.3. Description of fuel injection system in diesel engines.
  - 12.4. Cooling system of i. e., engines.
  - 12.5. Lubrication system of i. e., engines.
  - 12.6. Rpm reduction gears, fluid coupling torque-converter etc. and their operation for mechanical power transmission from engine to axles in motor-vehicles and in heavy earth moving machineries and Cranes etc.
  - 12.7. Hydraulic circuits, hydraulic motors, pumps and fluid-valve-controllers in heavy earth moving and road building machineries like shovels, excavators, dozers, scrapers, cranes etc. : Their operation and maintenance.
  - 12.8. Electrical components and control wiring of motor vehicles and earth moving equipment.
  - 12.9. General Principles of Lubrication : Desirable properties of Lubricating oils. Selection of Lubricants.

### 13. Refrigeration and Air-conditioning :

- 13.1 Basic principle of refrigeration cycle : Vapour compression and absorption types.
- 13.2 Use of psychromatic chart and calculation of cooling load of space to be air-conditioned.
- 13.3 Basic design consideration of air-conditioning systems.
- 13.4 Operation and maintenance of refrigerators, room coolers, water coolers etc.
- 13.5 Design consideration of Central Air-conditioning of office buildings, hospital, industrial buildings and complexes, markets and commercial centres.
- 13.6 Operation & maintenance of packaged typed & chilled water type Central Air-conditioning plants.
- 13.7 Installation methods of air-conditioning plants, air-ducts, water circulating pumps, cooling towers etc.
- 13.8 Functions of different components & controls of air-conditioning plants : Evaporator condenser, compressor expansion valves, h. p. & L. P. cutouts capacity controls.
- 13.9 Types of refrigerants, their characteristics & application.

### 14. Lifts :

- 14.1 Basic principles of operation & maintenance of Electric lifts, A. C. & D. C. Lifts, ward-Leonard control, thyristor-control etc.
- 14.2 Functions of various components of Lifts systems and controls.
- 14.3 Selection & framing of specification of lift equipments.
- 14.4 Functional tests of various safety devices in a lift system, over speed governor, limit switches car & landing door locks.
- 14.5 Installation of a lift system : Layout of driving motor, driving sheave, gearbox, roping system car and counter weight system, buffer spring arrangement, guides & control panels.
- 14.6 Ventilation, lighting temperature & humidity control in the lift machine room.

### 15. Engineering Materials in E/M Works :

- 15.1 Electrical, mechanical & thermal properties of Natural & synthetic rubbers & polymers like PVC polyethylene polystyrene, Tefin polyester poly-methy methacrylate (perspex) Bakelite, Epoxy resins, glass-wool, rock-wool etc.
- 15.2 Electrical mechanical & thermal properties of ceramic materials like procelain, glass, steatite etc.
- 15.3 Electrical properties of common metals & alloys including semi-conductors.

### 16. Electrical safety codes, regulations, tariffs, etc.:

- 16.1. General electrical safety rules & conventions for accident prevention. IEE-regulations for Internal wiring installations, safe distance of overhead electrical lines from adjacent structures & roads etc.
- 16.2. The Electricity Rules, 1937, Factories & Establishment Act, Indian Electricity Rules..
- 16.3. Existing electricity traiff structure in Bangladesh, modes of metering by Power Development Board.
- 16.4. General Survey of power generation, transmission & distribution in Pangladesh

**17. Departmental Procedures for E/M Works :**

- 17.1. Engineering specification, Rate analysis project estimate and Schedule, memorandum of measurement valuation of electrical/mechanical installations.
- 17.2. Technique of Project Management and Construction Management at site.
- 17.3. **Public Works system of Accounts :**
  - (i) Classification of Transactions
  - (ii) Head of Accounts
  - (iii) Cash
  - (iv) Stores
  - (v) Stock
  - (vi) Works Accounts
  - (vii) Payment of works
  - (viii) Service Rules.

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**PAPER-III**

**FOR B. C. S. (Railway Engineering) Cadre.**

**Total Marks—100.**

**(1) Syllabus for the Officers of the Civil Engineering Department.**

**(1) Permanent way :**

**Marks 25**

- (a) Track performance :
  - (i) Track vehicle reaction.
  - (ii) Track stress.
  - (iii) Track resistance.
- (b) permanent way materials including track fittings and fastenings.
- (c) Permanent way maintenance :
  - (i) Overhauling through packing, picking up slacks, measured shovel packing, directed track maintenance.
  - (ii) Maintenance of points & crossings, level crossing, curves.
  - (iii) Setting of points & crossings diamond crossing slipoints gathering lines.
- (d) Welding of rails-long welded rails, short welded rails.
- (e) Track-renewals.
- (f) Curves-realignment of curve, cant deficiency.
- (g) inspection of tracks.

**\* (2) Works :**

**Marks 25**

- (a) Structural design, steel and R. C. beam and columns.
- (b) Engineering Surveys : Reconnaissance, preliminary & final location.
- (c) Land acquisition.
- (d) Estimates.
- (e) Execution of works, construction of diversion.
- (f) Contracts for works.
- (g) Opening of new lines.

**(3) Bridges (both major and minor) :**

Marks—20

- (a) Railway Bridge design based on Bridge Rules bridge Code.
- (b) Bridge inspection.
- (c) Bridge maintenance.
- (d) Bridge rebuilding under traffic.
- (e) Drawing of plan & section of masonry work of deck girder bridge.

**(4) General :** .. .. . Marks—30

- (a) Duties and responsibilities of Divisional Engineer, Bridge Engineer, Assistant Engineer, Assistant Bridge Engineer, Senior Sub-Assistant Engineer (Way) and Work & Bridges.
- (b) Accident and derailments.
- (c) Accident enquiries.
- (d) River and Flood.
- (e) Ghats.
- (f) Breaches and Washout
- (g) Schedule of Standard Dimensions.
- (h) Working of—
  - (i) Ballast trains.
  - (ii) Motor trolley.
  - (iii) Push trolley.
  - (iv) Deep Lorry.
  - (v) Material trolley.
  - (i) Movement of over sized consignment.
  - (j) GIBR's sanction.
  - (k) General Service Rules.
  - (l) Store Transaction Method.

**(2) Syllabus for Officers of the Mechanical Department.***Total Marks—100*

- (1) Preparation of Drawing and Specification (including Material Spec.) for locos, carriages and Wagons, Marine Vessels, Plants and Machineries and its technical scrutiny.
- (2) Maintenance and construction of locos, carriages and wagons, Marine vessels in Railway and other Workshops Material & labour management, personnel management etc. (Reference Mechanical Workshop Manual, Carriages and Wagons Manual, mechanical Workshop Code :Stores Code, etc).
- (3) Trouble shooting running maintenance of locos, Carriages and Wagons, Marine Vessels and its economic utilisation and operation. (Reference locomotives and running shed manual, TXR hand book, General and subsidiary rules for the Railway).
- (4) Preparation of PP, budgeting and distribution of budget allotment for both Revenue and Capital. Procurement Planning and its implementation.



**(3) Syllabus for officers of the Electrical Engineering Department.***Total Marks—100***A. Electrical machines and equipment.. ... 40**

- (i) Diesel power plant, steam power plant, AC and DC electrical machines, Electrical rotating machines, control equipments and instrumentation.
- (ii) Train lighting and Air-conditioning system of carriages, train lighting plants and equipments and Batteries.
- (iii) Workshop machinery and workshop technology used in General Electric. Repairing shop, Critical Path method in shop on design of electric circuits/distribution line, transmission line pumps of different types.
- (iv) Preparation of inspection and maintenance schedule for item I and III above. Knowledge for having spare-parts viz. NST ASST Spl. requisition and etc. for undertaking the same.
- (v) Measuring instruments and accessories, protection systems and switch gears, sub-stations

**B. Function and Rules ... 30**

- (i) Functions and responsibilities of Electrical department.
- (ii) Basic knowledge of :
  - (a) Energy conversion.
  - (b) Basic Electronics.
  - (c) Electricity Acts/Electricity manual.
  - (d) Preparation of Electrical Specification.
  - (e) Preparation of Budget.
  - (f) Procurement of materials and equipments, disposal of surplus materials and condemnation of materials and disposal of scrap.
  - (g) Preparation of Annual Development Programmes and Project.
  - (h) Production scheduling of Lift Enamel, Periodical overhauling, General overhauling of carriages in shops proformas.
  - (i) Maintenance of carriages in depot in respect of Electrical Department.
  - (j) Preparation of technical drawing of Electrical works:
    - estimates of electrical works.
    - contracts of electrical works.
    - completion reports on electrical works.
  - (k) Rules and regulations for crossing of high voltage transmission and distribution line over Railway track and Railway land.
  - (l) Basic knowledge of Interchange rules and regulation in respect to electrical departments on carriages.
  - (m) Duties and responsibilities of Divisional Electrical Engineers/Assistant Electrical Engineers/Senior Sub-Assistant Engineers of Electrical departments.

**C. General .. ... 30****(I) Fundamental knowledge of the following code and manuals of Bangladesh Railways :**

- (a) General and subsidiary rules.
- (b) General Code.
- (c) Establishment Code.
- (d) Store Code.
- (e) Mechanical departments Code/Manual.
- (f) Account Code.

## (ii) Labour Union and Labour Laws, Factories Act:

- Workman Compensation Act.
- Payment and Wages Act.
- Hours of Employment regulations.
- Petroleum and Carbide of Calcium Manual
- ILO Convention by Bangladesh.

**(4) Syllabus for Officers of the Signal and Telecommunication Department***Total Marks—100.*

- |   |          |
|---|----------|
| 1. General and subsidiary Rules .. .. .   | Marks—15 |
| 2. Maintenance and Construction works to related signalling:  | Marks—30 |
| (I) Mechanical/Electro-Mechanical Interlocking.   |          |
| (ii) Relay Interlocking Sieme, Ericsson and British type including related tokenless block working. |          |
| 3. Maintenance and construction work-related to Telecommunication ..                                | Marks—20 |
| (I) Wire and Wireless Communication (HF Trans receiver)   |          |
| (ii) Telephone Exchange.  |          |
| (ii) Maintenance of VHF Communication sets.   |          |
| 4. Planning Design and Development:   | Marks—20 |
| (i) Preparation of project proforma.  |          |
| (ii) Preparation of Specification and tender documents.   |          |
| (iii) Evaluation of Tenders.  |          |
| (iv) Monitoring of Progress and preparation of PIB report.  |          |
| (v) Preparation of Completion Reports (CR).   |          |
| (vi) Design of Circuitry.   |          |
| (vii) Preparation of Estimates and  |          |
| (viii) Preparation of ADP.  |          |
| 5. Preparation of Revenue Budget review reconciliation of Accounts. ....                            | Marks—10 |
| 6. Work-shop practice and shop management. ....   | Marks—5  |

**(5) Syllabus for Officers of the Stores Department***Total Marks—100.*

The undermentioned syllabus on the above subject has been prepared for the stores Officers of Junior scale for their promotion to Senior Scale.

**1. Stores organisation :**

- (1) Management & Structure of Stores organisation

2. **Principle & Practice of Stock Control and depots functions :**

- (i) General.
- (ii) Depot function and Depot Officers responsibility.
- (iii) Procedure of receipt despatch and issue of stores (including custody stores).
- (iv) Preparation of ACST (Annual contract statement) and recoupment of Stores.
- (v) Opening and maintenance of Numerical ledger card.
- (vi) Concept of Imprest Stores.
- (vii) Preparation of Survey sheet and procedure for disposal of surplus and over stock.
- (viii) Procedure for the disposal of return stores of empties.
- (ix) Stock verification and preparation of stock sheet etc.etc.
- (x) Accounting of Stores.
- (xi) Maintenance and handling of materials while in stock preservation thereof.
- (xii) Security and safety of stores etc.
- (xiii) Introduction of computer in stock control.

3. **Classification and Coding and PL. Book :**

- (i) Standard Nomenclature of Railway Stores.
- (ii) Assigning of price list number and preparation PL. Book.

4. **Procedure of issue of Forms and Stationary and printed card tickets :**

5. **Purchase and Contract :**

- (i) Initial procedure of action for purchase (right from opening of purchase case on receipt of ACST extract indent.)
- (ii) Classification and floating to Tender etc.
- (iii) Power of purchase.
- (iv) Progress of delivery of material in purchase etc.
- (v) Concept and objects of Market research and Mobilisation of local resources.

6. **Receipt and Inspection of indigneous:**

Stores and Reliability and Quality Control.

7. **Clearance, Receipt and inspection of Imported materials :**

- (i) Formalities associated with clearance.
- (ii) Refund claim on account of excess payment of Custom-duty and Sales-tax etc.
- (iii) Dealing of claim cases.
- (iv) Procedure related to clearance of Air Consignment.
- (v) Clearance of Non-railway consignment and realisation of commission.

8. **Procedure for issue to and receipt from workshop:**

- (i) E & D rules
- (ii) Pass rules
- (iii) Leave rules

**PAPER-III****FOR BCS (RAILWAYS, TRANSPORTATION AND COMMERCIAL) CADRE***Total Marks—100.***TRANSPORTATION : (50 MARKS)**

1. General and Subsidiary Rules.
2. Operating Manuals/Traffic Manual.
3. Framing of Working Time Table.
4. Utilisation of Rolling Stock.
5. Line Capacity.
6. Turn round of wagons.
7. L. S. R.
8. Marshalling Yards.

**COMMERCIAL : (50 MARKS)**

1. Goods Tariff.
2. Coaching Tariff.
3. Commercial Manuals.
4. Railway Act 1890 as adopted in Bangladesh.

**PAPER-III****FOR BCS (ROADS AND HIGHWAYS) CADRE***Total Marks—100.***The paper is outlined as below :**

	<b>Marks.</b>
(a) Design of Highways and bridges ... ..	20
(b) Construction and Maintenance of Highway and bridges ... ..	30
(c) Mechanisation of Modern Techniques for construction and maintenance ... ..	15
(d) Accounts Code and Financial Rules ... ..	30
(e) Management Development ... ..	5
	100

**Details :**

(a) (I) Adoption of pavement design suitable for Bangladeshi Methodology, approach, requirement of .. basic date	7
(ii) Modern trend in Bridge design, Type of different bridges in use in Bangladesh limitation .. ..	7
(iii) Design, casting lifting driving of piles, use and adoption of pile driving formula .. ..	6
	20
(b) (I) Construction management including net work analysis discussion and adoption of CPM ..	10
(ii) Contract administration including application/limitation of standard agreement forms. ..	10
(iii) Compaction control and maintenance of embankment, subgrade, sub-base, base, layer, Asphalt concrete, surface treatment etc. Testing of Materials.	10
	30
(c) (I) Discussion of labour intensive technology in road construction use and limitation	8
(ii) Modern trend in pavement construction use of different equipment in road-bridge works.	7
	15
(d) (I) Use and application of accounts code and financial rules commonly used.	10

**PAPER -III****For B.C.S (Roads and Highways) Cadre (for Mechanical Engineers)***Total Marks—100***Details :**

1. Principles of petrol and Diesel Engine, Combustion process, Lubricants and cooling system. Brake and Power transmission.
2. Fault findings and solution of Engines, specification of lubricants used in Engine and brake.
3. Engine overhauling.
4. Uses, Maintenance and repair of different equipment's/Machineries used in Road Making.
5. Electrical components and wiring of equipment's/Machineries.
6. Equipment's used in Highway workshop i.e. Lathe, Drill, shape etc, and precision Instruments.
7. Different types of ferries and their Engines, operation and safety measure in ferry.
8. Welding and Gas cutting.
9. Safety measures of vehicles and different methods for procurement of spare parts.
10. Discussion of labour intensive technology in road construction and limitation.
11. Modern trend of different equipment's in road and bridge works.
12. Use and application of accounts code and financial rules commonly used.
13. Basic concepts of mobilization of human resources plan, programme, human relation etc.

**PAPER-III**  
**FOR BCS (STATISCAL) CADRE**

*Total Marks-100*

This paper shall consist of two major sections namely (a) General Section carrying 40 marks and (b) Subject specific Section carrying 60 marks.

**GENERAL SECTION**

**1. National Statistical System:**

Objective; type of such system; advantages of centralised statistical system; management and operation of centralised statistical system; national official statistical system of Bangladesh and its responsibilities.

**2. Sources of Statistics:**

Distinction between primary and secondary sources; methods and programmes followed by the national statistical system of Bangladesh for generation of statistics from primary sources; nature and types of secondary sources data generally used; approaches to improvement of such secondary sources data.

**3. Sample Survey :**

Advantages of Sample Survey; types of errors associated with such survey; procedures to be designed and executed to control non-sampling errors; methods of sample survey; crucial factors in fluencing designing of efficient sample survey programme under the present socio-economic condition of Bangladesh.

**4. Statistical Training :**

Need for training in programmes of statistical undertakings; importance and organisation of inservice training; rules of seminars and workshops in statistical training; planning training principles for all types of statistical operations including censuses; inter-country training workshop arrangement implications in statistical training.

**SUBJECT SPECIFIC SECTION**

**1. Population Demography and Manpower :**

Operational procedures for conducting a quality census; the most common errors associated with a census and measures adopted to control these errors; most effective planning principles in a census; need and importance as well as motivation of public co-operation in carrying out a census; post-enumeration check in a census; principles followed for Bangladesh Population Census of 1974 and 1981.

Definition and importance of Demogragpy-sources of Demographic data: census: survey and registration; Evaluation of census and survey data by whipples, Myre's and Joint Score Method; Direct measures of fertility—Indirect measures of fertility; Measures of mortality: Estimation of Population growth rate by applying different methods; Marital status of population; Definition of prediction, forecasting and projection. Population projection by Mathematical and component method; Migration: concepts of mobility, in-migrant, out-migrant, net immigration, gross migration, life-time migration, volume of migration.

Definition of economic active population employment, unemployment underemployment and self-employment computations of crude and refine activity rates; major occupations clarification employment categories of agricultural and non-agricultural manpower, professional manpower categories.

**2. Agriculture Statistics Agriculture Census Livestock and Fisheries Statistics :**

Characteristics of crop statistics; methods followed by Bangladesh Bureau of Statistics for current crop statistics and merits of such methods importance and way of fied evaluation check for improving current crop statistics; principles followed for Bangladesh Agriculture Census of 1977, 1983 and 1984; programmes of livestock and fisheries statistics of the Bangladesh Bureau of Statistics; types of forestry statistics in Bangladesh.

**3. National Income, Government Statistics and Prices and Wages :**

Types of national income accounts; composition of national income accounts; methods to compute gross domestic product, gross national products net national products and per capita income; meaning and calculation of value added; sector classifications in national income accounts; types of accounts; Production; Income and outlay accounts; capital finance accounts and test of world accounts.

Prices: wholesale and retail prices; procedures followed for computing various types of indexes in flow and

#### 4. Industry and Trade :

Standard Industrial Classifications; programmes and types of statistics generated through Census of Manufacturing Industries; methods of computing weighted indices of productions of industrial establishment, nominal wage rates of industrial workers and prices of industrial goods; computations of simple indices of real wage rates of industrial workers; employment of industrial workers and industrial labour productivity; definitions and composition of fixed assets and stock of industrial establishment at the end of the year; meaning and computations of depreciation; types of industrial inputs and meaning of mandays worked; meaning of small and cottage industries; Statistical programmes relating to small and cottage industries.

Bangladesh Standard Commodity Classifications; balance of payment and balance of trade; terms of trade; procedures of collecting foreign trades statistics in Bangladesh; exports and imports of Bangladesh; exports and imports prices.

#### 5. Computer and Data Processing :

Purpose of editing and types of edits; factors determining scope and content of coding and editing developing procedures and specifications for manual coding and editing; quality control of coding and editing; principles and procedures for computer editing; roles of programmers and system analysts and relation with subject-matter people; system flow chart; forms design and data entry; Definitions of various data entry and data processing equipment and supplies.

#### 6. Cartography, Printing and Publication :

Concepts and definitions used in mapping and cartography; basic principles followed for cartographic presentation of statistical data; construction of maps by Isopleth and choropleth methods; census and survey mapping by computer.

Best approach to efficient printing of statistical reports and publications; need for specialised skill and capability of printing of statistical reports and publications; mechanism for error-free printing and printing standardisation of statistical reports and publications; management need in statistical printing; methods of standardisation of statistical publications types of statistical printing outfits; approaches to efficient dissemination of statistical materials

৩য় পত্র

বিসিএস (ট্যাক্সেশন) ক্যাডারের জন্য

মোট নম্বর—১০০

- (ক) আয়কর ও সংশ্লিষ্ট আইনসমূহ .. আয়কর আইন, আয়কর বিধি, সম্পদ কর আইন, সম্পদ কর বিধি, দানকর আইন, দানকর বিধি ও তদসম্পর্কিত নোটিফিকেশন, সার্বস্বতীয় ও উচ্চআদালতের রায়সমূহ। কোম্পানী অ্যাক্ট, সিভিল প্রসিডিউর কোড ও ক্রিমিন্যাল প্রসিডিউর কোডের সংশ্লিষ্ট অধ্যায়সমূহ।
- (খ) অফিস কার্যপদ্ধতি .. জি, আই, আর ও অন্যান্য রেজিটারসমূহের বৈশিষ্ট্য ও রক্ষণ পদ্ধতি, রেজিটারসমূহের গুরুত্ব ও বিবরণী, আয়কর সম্পর্কিত মাসিক বিস্তারিত বিবরণসমূহ ও আয়কর অফিসে ব্যবহৃত বিভিন্ন কর্মসমূহ ও তদসম্পর্কিত জাতীয় রাজস্ব বোর্ডের নির্দেশাবলী।

বিঃদ্রঃ—উপরোক্ত বিষয়ে প্রশ্নাবলী ইংরেজীতে করিতে হইবে। কেননা সুল আইন ও অন্যান্য ম্যানুয়েল এখনও বাংলার অনুলিভ হয় নাই।

#### PAPER-III

#### (1) FOR BCS (TECHNICAL EDUCATION) CADRE

#### Architecture Technology.

Total Marks—100.

#### Sketch designs of buildings including perspective,

Study of small buildings in perspective (parallel and angular) the art of casting shades and shadows starting from a simple projection from a wall, line chujja or column on the ground up to the study of shades and shadows of a Greek doric order.

#### Structural Drawing of different parts of multi-storied buildings

Kinds, qualities and uses of timbers, stones, bricks, stoneware, terracotta, lime, gypsum bitumen a sphalt, roofing materials paints, varnishes, metal and alloys basic elements of building structures, clarity of form and function.

Ethics of the profession of architects a study of the practice of architecture, architecture and client relations architects accounts general condition and administration of construction, housing standards, labour laws and building codes.

Specification and schedule for tenders control of receipts and disbursements, classification of accounts, financial statements reports and auditing.

Aim and importance of architecture. Methods of study-Advantage of the historical method. Architecture as a fine art, the technic aesthetic and phenotic arts. The varying proportions necessary for perfection in every fine arts. Air-conditioning and acoustics.

#### **Principles Convenience of general arrangements and Boauth.**

(1) Qualities, Strength, stability and durability, (2) Vitality, (3) Restraining, (4) Refinement, (5) Repose, (6) Oppose, (7) Unity of conception, (8) Breadth, (9) Scale, (10) Pictorial setting and (11) Expression of purpose.

Factors : Mass (2) Form, (3) Proportion (4) Decorative, ornament, (5) Light and Shade, (6) Decorative colour, (7) Solids, and Voids, (8) Uniformity and painting, Influences of association, climate, topography, religion and soeal customs and aspirations of time. Classic orders and their details, Architectural composition.

Making proportionate sketches of characteristic outlines or features of the following historical styles Early Christian, Goathic Renazissance Dravidian. Indo-Saracenic and Modern.

General principles of town planning, Origin and growth of towns, Cities Road systems, Traffic control.

Improvement of existing cities by removing congestion. Slum clearance Development of garden, suburbs and extension. Ribbon development.

### **(2) FOR CIVIL TECHNOLOGY**

*Total Marks—100*

#### **Civil Technology :**

Elastic properties of material, stress strain, deformation centroid moments of inertia S.F. and B.M. diagrams, Stresses in beams, deflection of beams, stresses in Trusses, Column, Eceentric loading torsion.

Theory of bending Design of rectangular beam, T-Beam, double rainforced beam, one-way slab, two-way slab, flat slab, column, wall footing column footing, cautilirr beams and slabs, retaining wall, storage tanks and stair-case, different types of foundations.

Theodolite, Stadia surveying curve ranging, traingulation and cadastral survey, hydrographic surveying introduction to photogrammetry.

Methods of purifications of water and sewerage. Different methods of irrigation and river training-flood cotrol, Selection of types of roads factors influencing the selection with particular reference to Bangladesh, Railway curves and super elevation, Factors influencing selection of site for airport. Different technical terms used in airport.

Complete drawing of multi-storied buildings, septic tank, arches and lintels, foundation, slabs, beams, culverts and bridges.

Detailed estimate of multi-storied building including bar scheduling and cost analysis, estimate of roof truss, culverts R.C.C. bridges, retaining wall and metalled roads.

### **(3) FOR CHEMICAL TECHNOLOGY**

*Total Marks—100.*

Unit Operation, Transportation of liquids : Pipes and pipe fittings, pumps and pump operation, Heat transfe.,



### Equilibrium diagram, Methods of distillation of binary Mixture.

Chemical Technology—Water and its treatment safety instructions and regulations pulp and paper. Synthetic fibres plastics cement, Agro-Chemical industries, Sugar liquid fuels, Gaseous fuels, fertilizer, petro-Chemicals, Pharmaceutical industries. Filtration, size reduction.

Industrial stoichiometry and thermodynamics, Material balance, Energy balances, Thermochemistry, Thermodynamic properties of fluids.

Industrial management and human relation—Administration management and organization their difference and relations cost, direct and indirect cost deputation, personnel management recruitment and selection line and staff organization.

Process instrumentation and control temperature measurements, pressure measurements, level measurements transmission—Pneumatic and electric transmission. Recording, Controller.

Corrosion and electro-chemical Technology—corrosion and its prevention electro-chemistry electroplating.

## (4) FOR ELECTRICAL TECHNOLOGY

Total Marks—100

Dielectric Properties of insulators, properties of Ferro electric materials, polarization, magnetic properties of materials. Classification of magnetic materials. Properties of magnetic materials. Behaviour of dielectrics in a.c. fields Dielectric constants.

Choice of types of generating stations and their operating costs; Relative advantages of a.c. and d.c. transmission. influence of line, Conditions for maximum power transfer, Electrical and breakdown voltages of cables. Distribution from one and from both ends, Division of load between lines in parallel. Control and application of circuit breaker, Wiring of electrically operated switch boards, Control equipment and their arrangements Calculation of short circuit currents percentage reactance in series, parallel and combination, reactors for alternators transformers, busbars and feeders, Transmission line disturbances.

Rotating magnetic fields; operating characteristics of Induction motors, Equivalent circuits of induction motors; Speed control of induction motors; Starting of synchronous motors on load and without load; Power factor improvement by synchronous motors, industrial application of synchronous motors. Equivalent circuits of transformers vector diagrams and Reflected impedance.

Load graphs power plant economics, Economics of inter-connected systems, Economics of electric services types of substations and their purposes. Methods of obtaining generalised constants; Circle diagrams; Receiving and sending end circles; Maximum power limit; loss circle and efficiency circle diagrams. Phase sequence; Evaluation of sequence vectors. Symmetrical components; positive negative and zero sequence vectors; impedance components; Bases of short circuit calculations, KVA and per unit.

Telephone circuits; magnetic and C.B., system; telephone relays basic imputing circuits, uniselectors; two-motion selector, group selector; final selectors, 2nd preselectors and grading, loading of lines and repeaters; Wireless telephone; S.S.B. and S.B. simultaneous transmission and reception of a number of signals; Detailed study of. Transmitters and receivers. Effect of feedback on amplifier characteristics; types of feed-back. modulation and demodulations, logic circuits; trigger circuits sweep generators, wave shapers; Binary counting circuits, multivibrators. T.V. sound channels; scanning and human vision synchronizing pulse and blankings, Bandwidth requirements of T.V. systems T.V. Camera; Video signal T.V. transmitter and receiver. Signal generators, Oscilloscopes, Bridge, Circuits.

## (5) FOR ELECTRONIC TECHNOLOGY

Total Marks—100.

Atomic Theory, Different types of omission, semiconductors Diodes, Transistors, vacuum tubes, Amplifiers, Feedback in amplifiers, its advantages and disadvantages, Oscillators, Multivibrators, wave shaping circuits.

Microphones and speakers, Hi-Fi and stereo systems. Different types of sound recording. Movie Camera, Film projectors, Film developing and printing.

Use and functions of the following instruments, multimeter, VTVM, Oscilloscope, Signal generators Bridge circuits.

Transmission line and wave-guide, General nature of Radio and microwave propagation, Different types of antenna, RADAR, LORAN, DECCA.

Block diagram of Television receiver and Transmitter and its function, TV cameras, Picture tubes, Colour Television system.

Automatic Telephone exchange system Types of Transmission system; SSB, DSB Suppressed carries Trans-receiver communication systems; Duplex, Multiplex telecommunication system, satellite Telecommunication systems.

Different types of relays used in industrial control, Different types of servo-control system used in industry, Opto-Electronic system used in industry, Photo-transistors, Diac, Triac, FED, FET, SCR, LED, UJT, Operational amplifiers.

Binary concept, Boolean Algebra, Logic circuits, Decoder, Storage and shift register, Basic computer architect.

## (6) FOR MECHANICAL TECHNOLOGY

*Total Marks--100*

Symbols used in mechanical drawing, free-hand sketching of machine parts and mechanical gadgets Principles and operation of commonly used machine tools.

Press and press operations, Forging hammers, Dies and punches, Jiga and fixtures, feed mechanism Precision and non-precision gauges and instruments used in shop practices. Optical instruments for measuring and quality control, Metal finishing protective and decorative coatings, Corrosion, Preventive maintenance.

Iron ores and its processing.

Steel making processes.

Hot working and cold working processes, Alloy steels.

Non-ferrous metals and alloys commonly used in engineering practices—their composition, properties and uses.

Iron-carbon equilibrium diagram.

Heat treatment processes and equipment.

Micro structures of different kinds of steel before and after heat treatment.

Stress and Strain.

Destructive and non-destructive tests of different engineering materials.

Simple design problems in mechanical engineering practices.

Elements in production planning. Site selection and types of factory buildings plant Layout.

Cost analysis and cost control.

Inventory control.

Time and motion study.

Handling equipment.

Problems in shop management, shop Safety.

Patterns used for casting, Ferrous and non-ferrous castings.

Furnaces and other tools and equipment used in foundry practices.

**(7) FOR POWER TECHNOLOGY***Total Marks---100***Power Technology :**

Introduction to thermodynamics Units used. General energy equation, Properties of perfect gases. Thermodynamic process of perfect gases. Thermodynamic cycles. Reactive system.

Principles of hydraulics. Units used, Fluid pressure and its measurements Bernoulli's equation and its application, Flow through orifices mouth pieces and simple pipes. Losses of head of a flowing fluid due to sudden enlargement, Contraction obstruction in a pipe Hydraulic machineries such as water wheels, Reciprocation and centrifugal pumps, hydraulic jacks cranks, lifts etc.

Operating principles, Construction and application of different types of pumps, such as centrifugal, reciprocating Rotary and turbine pumps.

Installation, operation, maintenance, repair, fault training and tune up of different types of pumps.

Pump capacity selection and efficiency of pumps operation principle construction and application of air-compressor, blower, super charger etc.

Source and study of different energy Elementary practice in Diesel Steam hydraulic and Gas power plant, Site selection factors. Selection of various prime works. Protective devices used in power house Substation. Load of dispatch Centres.

Basic idea about plant economics Depreciation and its reserve methods. Study of various elements such as fixed energy. Customer, Customer's elements, investors profit etc. Determining annual operation cost and rate fixing, Station Performance. Load curves, Load Characteristics load scheduling.

Origin of Petroleum products, Fuel base, Preparation of fuels and lubricants and their characteristics Study of solid, Gases, and Liquid fuel and their handling. Fuel additives, Calorific value of solid and liquid fuel determination. Carbon residue in fuels and lubricant, Viscosity of liquid lubricants by the specific apparatus (Bomb Calorimeter, Condenser apparatus, Saybolt viscosimeter), Analysis of fuels gas:

Fuel injection and Carburation system. Study of Air cleaners, A.C. pumps, Carburetor injectors, Fuel mixture strength, Carburetor circuits fault diagnosis and repair of different system components (nozzles, injections pumps carburetors).

**Option "A" (Refrigeration and Air-Conditioning) :**

Basic Principles of refrigerations, Unit used Properties of Common refrigerants, Study of vapour compression cycles. P-H diagrams of single saturated cycle, classification, Construction and function of different parts of refrigerating unit. Method of derositing Vapour absorption system. Study of Psychrometric properties of Air, Domestic and Commercial Air-conditioning system. Construction and operation of see plant and Cold storage, Colling load Calculations and selection of equipment, operation Maintenance and repair of domestic refrigerating units, its electric circuits, Installation, Multiunit installation of Industrial refrigeration plants, Compound compression system, its principles and operation.

Service operation and trouble shooting practice if industrial refrigeration systems such as Ice plant, Cold storage plant and central air-conditioning plant.

**Option 'B' (Auto diesel) :**

Principles of operation of S.I.& C.I. engines with P.V. diagrams. Engines components Fuel systems Ignition system, Lubrication and cooling system brake and power transmission systems.

Specific fuel consumption IHP. BHP. mechanical efficiency, Compression test, Ignition tuning, Leakage, test, vacuum test, exhaust gas analysis by orsat apparatus.

Fault diagnosis and tune up of starting Ignition, charging and fuel systems, brake and clutch systems.

Systematic disassembling of engine parts, Decarbonizing, Inspection procedure of work parts such as crank-shaft, valveseats, cylindres, rings, pistons sleeve bearing etc. and their overhauling.

**(8) FOR GRAPHIC ARTS***Total Marks—100*

Bookbinding classification, covering styles binding materials, folding, techniques; book sewing methods and paper smasing, rounding, jointing, case making and casing-in-operation, gold, blocking, book finishing, pamphlet, and magazine binding, adhesive binding.

Estimating equipment, standard estimating forms materials expenses, various methods of casting of copies, copy fitting; lithographic estimation, calculation of materials, cellophane, polythene etc.

The terminology of photo composition, advantage of photo composition, four kinds of photo composition, Photo-

Current trends in the various fields of industrial design and graphic design, desirability of complete up-to-date knowledge of materials available for graphic design and fine art preparation, back-grounds and surfaces, drawing papers and boards, acetates and foils.

Chemistry of paper and ink, basic raw materials for a paper making and ink, methods of paper-making, adding fibrous materials to pulp, grain direction two sidedness, density, hygroscopic properties, printability test, dimensional stability, curling tendency, thickness, colour, brightness, capacity, smoothness, glass etc. and their testing applications of this will be printing, prociuros; essential information for ink specification; working properties of ink; types of printing inks, ink pigments.

The role of management, Management responsibilities to group outside and inside the company, public relations, Management and success leadership; objective-specific internal objectives, Decision-making, personnel organisation line and staff relationship, the nature of staff authority, ideal relations between line and staff, Organisation structures---functional---organisation structure, accidents safety programmes, primary qualities of salesman.

Main types of offset plates, equipment for plate making, plate-making materials.

Colour theory and principal application in printing; colour dimensions tone, hue intensity and colour preference; additive and subtractive colour and its application colour selection consideration, colour values with spectro-photometer transparent and opaque ink combining colour inks, types of emulsion in colour works, colour photography various stages process colour reproduction, colour in separation and colour correction techniques, simple colour printing in offset press, press adjustment.

Relation between ink plate and printing press, principles of formulation of ink, mixing and milling laboratory test, short and long-term testing of ink, various testing equipment available in market colour machine techniques, time changing temperature, humidity and processing variables, introduction of automatic plate processing equipment and their limitations press problems ink layer thickness gauge modern technique.

Procedure for flat colour printing, masked separations, duplicate negative for stripping, hand cut dry film and overlays etc. auctone fake colour reproduction, problems associated with production of separation negative Multi-colour press operation, operation of hydelbarg presses, multiconstruction offset Printing.

Planning layout, selection of proper stripping methods, preparation of key layout-high accurate key layout, assembling of line and halftone works, negative flats, flim by superimposition, positive film assemblies, technique of dry stripping.

Importance of screen, types of screen and their suitability, halftone dot pattern, vignetted do't patterns, theory of halftone photography, types of illuminants, control on exposures, types of original or reproduction, making halftone negatives with various typers of screen making, halftone.

Copy for colour reproduction, importance of colour separation in graphic arts industry, types of colour separation-direct and indirect processes, separation from masked transparencies systems in outline, preparing the transparency, exposing the make masks, checking the masks, contract separations, advantage and disadvantages of both methods, evaluation of separation negative post treatment of negative and positive fake colour reproduction.

Importance of colour corrections, colour correction methods photographic making, manual colour correction and electronic colour correction, principles of undercolour removal, colour filters colour separation procedures.

Colour correction making silver masking of transparencies preparation of transparency, exposing the masks, processing the masks checking the masks, undercolour removal, dot etching, suitability for dot etching, flat etching staging and etching local reduction and intensification, checking progress of corection, colour profing methods, general description of electronic colour separation scanner.

### PAPER-III

#### B.C.S. (TELECOMMUNICATION) CADRE

Total Marks—100

#### Theoretical Papers :

The question paper will have a total of ten questions, one from each of the ten sections (A) to (J). Six questions will have to be answered by each candidates---giving a possible maximum of 60 marks for theory. The ten sections are composed of four on General and Lines topics. In addition, there would be three sections covering topics relating to Switching and three sections covering topics relation to Transmission.

Each candidate should be required to answer a minimum of 20 and a maximum of 30 questions.

Typical syllabi for section A to J follow. These would need to be adjusted to suit the current coverage in these areas in the Bangladesh T&T.

The topics covered in each section are :

- A—Digital Techniques and Recent Trends in Telecommunications
- B—Power Plant and Air-conditioning
- C—Local Lines and Cables
- D—Trunk Lines and Cables
- E—Telegraphy and Telex
- F—Manual Telephony
- G—Auto Exchanges and Subscriber Trunk Dialling
- H—VFT, Carrier Systems and Multiplexing
- I—HF, VHF, UHF and Microwave System
- J—Satellite Systems

### Practical Work

The candidate will be given a choice of 12 questions for practical work. The coverage would broadly include four questions from each main area of General and Lines; Switching; and Transmission. The questions will generally test the candidate's knowledge of principles and methods. He will be allowed full use of instrument manuals and other job aids. He may attempt any two of the questions, satisfactory completion of which will entitle him to a maximum of 40 marks. Each candidate would require to secure a minimum of 20 marks (out of the maximum 40 marks) to qualify in practical work.

Typical model practical exercises are given at the end of the sections relating to theory. These are only indicative questions and more tests can be devised to cover the area of practical expertise needed by officers in their respective fields. However, the questions should be so framed that only those with an adequate knowledge of the subject would be able to satisfy the standards of performance required. A superficial knowledge any area should not be enough to enable candidates to qualify.

#### SECTION-A : DIGITAL TECHNIQUES AND RECENT TRENDS IN TELECOMMUNICATIONS

- |  |   |   |
|--|---|---|
| 1. Basic Concepts                        | : | Bivalent logic, truth tables, symbolic representation, logic equations, basic gates, timing diagram, NAND and NOR gates, EXOT gates.  |
| 2. Boolean Algebra                       | : | Boolean expressions, logic representations of Boolean statements, Theorems of Boolean Algebra De Morgan's theorem, simplification of functions.   |
| 3. Memory Elements                       | : | R-S latches and flip flops, J-K flip flops clocked flip flops shift registers.  |
| 4. Arithmetic Circuits                   | : | The half adder and full adder, serial and parallel addition, subtraction multiplication and division principles.  |
| 5. Number Systems                        | : | Radix equation, conversion of numbers to different bases, binary, ternary, octal and hexa decimal systems. Addition of binary numbers, subtraction by complements multiplication and division.        |
| 6. Counters and registers                | : | Shift registers, up and down counters, Johnson and Ring counters.   |
| 7. Recent trends in Tele-communications. | : | Basic understanding of principles relating to SPC electronic exchanges, pulse code modulation systems, Rural concentrator radio systems, Cellular mobile communications, Micro-computer applications. |

#### SECTION-B: POWER PLANT AND AIR-CONDITIONING

- |                              |   |   |
|------------------------------|---|---|
| 1. Secondary Cells (Basic)   | : | Specific Gravity and voltage variation during charge, effect of temperature, ampere hour and watt hour efficiency, related capacity discharge curves. |
| 2. Installation of batteries | : | Assembly of cells, preparation of electrolyte, precautions, first charge and completion of charge, test discharge.                                    |

- |                                       |    |  |
|---------------------------------------|----|--|
| 4. Rectifiers                         |    | Circuit arrangement using rectifiers, half wave and full rectification battery eliminators, voltage regulation using saturable chokes, magnetic amplifiers and transducers.                                    |
| 5. Engine generators                  | .. | Engine operating principles, cooling system, lubricating systems, electrical system, fuel injection, generator operation and control arrangements, trouble shooting.   |
| 6. Transformers                       | .. | H.T. supply arrangements, substation facilities, earth connections circuit breakers, voltage regulators, safety precautions.   |
| 7. Power Supply (Telephone Exchange). | .. | Typical power supply and distribution arrangements in manual and auto exchanges, calculation of battery sizes and leads, Bushes and power cables, standby arrangements.  |
| 8. Power Supply (Transmission Eq).    | .. | Typical power supply and arrangements for Carrier, coaxial and microwave stations, no break supplies for satellite stations, standby arrangements.   |
| 9. Air-conditioning                   | .. | Air conditioning for Telecom. Buildings, calculation of loads and load factors, central and window types of equipment, performance testing of air-conditioning equipment, operation and maintenance practices. |

#### SECTION-C : LOCAL LINES AND CABLES

- |  |    |  |
|--|----|--|
| 1. Line Materials and Fittings.              | .. | Types of posts, tubular post components, post fittings, brackets, stays, sockets, line materials, insulators, splices, binder, etc.                                    |
| 2. Marking out lines                         | .. | Standard dimensions, preparation of line books marking a line.   |
| 3. Erecting and fittings lines.              | .. | Digging holes for posts, fitting of standards, distribution, jointing and paying out of wires, precautions with copper wires, termination and leading in arrangements. |
| 4. Aerial cables                             | .. | Use of drop wires for distribution, construction practices.  |
| 5. Cable planning                            | .. | Cables distribution in local exchange areas, cable planning cabinets and pillars, distribution points.   |
| 6. Cable laying                              | .. | Different types of cables jointing methods as used in Bangladesh, standard methods in route preparation and cable laying.  |
| 7. Cable pressurisation, ducts and manholes. | .. | Details of methods adopted in Bangladesh.  |
| 8. Fault localisation and repair.            | .. | Cable fault localisation, testing and localisation methods.  |
| 9. Cable loading                             | .. | Loading coils and cable loading methods, reasons for loading conditions where loading is not admissible.   |
| 10. Cable records                            | .. | Methods of maintenance of cable records.   |

#### SECTION-D : TRUNK LINES AND CABLES

- |                     |    |   |
|---------------------|----|---|
| 1. Trunk lines      | .. | Use of open wire lines for trunk circuit provision, transposition schemes.  |
| 2. Noise induction  | .. | Cause of noise and crosstalk in open wire lines, near end and far end crosstalk measurement methods.                    |
| 3. Trunk cables     | .. | Constructional details transmission characteristics, suitability for wide band transmission.                            |
| 4. Cable balancing  | .. | Symmetrical cables, capacitance unbalance, crosstalk balancing of cables.   |
| 5. Coaxial cables   | .. | Constructional details, transmission characteristics, special advantages of coaxial cables, applications in Bangladesh. |
| 6. Special cables   | .. | Protection and armouring polythene jacketed cables, jelly filled cables, screened cables.                               |
| 7. Testing methods  | .. | Pulse echo test sets, cable route locators.   |
| 8. Masts and towers | .. | Special arrangements for tall masts, standard designs, guyed masts self-supporting towers.                              |

**SECTION-E : TELEGRAPHY AND TELEX**

1. Introduction .. Necessity of telegraph codes, morse and five unit codes.
2. Telegraph services .. Single current and double current working, simplex and duplex circuits. morse instruments, polarised sounders.
3. Teleprinters .. Advantages, start-stop principles, telegraph speed, the Band.
4. Teleprinter machines .. Features of different models of Siemens make in use; 68d, T100, T1000.
5. Telex .. Introduction to auto telex, circuit switching principles, features of electromechanical type of telex in use in Bangladesh, message switching principles and packet switching.
6. Testing .. Testing of subscriber's lines apparatus and the exchange.

**SECTION-F MANUAL TELEPHONY**

1. Introduction .. Basic requirements of switching systems and exchanges.
2. Components .. Telephone relays, constructional features, cords and plugs, types of telephones, antiside tone.
3. Types of manual exchange .. C.B. type of telephone exchanges, battery feed and signalling. Magne-to working in rural areas. Relative advantages and disadvantages, study of line circuits, operators, circuit, cord circuit, etc.
4. PBX .. Types of manual PBXs in use in Bangladesh cord and cordless types, extension instruments at subscribers, premises.
5. Trunk exchanges .. Working on trunk lines from manual switch boards, trunk line circuits cord and position circuits, supervisory arrangements-F36 type of trunk board, timing devices; enquiry and booking positions.

**SECTION-G: AUTO EXCHANGES AND SUBSCRIBER TRUNK DIALLING**

1. Introduction .. Principles of step by step selection decimal dialing signalling elements DC signalling;
2. Trunking diagram .. Establishment of automatic calls, switching mechanisms, basic differences in FI and EMD systems, multiexchange, area calls.
3. Switching elements in local exchanges .. The 1<sup>st</sup> & 2<sup>nd</sup> PS stages: The 1<sup>st</sup> & 2<sup>nd</sup> 3<sup>rd</sup> GS stages, the final selector, repeaters, other elements, test gear.
4. Switching elements in STD exchanges .. The STGS & LGS switches, Different types of repeaters in use in the STD system. The connecting path. Testing devices.
5. Traffic measurements .. Basic traffic theory, dimensioning of enchanges and junctions, traffic meters and their uses.

**SECTION-H: VFI/CARRIER SYSTEMS & MULTIPLEXING**

1. Introduction .. General features of open wire carrier & VFT/systems, hybrids, wire/4 wire working.
2. VFT systems .. Study of VFT system in use in Bangladesh.
3. Open wire carrier .. Use of frequency division multiplexing for carrier systems. Typical 3 channel and 12 channel systems, frequency generation.
4. Repeater .. Repeater spacing for 3 channel and 12 channel systems, repeater arrangements.
5. Signalling .. Signalling systems for channels, in band and out of band channel signalling.
6. Baseband .. Baseband generation for wideband systems. The 960 channel systems, basic group and supergroup translation, frequency stability and synchronisation.

**SECTION-I : HF, VHF, UHF AND MICROWAVE SYSTEMS**

1. **Propagation** : Behaviour of radio waves. ionospheric propagation, line of sight paths, reflection of waves.
2. **Path engineering** : Design of VHF UHF and microwave radio paths, feeding, calculation of path losses and design margins, antenna gains, tower height requirements.
3. **Transmit path (HF)** : Essentials, facilities provided, frequency stability, harmonic radiation power handling capacity.
4. **Receive path (HF)** : Essentials, fidelity, sensitivity, selectivity, S/N ratio, facilities provided AVC, noise limiters, band width control etc.
5. **VHF/UHF systems** : OCIR Frequency bands for VHF and UHF, design considerations, study of systems in use in Bangladesh.
6. **Microwave systems** : Typical links, general idea of wave guides, klystron and TWI system study of systems in use in Bangladesh.

**SECTION-J : SATELLITE SYSTEMS**

1. **Introduction** : Overview of satellite communication, the synchronous orbit, global coverage through geostationary satellite.
2. **Trans & receive path engineering** : System performance objectives, path losses, satellite power, G/T criterion.
3. **Earth stations** : Antenna size, standard A, B and C stations, frequency modulation, threshold levels, multiple access techniques, FDM-FM-FDMA, PCM-PSK-TDMA, a SCPC methods, communication systems, low noise amplifiers, high power amplifier stages and multiplexers, up/down converters.
4. **Space segment** : Satellite types, INTELSAT features, SSOG & SSOP compilations, operational management.
5. **Power system** : Special no break supply requirement for satellite stations.
6. **Microwave measurements** : Linearity, Deviation and group delay measurements noise measurements.

**Model Practical Tests :**

1. Setting up of calls using a call demonstration model and localisation of faults using the same equipment.
2. Use of testers to check trunk switch board positions and circuits.
3. Use of testers to carry out routine tests of different types of selector mechanisms in an EMD exchange.
4. Testing of subscribers lines from the test desk. Identification of different types of faults with indication of corrective measures needed.
5. Fault localisation of air-conditioning equipment using simulation trainers.
6. Testing of a standby engine alternator, locating faults and making it ready for service.
7. Carrying out specific gravity checks on exchange batteries, checking the health of individual cells, organising a test discharge and charge.
8. Localisation of a cable fault using a pulse echo meter.
9. Check of line up levels up to the group stage in multiplexing equipment.
10. Check of the system health of a wide band system using a White noise tester.
11. Check of microwave system linearity and deviation.



**PAPER—III****FOR B.C.S (TRADE) CADRE****Total Marks—100**

ACTS/ORDINANCE/ORDERS/RULES POLICY ETC. RELATING TO IMPORT, EXPORT, CUSTOMS SUPPLY, TARIFF, INSURANCE, TRADE ORGANISATION, COMPANY, AND INTERNATIONAL TRADE ORGANISATION :

**A—IMPORTS AND EXPORTS****I—EXPORT****MARKS**

- |   |    |
|---|----|
| 1. Export policy of Current year and Previous year. | 35 |
| 2. Tea Policy of Current year and Previous year.    | 10 |

**II—IMPORT**

- |   |    |
|---|----|
| 1. The Imports & Exports (Control) Act, 1950.                   | 15 |
| 2. Import Policy of Current year & Previous year.               |    |
| 3. Import, Trade Control Schedule, 1988.                        |    |
| 4. Importers, Exporters & Indentors (Registration) Order, 1981. |    |
| 5. The Licence and Permit Fess Order, 1985.                     |    |
| 6. The Review, Appeal & Revision Order, 1977.                   |    |

**III—CUSTOMS**

- |   |    |
|---|----|
| 1. The Customs Act, 1969.                           | 10 |
| 2. The Passenger (Non transit) Baggage Rules, 1986. |    |
| 3. The Transfer of Residence (Baggage) Rules, 1986. |    |
| 4. The Privileged Persons Baggage Rules, 1985.      |    |
| 5. The Pilgrims Baggage (Import) Rules, 1977.       |    |

**B—SUPPLY****25****I—PRICES AND MARKER INTELLIGENCE****10**

- |  |  |
|--|--|
| 1. The Control of Essential Commodities Act, 1956.                     |  |
| 2. The Essential Commodities Price & Distribution Control Order, 1975. |  |
| 3. The Essential Commodities Control Order, 1981.                      |  |
| 4. The Gold (Procurement & Distribution) Order, 1987.                  |  |

**II—COAL**

1. The Coal Distribution Order, 1957.

**III—PURCHASE**

1. The Purchase Manual.

**C—TARIFF**

1. The Tariff Act, 1934.
2. The Protective Duties Act (LXI of 1950)
3. Resolution No. ADMN-I-E-20/73/636 dated 28-7-73 of Ministry of Commerce constituting the Tariff Commission.

**D—INSURANCE**

1. The Insurance Act, 1938.

**E—TRADE ORGANISATION & COMPANY**

1. The Company Act, 1913.
2. Trade Organisation Ordinance, 1961.

**F—INTERNATIONAL TRADE ORGANISATION**

1. Main Text of GATT.
2. UN Resolution on UNCTAD.

ক, খ ও গ শ্রেণীর প্রত্যেকটি হইতে কমপক্ষে ৩টি করিয়া মোট ১০টি প্রশ্নের উত্তর দিতে হইবে।

(প্রত্যেক প্রশ্নের মান সমান)

**‘ক’-শ্রেণী**

- ১। আনসার ও গ্রাম প্রতিরক্ষা সংগঠনের উদ্দেশ্য, লক্ষ্য ও ভূমিকা।
- ২। আনসার ও গ্রাম প্রতিরক্ষা সংগঠনের সাংগঠনিক কাঠামো।
- ৩। গ্রাম প্রতিরক্ষা দল গঠনের পটভূমি এবং উহার ক্রম বিবর্তন।
- ৪। আনসার/ভিডিপি ক্লাব ও সমিতি গঠন ও পরিচালনা পদ্ধতি।
- ৫। বিভিন্ন পর্যায়ের আনসারের দায়িত্ব ও কর্তব্য।
- ৬। গ্রাম প্রতিরক্ষা দলের সদস্য-সদস্যদের দায়িত্ব ও কর্তব্য।
- ৭। ইউনিয়ন আনসার কমান্ডারদের দায়িত্ব ও কর্তব্য।
- ৮। ইউনিয়ন ভিডিপি দলপতি-দলনেত্রীদের দায়িত্ব ও কর্তব্য।
- ৯। কর্ম তালিকা বর্ণনা (যে-কোন একটি) :—  
(ক) মহাপরিচালক ;  
(খ) উপ-মহাব্যবস্থাপক ;  
(গ) পরিচালক ;  
(ঘ) উপ-পরিচালক (রেঞ্জ) ;  
(ঙ) জেলা অ্যাডজুটেন্ট ;  
(চ) ব্যাটালিয়ন অধিনায়ক ;  
(ছ) উপজেলা আনসার ও ভিডিপি অফিসার।
- ১০। বাংলাদেশ আনসার কল্যাণ তহবিল আদেশ-এর প্রধান দিকসমূহ।
- ১১। গ্রাম প্রতিরক্ষা দল কল্যাণ তহবিল আদেশ-এর প্রধান দিকসমূহ।
- ১২। আনসার ভিডিপি বিভাগীয় কল্যাণ তহবিল আদেশ-এর প্রধান দিকসমূহ।

**‘খ’-শ্রেণী**

- ১৩। আনসার জাতীয় পদক ও রাষ্ট্রপতি পদক আদেশের ব্যাখ্যা।
- ১৪। ভিডিপি জাতীয় পদক ও রাষ্ট্রপতি পদক আদেশের ব্যাখ্যা।
- ১৫। আনসার ভিডিপি সদস্য-সদস্যদের জন্য বিভিন্ন কল্যাণমুখী প্রকল্পসমূহ।
- ১৬। আনসার অঙ্গীভূতকরণ বিধি-পদ্ধতি অঙ্গীভূত আনসারের ভাতা, রেশন ও অন্যান্য সুযোগ-সুবিধা।
- ১৭। উপজেলা প্রশিক্ষিকা ও মহিলা আনসার নিয়োগ ও অপসারণ পদ্ধতি। তাহাদের ভাতা, রেশন ও অন্যান্য সুযোগ-সুবিধা।
- ১৮। জেলা, ব্যাটালিয়ন সদর ও উপজেলা কার্যালয় পরিদর্শনের বিষয় ও পদ্ধতিসমূহ।
- ১৯। আনসার ব্যাটালিয়নের সাংগঠনিক রূপরেখা—ব্যাটালিয়নের পরিচালনা—ব্যাটালিয়নের দায়িত্ব ও কর্তব্য (সমতল এলাকা ও পার্বত্য চট্টগ্রাম)।
- ২০। ব্যাটালিয়ন পরিচালনা, দরবার, জওয়ানদের কল্যাণ, নথিপত্র ও দলিল প্রস্তুত এবং সংরক্ষণ পদ্ধতি।
- ২১। স্বেচ্ছাসেবী সংগঠন পরিচালনা ও স্বেচ্ছাসেবকদের উদ্বুদ্ধকরণ কৌশল।
- ২২। আনসার-ভিডিপি সমাবেশ নীতিমালা বর্ণনা।
- ২৩। আনসার-ভিডিপি প্রশিক্ষণের মৌলিক দিকসমূহ বর্ণনা।
- ২৪। বিভিন্ন ক্ষেত্রে আনসার/ভিডিপি সংগঠনের কর্মতৎপরতার লেখ-চিত্র।

**‘গ’-শ্রেণী**

- ২৫। যুদ্ধের বিভিন্ন পর্যায়সমূহ।
- ২৬। যুদ্ধের প্রস্তুতি-পর্ব।
- ২৭। প্রতিরক্ষার মূল নীতিসমূহ।
- ২৮। প্রতিরক্ষায় আনসার ব্যাটালিয়ন/কোম্পানীর ভূমিকা।
- ২৯। আক্রমণের নীতিমালা।
- ৩০। হানা (রেইড) দেওয়ার প্রকার ও পদ্ধতি।
- ৩১। ফাঁদের (অ্যামবুস) পদ্ধতি ও প্রয়োজনীয়তা।
- ৩২। প্যাট্রোলিং-এর প্রকার ও পদ্ধতি এবং প্রয়োজনীয়তা।
- ৩৩। রণক্ষেত্রে মৌলিক আদেশসমূহের প্রয়োজনীয়তা, প্রকার ও উহার বাস্তবায়ন।
- ৩৪। ব্যাটালিয়ন/কোম্পানীর অগ্রসার-অন্যন পদ্ধতিসমূহ।

বি.সি.এস (সাধারণ শিক্ষা) ক্যাডারভুক্ত কর্মকর্তাদের সিনিয়র স্কেলে পদোন্নতি পরীক্ষার সিলেবাস

তৃতীয় পত্র

বিষয় : ফাইন্যান্স এন্ড ব্যাংকিং

সময় : ৩ ঘন্টা

পূর্ণমান : ১০০

পাস নম্বর : ৫০

1. Concepts of Finance: Finance Functions; Goal of the Firm. Concepts of Risk and Return. Time value of money; Valuation Concepts.
2. Sources of Financing; Short-term financing. Long-term financing through Common stock. Preferred stock and Bonds; Lease financing and term loan.
3. Capital budgeting and cash flow principles; Capital budgeting techniques- ARR, PBP, NPV, IRR, MIRR, PI; Risk in Capital Budgeting. Cost of Capital.
4. Capital structure theory and policy—Firm Value and Capital Structure. Optimum Capital Structure; Costs of financial distress.
5. Dividend Theory and Policy-Dividend and Firm value; Cash and Stock Dividend. Stock Split, Reverse Split.
6. Financial Planning and Forecasting-Short and Long term plans, Budgeting-Performance Budgeting.
7. Working Capital.
8. Capital Market Operations in Bangladesh-Stock Exchanges-automation vs outcry system, settlement and clearing; Securities and Exchange Commission as the Regulator of securities market-Functions and Responsibilities of SEC; Investment Banking in Bangladesh.
9. Banker-customer relationship; Banker as agent; trustee; executor & administrator.
10. Negotiable Instruments Act; Payments & Collections of promissory notes, bills & Cheque.
11. Investment in securities; Loans and cheque; Loans and advances; Cash credit, overdrafts; Different forms of loans with and without collateral, securities & guarantees. Securities and conditions for acceptable securities.
12. Credit Analysis; Lending Risk Analysis, Z-Score and Y-Score of judging creditworthiness.
13. Financial Sector Reforms—Interest Rate Liberalization, Exchange Rate Convertibility; Loan Classifications and Provisioning.
14. Insurance; Identification and management of risk; Scope of insurance; Nature and functions of insurance; Different insurance policies.
15. Principles of insurance-Insurable interest, Indemnity, Subrogation, Contribution, Utmost Good Faith, Proximate cause;
16. Reinsurance; Insurance in Bangladesh.

## Unit-1: Introduction

## Unit-2: Historical Background

### Unit-3: Social Organization

## Unit-4: Acquisition & Weeding

## Unit-5: Catalogue

- Definition, purpose, functions of catalogue.
- Characteristics of and ideal catalogue.
- Outer of Physical forms, comparative studies.
- Inner forms, types and kinds, merits and demerits of classified and dictionary catalogues.

### **Purpose, usefulness and functions of classification.**

Principles of library management, Elements of library management, Library cooperation and resource sharing. Censorship & library legislation.

Importance of bibliographical control, kinds of bibliography, Difference between bibliography & catalogue, Methods of preparing bibliography.

Sources of information. documentary and non-documentary, primary, secondary, tertiary and mixed group of sources, reference materials, encyclopedias, dictionaries, almanacs, handbooks, manuals, gazetteers, biographical sources, etc.

Digital Library, concepts, necessity, functions, characteristics, major activities and skills of digital librarianship.

[illegible]

## 4. OBJECTIVES

To study the health policy of GOI (Government of India) with due importance to oral health policy & Oral health programme.

## 5. HEALTH AND FAMILY PLANNING SERVICE STRUCTURE

10

- Organisation of Ministry of Health and Family Welfare
- Organisation of Health services from DPH to field level
- Job description of all level officers/staff of DPH
- Different brackets and positions and numbers of dental surgeons

## 6. PROFESSIONAL KNOWLEDGE

70

### a) Promotion of Oral Health and Prevention of Oral Diseases

15

- Dental Public Health
- Preventive & Community Dentistry

Common Problems  
Diagnosis and Treatment

50

### b) Curative

- Oral & Maxillofacial Surgery and Anesthesiology
- Oral Medicine
- Conservative Dentistry
- Periodontology
- Oral Bone Dentistry
- Oral Cancer / Dentofacial Orthopedics
- Dental Radiology

Common Problems  
Diagnosis and Treatment

### c) Medical-legal affairs

5

- Medical-legal aspects of dental work
- Forensic dentistry
- Medical-legal aspects of dental work

Handwritten signature and stamp.

জরুরী

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার  
স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়  
পার-২ অধিশাখা  
[www.mohfw.gov.bd](http://www.mohfw.gov.bd)

নং-৪৫.১৪৩.০৮৭.০৭.০০.০০১.২০১৬-৮০১

তারিখঃ ১৩/১১/২০১৬ খ্রিঃ

বিষয়ঃ বাংলাদেশ সিভিল সার্ভিস ক্যাডারভুক্ত কর্মকর্তাদের সিনিয়র স্কেলে পদোন্নতি পরীক্ষা ফেব্রুয়ারি ২০১৭ প্রসঙ্গে।

সূত্রঃ বাংলাদেশ সরকারী কর্ম কমিশন সচিবালয়ের ২৭/১০/২০১৬ তারিখের ১৭৬ সংখ্যক পত্র।

সূত্রোক্ত বিষয়ের বরাতে জানানো যাচ্ছে যে, সিনিয়র স্কেলে পদোন্নতির জন্য লিখিত পরীক্ষার online-এ পূরণকৃত আবেদন পত্রের hard copy চাকুরি স্থায়ীকরণ আদেশসহ আগামী ৩০ নভেম্বর ২০১৬ তারিখের মধ্যে অফিস চলাকালীন সময়ে কমিশন সচিবালয়ে পৌছানোর নির্দেশনা প্রদান করা হয়েছে। ৩০ নভেম্বর ২০১৬ তারিখের পরে প্রাপ্ত আবেদনসমূহ বাতিল বলে গণ্য হবে মর্মেও জানানো হয়েছে। বাংলাদেশ সিভিল সার্ভিস ক্যাডারভুক্ত কর্মকর্তাদের সিনিয়র স্কেলে পদোন্নতি পরীক্ষা ফেব্রুয়ারি ২০১৭ এর নির্দেশনা সম্বলিত পিএসসি'র একটি বিজ্ঞপ্তি এবং সিনিয়র স্কেলে পদোন্নতি পরীক্ষার সিলেবাস পরবর্তী কার্যক্রম গ্রহণের জন্য নির্দেশক্রমে এতদসঙ্গে প্রেরণ করা হল।

২। সিনিয়র স্কেলে পদোন্নতির জন্য লিখিত পরীক্ষার online-এ পূরণকৃত আবেদন পত্রের hard copy চাকুরি স্থায়ীকরণ আদেশসহ পিএসসি'তে যথাসময়ে প্রেরণ কল্পে আগামী ২৪ নভেম্বর ২০১৬ তারিখের মধ্যে মন্ত্রণালয়ের পার-২ অধিশাখায় স্বাস্থ্য অধিদপ্তরের মাধ্যমে আবশ্যিকভাবে প্রেরণের জন্য নির্দেশক্রমে অনুরোধ করা হল। উল্লেখ্য পিএসসি'তে যথাসময়ে প্রেরণের জন্য ২৪ নভেম্বর ২০১৬ তারিখের পরে এবং স্বাস্থ্য অধিদপ্তরের মাধ্যম ব্যতিত প্রাপ্ত আবেদনপত্র পিএসসি'র নির্দেশনা অনুসারে প্রেরণের সুযোগ নেই।

সংযুক্তঃ ক) সূত্রোক্ত পত্র- ১ (এক) পাতা।  
খ) পিএসসি'র বিজ্ঞপ্তি- ২ (দুই) পাতা।  
গ) সিলেবাস- ৩৮ (আট ত্রিশ) পাতা।



(মইনউদ্দিন আহমদ)

উপসচিব (পার-২)

ফোনঃ ৯৫৪০৪৪৮

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পরিচালক,  
চিকিৎসা শিক্ষা ও স্বাস্থ্য জনশক্তি উন্নয়ন,  
স্বাস্থ্য অধিদপ্তর, মহাখালী, ঢাকা

অনুলিপি ও কার্যার্থেঃ

সিস্টেম এনালিস্ট,  
স্বাস্থ্য ও পরিবার কল্যাণ মন্ত্রণালয়  
(পত্রটি ওয়েব সাইটে প্রকাশের অনুরোধসহ)।