Scheme of Exam for Direct Recruitment of Trained Graduate Teachers:

The written test is of 180 marks (180 objective type multiple choice questions) carrying 01 mark for each question. The duration of written test will be 180 minutes without any time limit for each part individually.

Section Name -Nature of Questions

Part I - Proficiency in Languages (20 marks):

A. General English-10 questions

B. General Hindi-10 questions

Part II – General awareness, Reasoning & Proficiency in Computers (20 marks)

4. General Awareness & Current Affairs (10 ques.)
5. Reasoning Ability (5 ques.)
6. Computer Literacy (5 ques.)

Part-III: Perspectives on Education and Leadership (40 questions)

(f) Understanding the Learner-(10 questions)

(g) Understanding Teaching Learning -(15 questions)

(h) Creating Conducive Learning Environment
(i) School Organization and Leadership
(j) Perspectives in Education
} (15 questions)

Part IV - Subject-specific Syllabus (100 marks)

Professional Proficiency Test:

The Professional Competency Test is of 60 marks (including Demo Teaching - 30 marks and Interview – 30 Marks).

Note:

The weightage of Written Test & Professional Competency (Demo Teaching: 15 and Interview: 15 will be 70:30 Final merit list will be based on the performance of the candidate in Written Test & Professional Competency Test taken together.

Syllabus of Exam for Direct Recruitment of Trained Graduate Teachers:

Part I - Proficiency in Languages (20 marks):

(a) General English(10 questions)

Reading comprehension, word power, Grammar & usage

(b) General Hindi(10 questions)

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Part II – General awareness, Reasoning & Proficiency in Computers (20 marks):

(j) General Awareness& Current Affairs (10 questions)

(k) Reasoning Ability (5 questions)

(l) Computer Literacy(5 questions)

Part III -Perspectives on Education and Leadership (40 marks):

(c) Understanding the Learner (10 questions)

- Concept of growth, maturation and development, principles and debates of development, development tasks and challenges
- Domains of Development: Physical, Cognitive, Socio-emotional, Moral etc., deviations in development and its implications.
- Understanding Adolescence: Needs, challenges and implications for designing institutional support.
- Role of Primary and Secondary Socialization agencies. Ensuring Home school continuity.

(d) **Understanding Teaching Learning (15 questions)**

- Theoretical perspectives on Learning -Behaviorism, Cognitivism and Constructivism with special reference to their implications for:
  - vii. The role of teacher
  - viii. The role of learner
  - ix. Nature of teacher-student relationship
  - x. Choice of teaching methods
  - xi. Classroom environment
  - xii. Understanding of discipline, power etc.
- Factors affecting learning and their implications for:
  - iv. Designing classroom instructions,
  - v. Planning student activities and,
  - vi. Creating learning spaces in school.
- Planning and Organization of Teaching-Learning
  - viii. Concept of Syllabus and Curriculum, Overt and Hidden Curriculum, Principles of curriculum organization
  - ix. Competency based Education, Experiential learning, etc.
  - x. Instructional Plans: -Year Plan, Unit Plan, Lesson Plan
  - xi. Instructional material and resources
  - xii. Information and Communication Technology(ICT) for teaching-learning
  - xiii. Evaluation: Purpose, types and limitations. Continuous and Comprehensive Evaluation,Characteristics of a good tool.
  - xiv. Assessment of learning, for learning and as learning: Meaning, purpose and considerations in planning each.
- Enhancing Teaching Learning processes: Classroom Observation and Feedback, Reflections and

Dialogues as a means of constructivist teaching

c.) Creating Conducive Learning Environment(06 questions)

- The concepts of Diversity, disability and Inclusion, implications of disability as social construct, types of disabilities-their identification and interventions
- Concept of School Mental Health, addressing the curative, preventive and promotive dimensions of mental health for all students and staff. Provisioning for guidance and counselling.
- Developing School and community as a learning resource.

(d) School Organization and Leadership(06 questions)

- Leader as reflective practitioner, team builder, initiator, coach and mentor.
- Perspectives on School Leadership: instructional, distributed and transformative
- Vision building, goal setting and creating a School development Plan
- Using School Processes and forums for strengthening teaching learning-Annual Calendar, time-tabling, parent teacher forums, school assembly, teacher development forums , using achievement data for improving teaching –learning, School Self Assessment and Improvement
- Creating partnerships with community , industry and other neighbouring schools and Higher Education Institutes – forming learning communities

(e)Perspectives in Education(03 questions)

- Role of school in achieving aims of education.
- NEP-2020: Curriculum and Pedagogy in Schools: Holistic & Integrated Learning; Equitable and Inclusive Education: Learning for All; Competency based learning and Education.
- Guiding Principles for Child Rights, Protecting and provisioning for rights of children to safe and secure school environment, Right of Children to free and Compulsory Education Act, 2009,
- Historically studying the National Policies in education with special reference to school education;
- School Curriculum Principles: Perspective, Learning and Knowledge, Curricular Areas, School Stages, Pedagogy and Assessment

Part IV – Subject-specific Syllabus (100 marks): Refer Annexure

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Professional Competency Test:

The Professional Competency Test is of 60 marks (Demo Teaching -30 marks and Interview -30 Marks)

Note: The weightage of Written Test & Professional Competency Test (Demo Teaching and Interview) will be 70:30. Final merit list will be based on the performance of the candidates in Written Test, Professional Competency Test taken together.

Syllabus for the post of TGT – Science

Subject specific syllabus includes the concepts of NCERT/CBSE syllabus and Text Books (Classes VI to X), however, the questions will be testing the depth of understanding and application of these concepts at the level of Graduation.

Matter-Nature and Behaviour

Definition of matter; solid, liquid and gas; characteristics - shape, volume, density; change of state melting (absorption of heat), freezing, evaporation (cooling by evaporation), condensation, sublimation.

Nature of matter:

Elements, compounds and mixtures. Heterogeneous and homogenous mixtures, colloids and suspensions.Physical and chemical changes (excluding separating the components of a mixture).

Particle nature and their basic units:

Atoms and molecules, Law of Chemical Combination, Chemical formula of common compounds, Atomic and molecular masses.

Structure of atoms:

Electrons, protons and neutrons, Valency, Atomic Number and Mass Number, Isotopes and Isobars.

Chemical reactions:

Chemical equation, Balanced chemical equation, implications of a balanced chemical equation, types of chemical reactions: combination, decomposition, displacement, double displacement, precipitation, endothermic exothermic reactions, oxidation and reduction.

Acids, bases and salts:

Their definitions in terms of furnishing of H+ and OH– ions, General properties, examples and uses, neutralization, concept of pH scale (Definition relating to logarithm not required), importance of pH in everyday life; preparation and uses of Sodium Hydroxide, Bleaching powder, Baking soda, Washing soda and Plaster of Paris.

Metals and nonmetals:

Properties of metals and non-metals; Reactivity series; Formation and properties of ionic compounds; Basic metallurgical processes; Corrosion and its prevention.

Carbon compounds:

Covalent bonding in carbon compounds. Versatile nature of carbon.Homologous series. Nomenclature of carbon compounds containing functional groups (halogens, alcohol, ketones, aldehydes, alkanes and alkynes), difference between saturated hydro carbons and unsaturated hydrocarbons. Chemical properties of carbon compounds (combustion, oxidation, addition and substitution reaction). Ethanol and Ethanoic acid (only properties and uses), soaps and detergents.

Cell - Basic Unit of life :

Cell as a basic unit of life; prokaryotic and eukaryotic cells, multi cellular organisms; cell membrane and cell wall, cell organelles and cell inclusions; chloroplast, mitochondria, vacuoles, endoplasmic reticulum, Golgi apparatus; nucleus, chromosomes – basic structure, number.

Tissues, Organs, Organ System, Organism:

Structure and functions of animal and plant tissues (only four types of tissues in animals; Meristematic and Permanent tissues in plants).

Life processes:

'Living Being'.Basic concept of nutrition, respiration, transport and excretion in plants and animals.

Control and co-ordination in animals and plants:

Tropic movements in plants; Introduction ofplant hormones; Control and co-ordination in animals: Nervous system; Voluntary, involuntary andreflexaction;Chemical co-ordination:animalhormones.

Reproduction:

Reproduction in animals and plants (asexual and sexual) reproductive health – need and methods of family planning . Safe sex vs HIV/AIDS. Child bearing and women's health.

Heredity and Evolution:

Heredity; Mendel's contribution-Laws for inheritance of traits: Sex determination: brief introduction evolution.

Motion:

Distance and displacement, velocity; uniform and non-uniform motion along a straight line; acceleration, distance-time and velocity-time graphs for uniform motion and uniformly accelerated motion, elementary idea of uniform circular motion.

Force and Newton's laws :

Force and Motion, Newton's Laws of Motion, Action and Reaction forces, Inertia of a body, Inertia and mass, Momentum, Force and Acceleration.

Gravitation:

Gravitation; Universal Law of Gravitation, Force of Gravitation of the earth (gravity),AccelerationduetoGravity;Mass andWeight;Freefall.

Floatation:

Thrust and Pressure. Archimedes' Principle; Buoyancy.

Work, Energy and Power:

Work done by a Force, Energy, power; Kinetic and Potential energy; Law of conservation of energy).

Sound:

Nature of sound and its propagation in various media, speed of sound, range of hearing in humans; ultra sound; reflection of sound; echo.

Effects of Current

Electric current, potential difference and electric current. Ohm's law; Resistance, Resistivity, Factors on which the resistance of a conductor depends. Series combination of resistors, parallel combination of resistors and its applications in daily life. Heating effect of electric current and its applications in daily life. Electric power, Interrelation between P, V, I and R.

Magnetic effects of current

Magnetic field, field lines, field due to a current carrying conductor, field due to current carrying coil or solenoid; Force on current carrying conductor, Fleming's Left Hand Rule, Electric Motor, Electromagnetic induction. Induced potential difference, Induced current. Fleming's Right Hand Rule, Electric Generator, Direct current. Alternating current: frequency of AC. Advantage of AC over DC. Domestic electric circuits.

Food Production

Plant and animal breeding and selection for quality improvement and management; Use of fertilizers and manures; Protection from pests and diseases; Organic farming.

Natural Phenomena

Reflection of light by curved surfaces; Images formed by spherical mirrors, centre of curvature, principal axis, principal focus, focal length, mirror formula (Derivation not required), magnification. Refraction; Laws of refraction, refractive index. Refraction of light by spherical lens; Image formed by spherical lenses; Lens formula (Derivation not required); Magnification. Power of a lens. Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses. Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life

Our environment:

Eco-system, Environmental problems, Ozone depletion, waste production and their solutions. Biodegradable and non-biodegradable substances.