

Definition of order and degree of a differential equation, formation of a differential equation by examples. General and particular solution of a differential equations, solution of first order and first degree differential equations of various types—examples. Application in problems of growth and decay.

#### 7. VECTOR ALGEBRA :

Vectors in two and three dimensions, magnitude and direction of a vector. Unit and null vectors, addition of vectors, scalar multiplication of a vector, scalar product or dot product of two vectors. Vector product or cross product of two vectors. Applications—work done by a force and moment of a force and in geometrical problems.

#### 8. STATISTICS AND PROBABILITY :

Statistics : Classification of data, Frequency distribution, cumulative frequency distribution—examples. Graphical representation—Histogram, Pie Chart, frequency polygon—examples. Measures of Central tendency—Mean, median and mode. Variance and standard deviation—determination and comparison. Correlation and regression.

Probability : Random experiment, outcomes and associated sample space, events, mutually exclusive and exhaustive events, impossible and certain events. Union and Intersection of events. Complementary, elementary and composite events. Definition of probability—classical and statistical—examples. Elementary theorems on probability—simple problems. Conditional probability, Bayes' theorem—simple problems. Random variable as function on a sample space. Binomial distribution, examples of random experiments giving rise to Binominal distribution.

**PAPER-II**  
**GENERAL ABILITY TEST**  
**(Code No. 02)**  
**(Maximum Marks – 600)**

**Part 'A' – ENGLISH** **(Maximum Marks – 200)**

The question paper in English will be designed to test the candidate's understanding of English and workman like use of words. The syllabus covers various aspects like : Grammar and usage, vocabulary, comprehension and cohesion in extended text to test the candidate's proficiency in English.

**Part 'B' – GENERAL KNOWLEDGE** **(Maximum Marks – 400)**

The question paper on General Knowledge will broadly cover the subjects : Physics, Chemistry, General Science, Social Studies, Geography and Current Events.

- The syllabus given below is designed to indicate the scope of these subjects included in this paper. The topics mentioned are not to be regarded as exhaustive and questions on topics of similar nature not specifically

mentioned in the syllabus may also be asked. Candidate's answers are expected to show their knowledge and intelligent understanding of the subject.

### **Section 'A' (Physics)**

Physical Properties and States of Matter, Mass, Weight, Volume, Density and Specific Gravity, Principle of Archimedes, Pressure Barometer.

Motion of objects, Velocity and Acceleration, Newton's Laws of Motion, Force and Momentum, Parallelogram of Forces, Stability and Equilibrium of bodies, Gravitation, elementary ideas of work, Power and Energy. Effects of Heat, Measurement of Temperature and Heat, change of State and Latent Heat, Modes of transference of Heat. Sound waves and their properties, Simple musical instruments. Rectilinear propagation of Light, Reflection and refraction. Spherical mirrors and Lenses, Human Eye. Natural and Artificial Magnets, Properties of a Magnet, Earth as a Magnet.

Static and Current Electricity, conductors and Non-conductors, Ohm's Law, Simple Electrical Circuits, Heating, Lighting and Magnetic effects of Current, Measurement of Electrical Power, Primary and Secondary Cells, Use of X-Rays. General Principles in the working of the following:

Simple Pendulum, Simple Pulleys, Siphon, Levers, Balloon, Pumps, Hydrometer, Pressure Cooker, Thermos Flask, Gramophone, Telegraphs, Telephone, Periscope, Telescope, Microscope, Mariner's Compass; Lightning Conductors, Safety Fuses.

### **Section 'B' (Chemistry)**

Physical and Chemical changes. Elements, Mixtures and Compounds, Symbols, Formulae and simple Chemical Equations, Law of Chemical Combination (excluding problems). Properties of Air and Water.

Preparation and Properties of Hydrogen, Oxygen, Nitrogen and Carbondioxide, Oxidation and Reduction. Acids, bases and salts. Carbon—different forms. Fertilizers—Natural and Artificial. Material used in the preparation of substances like Soap, Glass, Ink, Paper, Cement, Paints, Safety Matches and Gun-Powder. Elementary ideas about the structure of Atom, Atomic Equivalent and Molecular Weights, Valency.

### **Section 'C' (General Science)**

Difference between the living and non-living. Basis of Life—Cells, Protoplasm and Tissues. Growth and Reproduction in Plants and Animals. Elementary knowledge of Human Body and its important organs. Common Epidemics, their causes and prevention.

Food—Source of Energy for man. Constituents of food, Balanced Diet. The Solar System—Meteors and Comets, Eclipses. Achievements of Eminent Scientists.

### **Section 'D' (History, Freedom Movement etc.)**

A broad survey of Indian History, with emphasis on Culture and Civilisation. Freedom Movement in India. Elementary study of Indian Constitution and Administration. Elementary knowledge of Five Year Plans of India. Panchayati Raj, Co-operatives and Community Development. Bhoodan, Sarvodaya, National Integration and Welfare State, Basic Teachings of Mahatma Gandhi.

Forces shaping the modern world; Renaissance, Exploration and Discovery; War of American Independence. French Revolution, Industrial Revolution and Russian Revolution. Impact of Science and Technology on Society. Concept of one World, United Nations, Panchsheel, Democracy, Socialism and Communism. Role of India in the present world.

### **Section 'E' (Geography)**

The Earth, its shape and size. Latitudes and Longitudes, Concept of time. International Date Line. Movements of Earth and their effects. Origin of Earth. Rocks and their classification; Weathering – Mechanical and Chemical, Earthquakes and Volcanoes. Ocean Currents and Tides. Atmosphere and its composition; Temperature and Atmospheric Pressure, Planetary Winds, Cyclones and Anti-cyclones; Humidity; Condensation and Precipitation; Types of Climate, Major Natural regions of the World. Regional Geography of India – Climate, Natural vegetation. Mineral and Power resources; location and distribution of agricultural and Industrial activities. Important Sea ports and main sea, land and air routes of India. Main items of Imports and Exports of India.

### **Section 'F' (Current Events)**

Knowledge of Important events that have happened in India in the recent years. Current important world events. Prominent personalities – both Indian and International including those connected with cultural activities and sports.

**NOTE :** Out of maximum marks assigned to part 'B' of this paper, questions on Sections 'A', 'B', 'C', 'D', 'E' and 'F' will carry approximately 25%, 15%, 10%, 20%, 20% and 10% weightages respectively.

### **Intelligence and Personality Test**

The SSB procedure consists of two stage Selection process - stage I and stage II. Only those candidates who clear the stage I are permitted to appear for stage II. The details are :

- (a) Stage I comprises of Officer Intelligence Rating (OIR) tests are Picture Perception \* Description Test (PP&DT). The candidates will be shortlisted based on combination of performance in OIR Test and PP&DT.

(b) Stage II Comprises of Interview, Group Testing Officer Tasks, Psychology Tests and the Conference. These tests are conducted over 4 days. The details of these tests are given on the website [joinindianarmy.nic.in](http://joinindianarmy.nic.in).

The personality of a candidate is assessed by three different assessors viz. The Interviewing Officer (IO), Group Testing Officer (GTO) and the Psychologist. There are no separate weightage for each test. The mks are allotted by assessors only after taking into consideration the performance of the candidate holistically in all the test. In addition, marks for Conference are also allotted based on the initial performance of the Candidate in the three techniques and decision of the Board. All these have equal weightage.

The various tests of IO, GTO and Psych are designed to bring out the presence/absence of Officer Like Qualities and their trainability in a candidate. Accordingly candidates are Recommended or Not Recommended at the SSB.

## APPENDIX-II

### INSTRUCTIONS TO THE CANDIDATES FOR FILLING ONLINE APPLICATION

Candidates are required to apply online by using the website [upsconline.nic.in](http://upsconline.nic.in)

Salient Features of the Online Applications Form are given hereunder:

- Detailed instructions for filling up Online Applications are available on the above mentioned website.
- Candidates will be required to complete the Online Application form containing two stages viz. Part I and Part II.
- The candidates are required to pay a fee of Rs. 100/- (Rupees one hundred only) [except SC/ST candidates and those specified in Note-2 of Para 4 of the Notice who are exempted from payment of fee] either by depositing the money in any branch of SBI by cash or by using net banking facility of State Bank of India/State Bank of Bikaner & Jaipur/State Bank of Hyderabad/State Bank of Mysore/State Bank of Patiala/State Bank of Travancore or by using any Visa/Master Credit/Debit Card.
- Before start filling up Online Application, a candidate must have his photograph and signature duly scanned in the .jpg format in such a manner that each file should not exceed 40 KB and must not be less than 3 KB in size for the photograph and 1 KB for the signature.
- The Online Applications (Part I and II) can be filled from 18<sup>th</sup> January, 2017 to 10<sup>th</sup> February, 2017 till 6.00 PM.
- Applicants should avoid submitting multiple applications. However, if due to any unavoidable circumstances any applicant submits multiple applications then he must ensure that the applications with higher RID is complete in all respects.
- In case of multiple applications, the applications with higher RID shall be entertained by the Commission and fee paid against one RID shall not be adjusted against any other RID.