ANNEXURE - B

ADMISSIONS REGULATING AUTHORITY

Syllabus for following CETs

for the admissions of Academic Year 2016-17

"Common Entrance Test" – 2016

1) MHT-CET-2016
2) PGM-PGD-CET-2016
3) PGP/PGO/PGASLP/MSC (P&O)-2016
4) MH-SSCET-2016
5) MBA/MMS
6) MCA
7) M. HMCT
8) M. ARCH
9) B. HMCT
10) B.Ed. / ELCT (English Language Content Test)
11) B.P.Ed.
12) M.Ed.
13) M.P.Ed.
14) LLB (5 Years)
15) LLB (3 Years)

महाराष्ट्र शासन

संचालनालय, वैद्यकीय शिक्षण आणि संशोधन, मुंबई

शासकीय दंत महाविद्यालय व रुग्णालय इमारत चौथा मजला, सेंट जॉर्जेस् रुग्णालय आवार, पी. डीमेलो रोड, फोर्ट, मुंबई- ४०० ००१
दुरध्वनी:+९१-२२-२२६२०३६१-६५/२२६५२२५१/५७/५९. टेलीग्रामः "MEDUCATNSEARCH" फॅक्सः+९१-२२-२२६२०५६२/२२६५२१६८
संकेतस्थळः http:/www.dmer.org

क्र. संवैशिवसं/एमएचटी-सीईटी २०१६/राममं/अभ्यासक्रम/२-अ/८७३ दिनांक : २०/०१/२०१६.

प्रति
मा. आयुक्त
राज्य सामाईक परीक्षा कक्ष,
बांद्रा (पूर्व), मुंबई - ४०० ०५१

विषय :- आरोग्य विज्ञान अभ्यासक्रमाकरीता घेण्यात येणा-या एमएचटी-सीईटी २०१६ प्रवेश परीक्षेच्या अभ्यासक्रमाबाबत.....

महाराष्ट्र राज्यातील सर्व आरोग्य विज्ञान अभ्यासक्रमांचे प्रवेशाकरीता एमएचटी-सीईटी ही प्रवेश परीक्षा गुरुवार दिनांक ०५ मे, २०१६ रोजी महाराष्ट्र राज्यात प्रत्येक जिल्हास्तरावर घेण्यात येणार आहे. ही परीक्षा एकूण २०० गुणांची असून परीक्षेचा अवधी तीन तासांचा असतो. २०० गुणांपैकी भौतिकशास्त्र व रसायनशास्त्र या विषयांसाठी प्रत्येकी ५० गुण व जीवशास्त्र व गणित या विषयांकरीता प्रत्येकी १०० गुणांची स्वतंत्र प्रश्न पत्रिका व उत्तर पत्रिका असतील. सर्व आरोग्य विज्ञान अभ्यासक्रमांकरीता घेण्यात येणारी राज्यस्तरीय प्रवेश परीक्षा (एमएचटी-सीईटी) ही महाराष्ट्र राज्य माध्यमिक व उच्च माध्यमिक मंडळ, पुणे यांनी ठरवून दिलेल्या **बारावीच्या अभ्यासक्रमाच्या धर्तीवर आधारीत असेल.** एमएचटी-सीईटी या प्रवेश परीक्षेकरीतांचे विषयनिहाय अभ्यासक्रमांचे तक्ते (भौतिकशास्त्र, रसायनशास्त्र, जीवशास्त्र व गणित) सोबत जोडले आहेत.

संचालक
वैद्यकीय शिक्षण व संशोधन, मुंबई

सोबत :
१) एमएचटी-सीईटी अभ्यासक्रमाकरीता महाराष्ट्र राज्य माध्यमिक व उच्च माध्यमिक शिक्षण मंडळ, पुणे यांनी ठरवून दिलेल्या चार अभ्यासक्रमांचे विषयनिहाय तक्ते.

प्रत :
मा. अप्पर मुख्य सचिव, वैद्यकीय शिक्षण औषधिद्रव्ये विभाग, गो. ते. रुग्णालय संकुल, ९ वा मजला, मंत्रालय, मुंबई.

Subject Wise Syllabus for MHT-CET 2016
Subject: Physics
(As prescribed by Maharashtra State Board of Secondary and Higher Secondary Education, Pune for Standard XII-Course)

1. Circular motion

Angular displacement, Angular velocity and angular acceleration, Relation between linear velocity and angular velocity, Uniform circular motion, Radial acceleration, Centripetal and centrifugal forces, Banking of roads, Vertical circular motion due to earth's gravitation, Equation for velocity and energy at different positions of vertical circular motion. Kinematical equations for circular motion in analogy with linear motion.

2. Gravitation

Newton's law of gravitation, Projection of satellite, Periodic time, Statement of Kepler's laws of motion, Binding energy and escape velocity of a satellite, Weightlessness condition in orbit, Variation of 'g' due to altitude, lattitude, depth and motion, Communication satellite and its uses.

3. Rotational motion

Definition of M.I., K.E. of rotating body, Rolling motion, Physical significance of M.I., Radius of gyration, Torque, Principle of parallel and perpendicular axes, M.I. of some regular shaped bodies about specific axes, Angular momentum and its conservation.

4. Oscillations

Explanation of periodic motion, S.H.M., Differential equation of linear S.H.M. Projection of U.C.M. on any diameter, Phase of S.H.M., K.E. and P.E. in S.H.M., Composition of two S.H.M.'s having same period and along same line, Simple pendulum, Damped S.H.M.

5. Elasticity

General explanation of elastic property, Plasticity, Deformation, Definition of stress and strain, Hooke's law, Poisson's ratio, Elastic energy, Elastic constants and their relation, Determination of 'Y', Behaviour of metal wire under increasing load, Applications of elastic behaviour of materials.

6. Surface tension

Surface tension on the basis of molecular theory, Surface energy, Surface tension, Angle of contact, Capillarity and capillary action, Effect of impurity and temperature on surface tension. wavelength by biprism experiment, Diffraction due to single slit, Rayleigh's criterion, Resolving power of a microscope and telescope, Difference between interference and diffraction.

7. Wave motion

Simple harmonic progressive waves, Reflection of transverse and longitudinal waves, Change of phase, Superposition of waves, Formation of beats, Doppler effect in sound.

8. Stationary waves

Study of vibrations in a finite medium, Formation of stationary waves on string, Study of vibrations of air columns, Free and Forced vibrations, Resonance.

9. Kinetic theory of gases and Radiation

Concept of an ideal gas, Assumptions of kinetic theory, Mean free path, Derivation for pressure of a gas, Degrees of freedom, Derivation of Boyle's law, Thermodynamics- Thermal equilibrium and definition of temperature, 1st law of thermodynamics, 2nd law of thermodynamics, Heat engines and refrigerators, Qualitative idea of black body radiation,Wein's displacement law, Green house effect, Stefan's law, Maxwell distribution, Law of equipartition of energy and application to Specific heat capacities of gases.

10. Wave theory of light

Wave theory of light, Huygens' Principle, Construction of plane and spherical wave front, Wave front and wave normal, Reflection at plane surface, Refraction at plane surface, Polarisation, Polaroids, Plane polarised light, Brewster's law, Doppler effect in light.

11. Interference and diffraction

Interference of light, Conditions for producing steady interference pattern, Young's experiment, Analytical treatment of interference bands, Measurement of wavelength by biprism experiment, Diffraction due to single slit, Rayleigh's criterion, Resolving power of a microscope and telescope, Difference between interference and diffraction.

12. Electrostatics

Gauss' theorem proof and applications, Mechanical force on unit area of a charged conductor, Energy density of a medium, Dielectrics and electric polarisation, Concept of condenser, Capacity of parallel plate condenser, Effect of dielectric on capacity, Energy of charged condenser, Condensers in series and parallel, van-deGraaff generator.

13. Current electricity

Kirchhoff's law, Wheatstone's bridge, Meter bridge, Potentiometer.

14. Magnetic effects of electric current

Ampere's law and its applications, Moving coil galvanometer, Ammeter, Voltmeter, Sensitivity of moving coil galvanometer, Cyclotron.

15. Magnetism

Circular current loop as a magnetic dipole, Magnetic dipole moment of revolving electron, Magnetisation and magnetic intensity, Diamagnetism, Paramagnetism, Ferromagnetism on the basis of domain theory, Curie temperature.

16. Electromagnetic inductions

Laws of electromagnetic induction, proof of, $e = - d\Phi dt$ Eddy currents, Self induction and mutual induction, Need for displacement current, Transformer, Coil rotating in uniform magnetic induction, Alternating currents, Reactance and impedance, LC oscillations(qualitative treatment only) Power in a.c circuit with resistance, inductance and capacitance, Resonant circuit, Wattless current, AC generator.

17 Electrons and photons

Photoelectric effect, Hertz and Lenard's observations, Einstein's equation, Particle nature of light.

18 Atoms, Molecules and Nuclei

Alpha particle scattering experiment, Rutherford's model of atom. Bohr's model, Hydrogen spectrum, Composition and size of nucleus, Radioactivity, Decay law, massenergy relation, mass defect, B.E. per nucleon and its variation with mass number, Nuclear fission and fusion, de Broglie hypothesis, Matter waves – wave nature of particles, Wavelength of an electron, Davisson and Germer experiment, Continuous and characteristics X-rays.

19 Semiconductors

Energy bands in solids, Intrinsic and extrinsic semiconductors, P-type and Ntype semiconductor, P-N junction diode, I-V characteristics in forward and reverse bias, Rectifiers, Zener diode as a voltage regulator, Photodiode, Solar cell, I-V characteristics of LED, Transistor action and its characteristics, Transistor as an amplifier (CE mode), Transistor as a switch, Oscillators and Logic gates (OR, AND, NOT, NAND, NOR)

20 Communication systems

Elements of communication system, bandwidth of signals, bandwidth of transmission medium, Need for modulation, Production and detection of an amplitude modulated wave, spacecommunication, Propagation of electromagnetic waves in atmosphere.

List of Practical's

1. To determine Young's modulus of elasticity of the material of a given wire.
2. To find the force constant and effective mass of helical spring by plotting T2 --m graph using method of oscillations.
3. To determine the surface tension of water by capillary rise method.
4. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.
5. To study the relation between frequency and length of a given wire under constant tension using sonometer.
6. To study the relation between the length of a given wire and tension for constant frequency using sonometer.
7. To find the speed of sound in air at room temperature using a resonance tube.
8. To find resistance of given wire using metre bridge and hence determine the specific resistance of its material.
9. To verify the laws of combination (series/ parallel) of resistances using a metre bridge.
10. To compare the emf of two given cells using potentiometer.
11. To determine the internal resistance of given cell using potentiometer.
12. To determine resistance of galvanometer using metre bridge.
13. To draw the I-V characteristic curves of a p-n junction diode in forward bias and reverse bias.v resistor/ rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.
14. To study effect of intensity of light (by varying distance of the source) on an L.D.R.
15. To identify a diode, an LED, a transistor, and 1C, a resistor and a capacitor from mixed collection of such items.
16. Use of multimeter to (i) identify base of transistor (ii) distinguish between npn and pnp type transistors, (iii) see the unidirectional flow of current in case of a diode and an LED (iv) check whether a given electronic component (e.g. diode, transistor or IC) is in working order.
17. To observe polarization of light using two polaroids.
18. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.

Subject Wise Syllabus for MHT-CET 2016
Subject: Chemistry
(As prescribed by Maharashtra State Board of Secondary and Higher Secondary Education, Pune for Standard XII-Course)

Introduction

According to NCF 2005, the new and updated curriculum is introduced at +2 stage. There is a need to provide the sufficient conceptual background of chemistry which will help the students to appear for different common entrance test at the state level and the national level. This new syllabus will make them competent to meet the challenges of academic and professional courses like medicine, engineering, technology, etc, after the +2 stage. The syllabus is comparable to the international level. The syllabus contains areas like physical, organic, inorganic, industrial, analytical and polymer chemistry. The upgraded syllabus has taken care of new formulations and nomenclature of elements, compounds and IUPAC units of physical quantities. New nomenclature, symbols and formulations, fundamental concepts, modern techniques are given importance.

Objectives :

The broad objectives of teaching Chemistry at Higher Secondary stage are to help the learners :

1) To promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.

2) To make students capable of studying chemistry in academic and professional courses (such as medicine, engineering, technology) at tertiary level.

3) To expose the students to various emerging new areas of chemistry and apprise them with their relevance in their future studies and their applications in various spheres of chemical sciences and technology.

4) To equip students to face various changes related to health, nutrition, environment, population, weather, industries and agriculture.

5) To develop problem solving skills in students.

6) To expose the students to different processes used in industries and their technological applications. 7) To apprise students with interface of chemistry with other disciplines of science such as physics, biology, geology, engineering, etc.

Theory

Unit 1: Solid State

Classification of solids based on different forces; molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea), unit cell in two dimensional and three

dimensional lattices, calculation of density of unit cell, packing in solids, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties, **Band theory of metals, conductors and semiconductors and insulators and n and p type semiconductors.**

Unit 2 : Solutions and colligative properties

Types of solutions, expression of concentration of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties –relative lowering of vapor pressure, **Raoult's law** elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass.Van't Hoff factor and calculations involving it

Unit 3 :Chemical thermodynamics and energetic

Concepts of system, types of systems, surroundings. Work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics – internal energy and enthalpy, Hess' law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation. Phase transition, ionization and solution and dilution Introduction of entropy as a state function, free energy change for spontaneous and non spontaneous processes, and equilibrium constant. Second and third law of thermodynamics.

Unit 4: Electrochemistry

Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and laws of electrolysis (elementary idea), dry cell –electrolytic and galvanic cells; lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, fuel cells; corrosion. Relation between Gibb's energy change and emf of a cell.

Unit 5: Chemical kinetics

Rate of reaction (average and instantaneous), factors affecting rate of reaction; concentration, temperature, catalyst; order and molecularity of a reaction; rate law and specific rate constant, integrated rate equations and half life (only for zero and first order reactions); concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenius equation.

Unit 6 :General principles and processes of isolation of elements

Principles and methods of extraction – concentration, oxidation, reduction electrolytic method and refining; occurrence and principle of extraction of aluminium, copper, zinc and iron Unit 7: p-Block elements Group 15 elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; nitrogen – preparation, properties and uses; compounds of nitrogen; preparation and properties of ammonia and nitric acid, oxides of nitrogen (structure only); Phoshorous-allotropic forms; compounds of phosphorous;

preparation and properties of phosphine, halides (PCl3 ,PCl5) and oxoacids (elementary idea only).

Group 16 elements:
General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; dioxygen; preparation, properties and uses; Classification of oxides, simple oxides; Ozone. Sulphur – allotropic forms; compounds of sulphur; preparation, properties and uses of sulphur dioxide; sulphurc acid; industrial process of manufacture, properties and uses, oxoacids of sulphur (structures only).

Group 17 elements:
General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens; preparation, properties and uses of chlorine and hydrochloric acid, interhalogen compounds, oxoacids of halogens (structure only).

Group 18 elements:
General introduction, electronic configuration. Occurrence, trends in physical and chemical properties, uses.

Unit 8 : d and f Block Elements d-Block Elements -
General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals – metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation preparation and properties of K2 Cr2 O7 and KMnO4.
f-Block elements
Lanthanoids – Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences. Actinoids – Electronic configuration, oxidation states. Comparison with lanthanoids.

Unit 9: Coordination compounds
Coordination compounds – Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds, bonding; Werner's theory, VBT, CFT. isomerism, (structural and stereo) importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems).

Unit 10 : Halogen derivatives of alkanes (and arenes)
Haloalkanes :
Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions. Stability of carbocations,R-S and d-l configuration Haloarenes : Nature of C-X bond, substitution reactions (directive influence of halogen for monosubstituted compounds only)

stability of carbocations, R-S and d-l configurations. Uses and environmental effects of – dichloromethane, thrichloromethane, tetrachloromethane, iodoform, freons, DDT.

Unit 11 : Alcohols, phenols and ethers Alcohols :
Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only); identification of primary, secondary and tertiary alcohols; mechanism of dehydration, uses of methanol and ethanol. Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophillic substitution reactions, uses of phenols. Ethers : Nomenclature, methods of preparation, physical and chemical properties, uses.

Unit 12 : Aldehydes, ketones and carboxylic acids Aldehydes and ketones :
Nomenclature, nature of carbonyl group, methods of preparation. Physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes; uses. Carboxylic acids : Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.

Unit 13: Organic compounds containing nitrogen
Nitro compounds-General methods of preparation and chemical reactions Amines : Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines. Cyanides and isocyanides: Will be mentioned at relevant places in context. Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

Unit 14: Biomolecules Carbohydrates: Classification (aldoses and ketoses), monosaccahrides d-l configuration (glucose and fructose), oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen), importance. Proteins: Elementary idea of α -amino acids, peptide, linkage, polypeptides, proteins; structure of amines-primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Lipids and hormones (elementary idea) excluding structure, their classification and functions.
Vitamins: Classification and functions. Nucleic acids: DNA and RNA
Unit 15: Polymers Classification - natural and synthetic, methods of polymerization (addition and condensation), copolymerization. Some important polymers; natural and synthetic like polythene, nylon, polyesters, bakelite, and rubber. Biodegradable and non biodegradable polymers.

Unit 16: Chemistry in everyday life :
1. Chemicals in medicines : analgesics, tranquilizers, antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines elementary idea of antioxidants
2. Chemicals in food : Preservatives, artificial sweetening agents.
3. Cleansing agents : Soaps and detergents, cleansing action.

Practical Syllabus - Std. XII

A. Chemical Kinetics (Any one of the following) :

(a) Effect of concentration and temperature on the rate of reaction between sodium thiosulphate and hydrochloric acid.

(b) Study of reaction rate of any one of the following:

(i) Reaction of iodide ion with hydrogen peroxide at room temperature using different concentration of iodide ions.

(ii) Reaction between potassium iodate, KIO3 and sodium sulphite (Na2 SO3) using starch solution as indicator (clock reaction).

(c) Acid hydrolysis of ethyl acetate.

B. Thermochemistry

Any one of the following experiments:

i] Enthalpy of dissolution of copper sulphate or potassium nitrate.

ii] Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH).

iii] Determination of enthalpy change during interaction (hydrogen bond formation) between acetone and chloroform.

iv] Heat of displacement of Cu from CuSO4 by Zn.

C. Electrochemistry

Variation of cell potential in Zn|Zn2+||Cu2+|Cu with change in concentration of electrolytes (CuSO4 or ZnSO4) at room temperature (demonstration).

D. Chromatography (demonstration)

(i) Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of Rf values.

(ii) Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in Rf values to be provided).

E. Preparation of Inorganic Compounds

(i) Preparation of double salt of ferrous ammonium sulphate or potash alum. (ii) Preparation of potassium ferric oxalate.

F. Preparation of Organic Compounds

(i) p-Nitrocetanilide (ii) Aniline yellow or 2- Napthol aniline dye. (iii) Iodoform (iv) Phthalic or succinic anhydride. (v) Di-benzal acetone

G. Tests for the functional groups present in organic compounds

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (primary) groups.

H. Characteristic tests of arbohydrates, fats and proteins in pure samples and their detection in given food stuffs.

I. Determinaiton of concentration/molarity of KMnO4 solution by titrating it against a standard solution of:

(i) Oxalic acid

(ii) Ferrous ammonium sulphate (Students will be required to prepare standard solutions by weighing themselves).

J. Qualitative analysis

1) Determination of two cations from a given mixture of salts.

2) Determination of two anions from a given mixture of salts. Cations – Pb2+, Cu2+, As3+, Al3+, Fe3+, Mn2+, Zn2+, Co2+, Ni2+, Ca2+, Sr2+, Ba2+, Mg2+,NH4 +, Anions – CO3 2-, SO3 2-, SO4 2-, NO2 - NO3 , Cl- , Br- , I- , PO4 3- C2 O4 2- CH3 COO- (Note : Insoluble salts excluded.)

PROJECT

Scientific investigations involving laboratory testing and collecting information from other sources.

A few suggested Projects:

1 Study of presence of oxalate ions in guava fruit at different stages of ripening.

2 Study of quantity of casein present in different samples of milk.

3 Preparation of soyabean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.

4 Study of the effect of potassium bisulphate as food preservative under various conditions (temperature, concentration, time etc).

5 Study of digestion of starch by salivary amylase and, effect of pH and temperature on it.

6 Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.

7 Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).

8 Study of common food adulterants in fat, butter, sugar, turmeric powder, chilli powder and pepper.

Note :

Any investigatory project, can be chosen with the approval of the teacher

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Subject Wise Syllabus for MHT-CET 2016

Subject: Biology

(As prescribed by Maharashtra State Board of Secondary and Higher Secondary Education, Pune for Standard XII-Course)

Section I – BOTANY

Unit 1: Genetics and Evolution :

Chapter 1 - Genetic Basis of Inheritance:

Mendelian inheritance. Deviations from Mendelian ratio (gene interactionincomplete dominance, co-dominance, multiple alleles **and Inheritance of blood groups), Pleiotropy, Elementary idea of polygenic inheritance.**

Chapter 2 - Gene: its nature, expression and regulation:

Modern concept of gene in brief-cistron, muton and recon. DNA as genetic material, structure of DNA as given by Watson and Crick's model, DNA Packaging, semi conservative replication of eukaryotic DNA.

RNA: General structure, types and functions.

Protein Synthesis; central dogma, Transcription; Translation-Genetic Code, Gene Expression and Gene Regulation (The Lac operon as a typical model of gene regulation).

Unit 2: Biotechnology and its application: C

Chapter 3 - Biotechnology: Process and Application :

Genetic engineering (Recombinant DNA technology):

Transposons, Plasmids, Bacteriophages; Producing Restriction Fragments,

Preparing and cloning a DNA Library, Gene Amplification (PCR).

Application of Biotechnology in Agriculture – BT crops

Biosafety Issues (Biopiracy and patents)

Unit 3: Biology and Human Welfare :

Chapter 4 - Enhancement in Food Production

Plant Breeding Tissue Culture: Concept of Cellular Totipotency, Requirements of Tissue Culture (in brief), Callus Culture, Suspension Culture. Single Cell Protein. Biofortification.

Chapter 5 - Microbes in Human Welfare: Microbes in Household food processing. Microbes in Industrial Production. Microbes in Sewage Treatment. Microbes in Biogas (energy) Production. Microbes as Biocontrol Agents. Microbes as Biofertilizers.

Unit 4: Plant Physiology :

Chapter 6 - Photosynthesis

Autotrophic nutrition Site of Photosynthesis Photosynthetic Pigments and their role. Light-Dependent Reactions (Cyclic and non-cyclic photophosphorylation) Light-Independent Reactions (C3 and C4 Pathways) Chemiosmotic hypothesis, Photorespiration, Factors affecting Photosynthesis. Law of limiting factors.

Chapter 7 - Respiration

ATP as currency of Energy Mechanism of Aerobic (Glycolysis, **TCA Cycle and Electron Transport System)** and Anaerobic Respiration. **Fermentation** Exchange of gases Amphibolic pathway. Respiratory quotient of Nutrients. Significance of Respiration.

Unit 5: Reproduction in Organisms :

Chapter 8 - Reproduction in Plants

Modes of Reproduction (Asexual and Sexual). Asexual reproduction; uniparental modesvegetative propagation, micropropagation Sexual Reproduction: structure of flower Development of male gametophyte, Structure of anatropous ovule. Development of female Gametophyte. Pollination: Types and Agencies. Outbreeding devices; pollen-pistil interaction. Double Fertilization: Process and Significance. Post-fertilization changes (development of endosperm and embryo, development of seed and formation of fruit) Special modes-apomixis, parthenocarpy, polyembryony. Significance of seed and fruit formation.

Unit 6: Ecology and Environment

Chapter 9: Organisms and Environment -I : Habitat and Niche

Ecosystems: Patterns, components, productivity and decomposition, energy flow; pyramids of number, biomass, energy; nutrient cycling (carbon and phosphorous). Ecological succession, Ecological servicescarbon fixation, pollination, oxygen release. Environmental issues: agrochemicals and their effects, solid waste management, Green house effect and global warming, ozone depletion, deforestation, case studies (any two).

Section II - ZOOLOGY

Unit 1: Genetics and Evolution :

Chapter 10 - Origin and the Evolution of Life :

Origin of Life: Early Earth, Spontaneous, assembly of organic compounds, Evolution: Darwin's contribution, Modern Synthetic Theory of evolution, Biological Evidences, **Mechanism of evolution; Gene flow and genetic drift;HardyWeinberg principle; Adaptive radiation.** Origin and Evolution of Human being.

Chapter 11 - Chromosomal Basis of Inheritance

The Chromosomal Theory. Chromosomes. Linkage and Crossing Over. Sex-linked Inheritance (Haemophilia and colour blindness). Sex Determination in Human being, **birds, honey bee.Mendelian disorders in humans-Thalassemia. Chromosomal disorders in human: Down's syndrome, Turner's syndrome** and Klinfelter's syndrome.

Unit 2: Biotechnology and its application:

Chapter 12- Genetic Engineering and Genomics

DNA Finger Printing. Genomics and Human Genome Project. Biotechnological Applications in Health: Human insulin and vaccine production, Gene Therapy. Transgenic animals.

Unit 3: Biology and Human Welfare

Chapter 13- Human Health and Diseases

Concepts of Immunology: Immunity Types, Vaccines, Structure of Antibody, Antigen-Antibody Complex, Antigens on blood cells. Pathogens and Parasites (Amoebiasis, Malaria, Filariasis, Ascariasis, Typhoid, Pneumonia, Common cold and ring worm). Adolescence, drug and alcohol abuse. Cancer and AIDS.

Chapter 14- Animal Husbandry

Management of Farms and Farm Animals. Dairy. Poultry. Animal Breeding. Bee-Keeping. Fisheries. Sericulture Lac culture

Unit 4: Human Physiology :

Chapter 15- Circulation

Blood composition and coagulation, Blood groups. Structure and pumping action of Heart Blood Vessels. Pulmonary and Systemic Circulation. Heart beat and Pulse. Rhythmicity of Heart beat. Cardiac output, Regulation of cardiac activity. Blood related disorders: Hypertension, coronary artery disease, angina pectoris, and heart failure. ECG, Lymphatic System (Brief idea): Composition of lymph and its functions.

Chapter 16- Excretion and osmoregulation

Modes of excretion-Ammonotelism, ureotelism, uricotelism. Excretory System. Composition and formation of urine. Role of Kidney in Osmoregulation. Regulation of kidney function: reninangiotensin, atrial natriuretic factor, ADH and Diabetes inspidus, role of other organs in excretion. Disorders; Kidney failure, Dialysis, Kidney stone (renal calculi). Transplantation. Uraemia, nephritis.

Chapter 17- Control and Co-ordination

Nervous System Structure and functions of brain and Spinal cord, brief idea about PNS and ANS. Transmission of nerve impulse. Reflex action. Sensory receptors (eye and ear), Sensory perception, general idea of other sense organs. Endocrine System Endocrine glands Hormones and their functions Mechanism of hormone action. Hormones as messengers and regulators. Hormonal imbalance and diseases: Common disorders (Dwarfism, Acromegaly, cretinism, goiter, exopthalmic goiter, Diabetes mellitus, Addison's disease)

Unit 5: Reproduction in Organisms :

Chapter 18- Human Reproduction

Reproductive system in male and female. Histology of testis and ovary. Reproductive cycle. Production of gametes, fertilization, implantation. Embryo development up to three germinal layers. Pregnancy, placenta, parturition and lactation (Elementary idea). Reproductive health-birth control, Contraception and sexually transmitted diseases.MTP, Amniocentesis; Infertility and assisted reproductive technologiesIVF, ZIFT, GIFT (elementary idea for general awareness).

Unit 6: Ecology and Environment :

Chapter 19-Organisms and Environment-II :

Population and ecological adaptations: population interactions-mutualism, competition, predation, parasitism, population attributes- growth, birth rate and death rate, age distribution. Biodiversity and its conservationBiodiversity- concept, patterns, importance, loss. Threats to and need for biodiversity conservation, Hotspots, endangered organisms,extinction,red data book, biosphere reserves, national parks and sanctuaries. Environmental issues: air pollution and its control, water pollution and its control and radioactive waste management. (Case studies any two)

(Upgraded) Biology Practicals Experiments

1. Dissect the given flower and display different whorls. Dissect anther and ovary to show number of chambers.
2. Study pollen germination on a slide.
3. Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity of soil. Correlate with the kinds of plants found in them.
4. Study of plant population density and frequency by quadrat method.
5. Prepare a temporary mount of onion root tip to study mitosis.
6. Separation of plant pigments by paper chromatography.
7 A) To study the rate of respiration in flower buds/leaf tissue and germinating seeds. B) Demonstration of anaerobic respiration.
8. Study the presence of suspended particulate matter in air at the two widely different Sites.
9. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organisms.

10. To test the presence of urea and sugar in urine.
11. To test the presence of albumin and bile salts in urine.

Study/observation of the following (Spotting):

1 Study of flowers adapted to pollination by different agencies (wind, insect) .
2 Study of pollen germination on stigma through a permanent slide.
3 To Study Mendelian inheritance using seeds of different colour/size of any plant.
4 Exercise on controlled pollination - Emasculation, tagging and bagging.
5. Study meiosis in onion bud cell or grass hopper testis through permanent slides.
6. Study of plants found in xerophytic and aquatic conditions with respect to their morphological adaptations.(Two plants each)
7. Study and identify stages of gamete development, i.e. T.S. of testis and T.S. ovary through permanent slides (from any mammal).
8. Study of V.S. of blastula through permanent slide.
9. To study prepared pedigree charts of genetic traits such as rolling of tongue, Blood groups, widow's peak, colour blindness.
10 To identify common disease causing organisms like Plasmodium, Entamoeba, Ascaris and ring worm through permanent slides or specimens. Comment on symptoms of diseases that they cause.
11 Study of animals found in xeric (desert) and aquatic conditions with respect to their morphological adaptations. (Two animals each)

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Subject Wise Syllabus for MHT-CET 2016
Subject: Mathematics & Statistics (For Arts and Science)
(As prescribed by Maharashtra State Board of Secondary and Higher Secondary Education, Pune for Standard XII-Course)

PART – I

1. Mathematical Logic

Statements - Introduction, sentences and statement, truth value of statement, open sentences, compound statement, quantifier and quantified statements, logical connectives : conjunction, disjunction, negation, implication/ conditional, biconditional, truth tables of compound statements, examples related to real life and mathematics, statement patterns and logical equivalence - tautology, contradiction, contingency, duality, negation of compound statement, contrapositive, converse, inverse, algebra of statements-idempotent law, associative law, commutative law, distributive law, identity law, complement law, involution law, DeMorgan's laws, difference between converse, contrapositive, contradiction, application-introduction to switching circuits (simple examples).

2. Matrices

Elementary transformation of a matrixrevision of cofactor and minor, elementary row transformation, elementary column transformation, inverse of a matrixexistance and uniqueness of inverse of a matrix, inverse by elementary transformation, adjoint method, application-solution of system of linear equations by – reduction method, inversion method.

3. Trigonometric functions

Trigonometric equations-general solution of trigonometric equation of the type : $\sin\theta, = 0$, $\cos\theta = 0$, $\tan\theta = 0$, $\sin\theta = \sin\alpha$, $\cos\theta = \cos\alpha$, $\tan\theta = \tan\alpha$, $\sin2\ \theta = \sin2\ \alpha$, $\cos2\ \theta = \cos2\ \alpha$, $\tan2\ 0 = \tan2\ \alpha$, $a\cos\theta + b\sin\theta = C$ solution of a triangle : polar coordinates, sine rule, cosine rule, projection rule, area of a triangle, application, Hero's formula, Napier Analogues, inverse trigonometric functions-definitions, domain, range, principle values, graphs of inverse trigonometric function, properties of inverse functions.

4. Pair of straight lines

Pair of lines passing through origincombined equation, homogenous equation, theorem-the joint equation of a pair of lines passing through origin and its converse, acute angle between the lines represented by $ax2 + 2hxy + by2 = 0$, condition for parallel lines, condition for perpendicular lines, pair of lines not passing through origin-combined equation of any two lines, condition that the equation $ax2 + 2hxy + by2 + 2gx + 2fy + c = 0$ should represent a pair of lines (without proof), acute angle between the lines (without proof), condition of parallel and perpendicular lines, point of intersection of two lines.

5. Circle

Tangent of a circle-equation of a tangent at a point to 1) standard circle,2) general circle, condition of tangency only for line $y = mx + c$ to the circle $x2 + y2 = a2$, tangents to a circle

from a point outside the circle, director circle, length of tangent segments, normal to a circle-equation of normal at a point.

6. Conics

Tangents and normals-equations of tangent and normal at a point for parabola, ellipse, hyperbola; condition of tangency for parabola; ellipse, hyperbola; tangents in terms of slope for parabola, ellipse, hyperbola, tangents from a point outside conics, locus of points from which two tangents are mutually perpendicular, properties of tangents and normals to conics (without proof).

7. Vectors

Revision, Collinearity and coplanarity of vectors : linear combination of vectors, condition of collinearity of two vectors, conditions of coplanarity of three vectors, section formula : section formula for internal and external division, midpoint formula, centroid formula, scaler triple product : definition, formula, properties, geometrical interpretation of scalar triple product, application of vectors to geometrymedians of a triangle are concurrent, altitudes of a triangle are concurrent, angle bisectors of a triangle are concurrent, diagonals of a parallelogram bisect each other and converse, median of trapezium is parallel to the parallel sides and its length is half the sum of parallel sides, angle subtended on a semicircle is right angle.

8. Three dimensional geometry

Direction cosines and direction ratios: direction angles, direction cosines, direction ratios, relation between direction ratio and direction cosines, angle between two lines, condition of perpendicular lines.

9. Line

Equation of line passing through given point and parallel to given vector, equation of line passing through two given points, distance of a point from a line, distance between two skew lines, distance between two parallel lines (vector approach).

10. Plane

Equation of plane in normal form, equation of plane passing through the given point and perpendicular to given vector, equation of plane passing through the given point and parallel to two given vectors, equation of plane passing through three noncollinear points, equation of plane passing through the intersection of two given planes, angle between two planes, angle between line and plane, condition for the coplanarity of two lines, distance of a point from a plane (vector approach)

11. Linear programming problems

Introduction of L.P.P. definition of constraints, objective function, optimization, constraint equations, nonnegativity restrictions, feasible and infeasible region, feasible solutions, Mathematical formulation-mathematical formulation of L.P.P. different types of L.P.P. problems, graphical solutions for problem in two variables, optimum feasible solution.

PART – 2

1. Continuity Continuity of a function at a point : left hand limit, right hand limit, definition of continuity of a function at a point, discontinuity of a function, types of discontinuity, algebra of continuous functions, continuity in interval-definition, continuity of some standard functionspolynomial, rational, trigonometric, exponential and logarithmic function.
2. Differentiation Revision- revision of derivative, relationship between continuity and differentiability-left hand derivative and right hand derivative (need and concept), every differentiable function is continuous but converse is not true, Derivative of composite function-chain rule, derivative of inverse function, derivative of inverse trigonometric function : Derivative of implicit function definition and examples, derivative of parametric function – definition of parametric function , exponential and logarithmic functionderivative of functions which are expressed in one of the following form a) product of functions, b) quotient of functions, c) higher order derivative, second order derivative d) [f(x)] [g(x)]
3. Applications of derivative Geometrical application-tangent and normal at a point, Rolle's theorem, and Mean value theorem and their geometrical interpretation (without proof), derivative as a rate measure-introduction, increasing and decreasing function, approximation (without proof), Maxima and minimaintroduction of extrema and extreme values, maxima and minima in a closed interval, first derivative test, second derivative test. I
4. ntegration Indefinite integrals-methods of integration, substitution method, integrals of the various types, integration by parts (reduction formulae are not expected), integration by partial fraction-factors involving repeated and non-repeated linear factors, non-repeated quadratic factors, definite integral-definite integral as a limit of sum, fundamental theorem of integral calculus (without proof), evaluation of definite integral 1) by substitution, 2) integration by parts, properties of definite integrals.
5. Applications of definite integral Area under the curve : area bounded by curve and axis (simple problems), area bounded by two curves, volume of solid of revolution-volume of solid obtained by revolving the area under the curve about the axis (simple problems).
6. Differential equation Definition-differential equation, order, degree, general solution, particular solution of differential equation, formation of differential equation-formation of differential equation by eliminating arbitary constants (at most two constants), solution of first order and first degree differential equation-variable separable method, homogeneous differential equation (equation reducible to homogeneous form are not expected), Linear differential equation, applications : population growth, bacterial colony growth, surface area, Newton's laws of cooling, radioactive decay.
7. Statistics Bivariate frequency distribution - bivariate data, tabulation of bivariate data, scatter diagram, covariance of ungrouped data, covariance for bivariate frequency distribution, Karl Pearson's coefficient of correlation.
8. Probability distribution Probability distribution of a random variable-definition of a random variable, discrete and continuous random variable, probability mass function

(p.m.f.), probability distribution of a discrete random variable, cumulative probability distribution of a discrete random variable, expected value, variance and standard deviation of a discrete random variable, probability density function (p.d.f.), distribution function of a continuous random variable.

9. Bernoulli trials and Binomial distribution Definition of Bernoulli trial, conditions for Binomial distribution, binomial distribution (p.m.f.), mean, variance and standard deviation, calculation of probabilities (without proof), Normal distribution : p.d.f., mean, variance and standard deviation, standard normal variable, simple problems (without proof).

List of Practicals

1. Applications of logic.
2. Inverse of a matrix by adjoint method and hence solution of system of linear equations.
3. Inverse of a matrix by elementary transformation and hence solution of system of linear equations.
4. Solutions of a triangle.
5. Tracing of tangents and normals for circle and parabola.
6. Tracing of tangents and normals for ellipse and hyperbola.
7. Applications of scalar triple product of vectors.
8. Three dimensional geometry - line.
9. Three dimensional geometry - plane.
10. Formations and solutions of LPP.
11. Applications of derivatives (Geometric applications).
12. Applications of derivatives – Rate measure.
13. Applications of derivatives - Maxima and minima
14. Applications of definite integrals - Limit of a sum.
15. Applications of definite integrals - Area.
16. Applications of definite integrals - volume.
17. Applications of differential equations.
18. Bivariate frequency distribution.
19. Expected value, variance and S.D of a random variable.
20. Binomial distribution.

महाराष्ट्र शासन
संचालनालय, वैद्यकीय शिक्षण आणि संशोधन, मुंबई
शासकीय दंत महाविद्यालय व रुग्णालय इमारत चौथा मजला, सेंट जॉर्जेस् रुग्णालय आवार, पी. डीमेलो रोड, फोर्ट, मुंबई- ४०० ००१
दुरध्वनी:+९१-२२-२२६२०३६१-६५/२२६५२२५१/५७/५९. टेलीग्राम: "MEDUCATNSEARCH" फॅक्स:+९१-२२-२२६२०५६२/२२६५२१६८
संकेतस्थळ: http:/www.dmer.org

क्र. संवैशिवसं/पीजीपी/पीजीओ/पीजीएएसएलपी/एमस्सी(पी ॲण्ड ओ)-सीईटी२०१६/मआविवि/अभ्यासक्रम/२-अ, दि : ३० /०१/२०१६.

प्रति
मा. आयुक्त
राज्य सामाईक परीक्षा कक्ष,
बांद्रा (पूर्व), मुंबई - ४०० ०५१

विषय :- पीजीपी/पीजीओ/पीजीएएसएलपी/एमस्सी (पी ॲण्ड ओ) -सीईटी २०१६
प्रवेश परीक्षेच्या अभ्यासक्रमाबाबत.....

महाराष्ट्र राज्यातील पदव्युत्तर भौतिकोपचार/व्यवसायोपचार/ऑडीओ स्पीच ॲण्ड लॅग्वेज पॅथॉलॉजी व एमस्सी (प्रोस्थेटिक्स व आर्थोटिक्स) अभ्यासक्रमाचे प्रवेशाकरीता पीजीपी/पीजीओ/पीजीएएसएलपी आणि एमस्सी (पी ॲण्ड ओ)-सीईटी ही परीक्षा राज्य स्तरावर घेण्यात येते. ही परीक्षा ऑफलाईन पध्दतीने ऑगस्ट महिन्याच्या पहिल्या आठवडयात (रविवार) घेण्यात येते. हया परीक्षेकरीता मुंबई हे एकच केंद्र परीक्षा केंद्र म्हणून वापरण्यात येत असून येथील विविध उपकेंद्रांवर ही परीक्षा घेण्यात येते. ही परीक्षा एकूण १०० गुणांची असून परीक्षेचा अवधी दिड तासांचा असतो. या अभ्यासक्रमासाठी महाराष्ट्र आरोग्य विज्ञान विद्यापीठ, नाशिक यांनी ठरवून दिलेल्या अभ्यासक्रमावर आधारीत आहे. त्या प्रत्येक अभ्यासक्रमाच्या स्वतंत्र विषयनिहाय प्रश्न व त्याकरीता असलेले गुण यांचा तक्ता सोबत जोडला आहे.

संचालक
वैद्यकीय शिक्षण व संशोधन, मुंबई

सोबत :
१) पीजीपी/पीजीओ/पीजीएएसएलपी/एमस्सी(पी ॲण्ड ओ) अभ्यासक्रमाकरीता महाराष्ट्र आरोग्य निज्ञान विद्यापी यांनी ठरवून दिलेल्या चार अभ्यासक्रमांचे विषयनिहाय तक्ते.

प्रत :
मा. अप्पर मुख्य सचिव, वैद्यकीय शिक्षण औषधिद्रव्ये विभाग, गो. ते. रुग्णालय संकुल, ९ वा मजला, मंत्रालय, मुंबई.

Subject Wise Syllabus with Marks for PGP-CET 2016

(Syllabus Cover all the subject of B.P.Th Degree Course)

Sr. No.	Topic	Max. Marks
1.	Human Anatomy	04
2.	Human Physiology	04
3.	Biochemistry	02
4.	Fundamentals of Exercise Therapy	05
5.	Fundamentals of Electrotherapy	05
6.	Pathology	02
7.	Microbiology	02
8.	Pharmacology	02
9.	Kinesio therapy	04
10.	Electrotherapy	07
11.	Psychology	01
12.	Surgery-I (General Surgery) and Surgery-II (Truamatology Orthopedics)	06
13.	Medicine (Cardio-vascular & Pulmonary Medicine, Neurology, General Medicine, Rheumatology & Gerontology)	06
14.	Community Health/ Sociology & Biostatistics	01
15.	Physical Diagnosis and manipulative skills	08
16.	Paediatrics	01
17.	Dermatology	01
18.	Psychiatry	01
19.	Physiotherapy in Musculoskeletal Sciences	10
20.	Physiotherapy in Neuro-Sciences (Including Adutl/Pediatric/ Psycho-somatic & Psychiatric/Mental health)	10
21.	Physiotherapy in Cardio-vascular & Respiratory Sciences (Including General Medical and Surgical Conditions)	10
22.	Physiotherapy in Community Health Sciences	05
23.	Principles of Bio-engineering	01
24.	Professional Issues/Administration/Management/Marketing	02
Total		**100**

Subject Wise Syllabus with Marks for PGO-CET 2016

(Syllabus Cover all the subject of B.O.Th Degree Course)

Sr. No.	Topic	Max Marks
1	Human Anatomy	04
2	Human Physiology	04
3	Biochemistry	02
4	Fundamentals of Occupational therapy	03
5	Occupational Therapy diagnostics-I	03
6	Pharmacology	02
7	Pathology and Microbiology	04
8	Psychology	04
9	Ergo Therapeutics	05
10	Occupational therapy diagnostics -II	05
11	Medicine	06
12	Surgery	06
13	Psychiatry	04
14	Work physiology and Ergonomics	02
15	Occupational Therapy-Application in medical Conditions	06
16	Occupational therapy-Application in surgical Conditions	06
17	Advances in Occupational Therapy and rehabilitation Medicine	05
18	Occupational therapy in Orthopedic Conditions	07
19	Occupational therapy in Neurological and Developmental Conditions	07
20	Occupational Therapy in Psychiatry	07
21	Community based Occupational Therapy and rehabilitation	05
22	Biostatistics and Research Methodology	03
Total		**100**

Subject Wise Syllabus with Marks for PGASLP-CET 2016
(Syllabus Cover all the subject of B.A.S.L.P. Degree Course)

Sr. No.	Topic	Max. Marks
1.	Anatomy related to speech, language and hearing 04	04
2.	Physiology related to speech, Language and Hearing	04
3.	Linguistics	05
4.	Psychology	05
5.	Acoustics & Electronics	05
6.	Pediatrics	02
7.	Neurology	02
8.	Statistics	05
9.	ENT	04
10.	Community Oriented Service in Speech & Hearing	04
11.	Diagnostic Audiology	07
12.	Pediatric Audiology	07
13.	Hearing Aid and Cochlear Implant & ALDs	06
14.	Management of HI	05
15.	Noise & Hearing Conservation	05
16.	Childhood Speech and Language disorder	05
17.	Voice disorders and Laryngectomey	05
18.	Voice Disorders and Laryngectomy	05
19.	Fluency Disorders	05
20.	Adult Neurogenic disorders	05
21.	Neurogenic Speech Disorders	05
Total		**100**

Subject Wise Syllabus with Marks for M.Sc (P&O)-CET 2016

(Syllabus Cover all the subject of B.P.O. Degree Course)

Sr. No.	Topic	Max. Marks
1.	Human Anatomy	04
2.	Human Physiology	02
3.	Pathology	02
4.	Materials, Tools, Equipment, P & O workshop Technology	02
5.	Mechanics & applied Mechanics & Strength of Materials	02
6.	Engineering drawing	02
7.	Biomechanics-I	03
8.	Prosthetics-I	04
9.	Orthotics -I	04
10.	Physical Medicine rehabilitation - I & II	04
11.	Orthopedics & Amputation surgery	04
12.	Basic Electronics Electro Technology,	04
13.	Computer Studies- I	02
14.	Biomechanics-II	03
15.	Prosthetics - II & Orthotics science- II	08
16.	P&O workshop Management	05
17.	Computer Studies- II	04
18.	Biomechanics - III	04
19.	Mobility & Rehabilitation AIDS	04
20.	Prosthetics & Orthotics sciences 0 III	08
21.	Prosthetics & Orthotic -IV	25
Total		**100**

महाराष्ट्र शासन
माहितीचा अधिकार
संचालनालय, वैद्यकीय शिक्षण आणि संशोधन, मुंबई
शासकीय दंत महाविद्यालय व रुग्णालय इमारत चौथा मजला, सेंट जॉर्जेस् रुग्णालय आवार, पी. डीमेलो रोड, फोर्ट, मुंबई- ४०० ००१
दुरध्वनीः+९१-२२-२२६२०३६१-६५/२२६५२२५१/५७/५९. टेलीग्रामः "MEDUCATNSEARCH" फॅक्सः+९१-२२-२२६२०५६२/२२६५२१६८
संकेतस्थळः http:/www.dmer.org

क्र. संवैशिवसं/एमएच-एसएसईटी २०१६/मआविवि/अभ्यासक्रम/२-अ/००१ दिनांक : २१/०१/२०१६.

प्रति
मा. आयुक्त
राज्य सामाईक परीक्षा कक्ष,
बांद्रा (पूर्व), मुंबई - ४०० ०५१

विषय :- एमएच-एसएसईटी २०१६ प्रवेश परीक्षेच्या अभ्यासक्रमाबाबत.....

महाराष्ट्र राज्यातील अतिविशेषोपचार अभ्यासक्रमांचे प्रवेशाकरीता एमएच-एसएसईटी ही परीक्षा अखिल भारतीय स्तरावर घेण्यात येते. भारतीय आयुर्विज्ञान परिषदेच्या मानकानुसार ही परीक्षा मे-जून महिन्यात घेणे व त्याचा निकाल १५ जून पर्यंत जाहिर करणे बंधनकारक आहे. त्या परीक्षेकरीता मुंबई हे एकच केंद्र परीक्षा केंद्र म्हणून वापरण्यात येत असून येथील विविध उपकेंद्रांवर ही परीक्षा घेण्यात येते. ही परीक्षा एकूण १५० गुणांची असून परीक्षेचा अवधी अडीच तासांचा असतो. १५० गुणांपैकी १०० गुणांसाठीचे प्रश्न हे एमबीबीएस या पदवी अभ्यासक्रमावर महाराष्ट्र आरोग्य विज्ञान विद्यापीठ, नाशिक यांनी ठरवून दिलेल्या अभ्यासक्रमावर आधारीत असतात व उर्वरीत ५० गुणांचे प्रश्न हे सुध्दा त्या त्या विषयातील पदव्युत्तर अभ्यासक्रमावर महाराष्ट्र आरोग्य विज्ञान विद्यापीठ, नाशिक यांनी ठरवून दिलेल्या अभ्यासक्रमावर आधारीत असतात. एमएच-एसएसईटी या प्रवेश परीक्षेकरीतांचे विषयनिहाय प्रश्न व त्याकरीता असलेले गुण यांचा तक्ता सोबत जोडला आहे.

सोबत :
१) भारतीय आयुर्विज्ञान परिषद, नवी दिल्ली यांचे वेळापत्रक.
२) एमएच-एसएसईटी अभ्यासक्रमाकरीता विषय निहाय तक्ता.

संचालक
वैद्यकीय शिक्षण व संशोधन, मुंबई

प्रत :
मा. अप्पर मुख्य सचिव, वैद्यकीय शिक्षण औषधिद्रव्ये विभाग, गो. ते. रुग्णालय संकुल, ९ वा मजला, मंत्रालय, मुंबई.

Syllabus For MH-SSET 2016

<table>
<tr><th>Section</th><th>Subject-wise marks distribution</th></tr>
<tr><td>A.</td><td>All subjects included for MBBS course
<table>
<tr><th>Sr. No.</th><th>Subject</th><th>Marks</th><th>Sr. No.</th><th>Subject</th><th>Marks</th></tr>
<tr><td>1</td><td>Anatomy</td><td>4</td><td>11</td><td>Skin-VD & Leprosy</td><td>4</td></tr>
<tr><td>2</td><td>Physiology</td><td>4</td><td>12</td><td>Psychiatry</td><td>4</td></tr>
<tr><td>3</td><td>Biochemistry</td><td>4</td><td>13</td><td>TB-Chest</td><td>2</td></tr>
<tr><td>4</td><td>Pathology</td><td>5</td><td>14</td><td>Surgery</td><td>13</td></tr>
<tr><td>5</td><td>Microbiology</td><td>3</td><td>15</td><td>Orthopedics</td><td>5</td></tr>
<tr><td>6</td><td>Pharmacology</td><td>4</td><td>16</td><td>ENT</td><td>4</td></tr>
<tr><td>7</td><td>PSM</td><td>4</td><td>17</td><td>Radiology / Radiotherapy</td><td>5</td></tr>
<tr><td>8</td><td>FMT</td><td>2</td><td>18</td><td>Anesthesia</td><td>6</td></tr>
<tr><td>9</td><td>Medicine</td><td>13</td><td>19</td><td>Ophthalmology</td><td>2</td></tr>
<tr><td>10</td><td>Pediatrics</td><td>7</td><td>20</td><td>Obstetrics & Gynecology</td><td>5</td></tr>
</table>
(Total - 100)</td></tr>
<tr><td>B.</td><td>Subjects of respective Broad Specialties - (MD or MS) - 50</td></tr>
</table>

तंत्र शिक्षण संचालनालय, महाराष्ट्र राज्य,

3, महापालिका मार्ग, पत्र पेटी क्रमांक 1967, मुंबई 400 001.

दूरध्वनी § 22620601/22690602/22641150/22641151 फॅक्स - 2269 2102.

E-Mail: desk2a@gmail.com Internet: http://www.dtemaharashtra.gov.in

क्रमांक: २अ/एडीएम/२०१६/ ९५

दिनांक : 25 JAN 2016

प्रति,
मा.आयुक्त,
प्रवेश नियामक प्राधिकरण व
राज्य सामायिक प्रवेश परीक्षा कक्ष, महाराष्ट्र राज्य,
३०५,शासकीय तंत्रनिकेतन इमारत,४९,खेरवाडी, अलियावर जंग मार्ग,
मुंबई ४०००५१

विषय : तंत्रशिक्षण संचालनालयाच्या अधिपत्याखालील अभ्यासक्रमांचे सामायिक प्रवेश परीक्षांचे अभ्यासक्रम व प्रश्नपत्रिकांचे स्वरूप याबाबत....

संदर्भ : संचालनालयाचे पत्र क्रमांक २अ/एडीएम/२०१६/८० , दिनांक २०.१.२०१६ ,

महोदय,

उपरोक्त विषयाच्या अनुषंगाने तंत्रशिक्षण संचालनालयाच्या अधिपत्याखालील विविध अभ्यासक्रमांच्या सामायिक प्रवेश परीक्षेसाठी अभ्यासक्रम , घटकाप्रमाणे गुण , प्रश्नपत्रिकेचे स्वरूप व मूल्यमापनाचे निकष संदर्भाधीन पत्रान्वये आपल्या कार्यालयास सादर करण्यात आले आहेत. सदर पत्र रद्दबातल समजण्यात यावे.

सदर अभ्यासक्रमनिहाय सुधारीत केलेली एकत्रित माहिती सोबत जोडून सादर करण्यात येत आहे.

1. **MBA/ MMS / PGDM/ PGDBM CET**
2. **Master of Computer Applications (MCA) CET**
3. **Master of Architecture (M. Arch) CET**
4. **Master of Hotel Management and Catering Technology (M. HMCT) CET**
5. **Bachelor of Hotel Management and Catering Technology (B. HMCT) CET**

येथे असेही नमूद करण्यात येते की, प्रथम वर्ष अभियांत्रिकी /तंत्रज्ञान, औषधनिर्माणशास्त्र व फार्म.डी. या अभ्यासक्रमाचे प्रवेश MHT-CET या सामायिक प्रवेश परीक्षेमार्फत घेण्यात येणार असून या परीक्षेसाठी अभ्यासक्रम , घटकाप्रमाणे गुण , प्रश्नपत्रिकेचे स्वरूप व मूल्यमापनाचे निकष याबाबत संचालक, वैद्यकीय शिक्षण व संशोधन यांचेकडून माहिती प्राप्त करून घ्यावी ही विनंती.

आपला,

(डॉ.सुभाष महाजन)
संचालक, तंत्रशिक्षण,महाराष्ट्र राज्य,मुंबई

प्रत : मा.प्रधान सचिव,महाराष्ट्र शासन,उच्च व तंत्रशिक्षण विभाग, मंत्रालय विस्तार भवन, मुंबई ४०००३२ यांना माहितीस्तव सादर

Syllabus and Marking Scheme for MBA/ MMS / PGDM/ PGDBM CET
for Academic Year 2016-17

Contents:-

A) Logical / Abstract Reasoning.

This shall include the questions to measures how quickly and accurately you can think. This test may have questions based on figures and diagrams and also questions on verbal reasoning.

B) Quantitative Aptitude.

This shall include the questions to know how fast and accurate you can work with numbers, do numerical calculations understand various arithmetic problems involving ratio and proportion, percentage, etc. This test also helps to measure your power of quantitative reasoning, interpretation of tables, common graphs and charts.

C) Verbal Ability and Reading Comprehension

This shall include passages with questions based on their contents to test your comprehension. Your English Language ability would be tested through questions on grammar, vocabulary, sentence completion, synonyms, antonyms, comprehension of passages etc. Your English language ability would be tested through questions on (1) understanding of the contents of the passage and (2) choice of appropriate words, phrases, expressions and similar language skills.

Sr.	Topics	No of Questions	Mark per Question	Maximum Marks	**Total Marks**
1	Logical Reasoning	75	1	75	200
2	Abstract Reasoning	25	1	25	
3	Quantitative Aptitude	50	1	50	
4	Verbal Ability / Reading Comprehension	50	1	50	
The test will comprise of multiple choice objective type questions (Five Options)					
There is no negative marking System for this test.					
Test Duration: **150 Minutes**					
Medium of CET: English					
Mode of Examination - Online					

(Dr.Subhash Mahajan)
Director
Technical Education,(M.S), Mumbai

Syllabus and Marking Scheme for Master of Computer Applications (MCA) CET for Academic Year 2016-17

The Online CET would be comprised of two online papers viz. General Aptitude (GA) and Computer Concepts (CC) of 100 marks each, with composite time of 90 minutes duration. Each paper shall have 25 questions

Contents:-

1. General Aptitude

The main objective of this paper is to assess the general aptitude of the candidate to pursue a computer applications and software profession.

Syllabus

The questions in this paper will cover: logical reasoning, quantitative reasoning, high school mathematics, vocabulary, English comprehension and verbal ability. A good grasp of the following topics of high school mathematics (up to the 12th standard) will be useful:

- Algebra : Fundamental operations in Algebra, Expansion, factorization, Quadratic equations, indices, logarithms, arithmetic, geometric and harmonic progressions, binomial theorem, permutations and combinations.
- Co-ordinate Geometry : Rectangular Cartesian co-ordinates, equations of a line, mid point, intersections etc., equations of a circle, distance formulae, pair of straight lines, parabola, ellipse and hyperbola, simple geometric transformations such as translation, rotation, scaling.
- Differential Equations: Differential equations of first order and their solutions, linear differential equations with constant coefficients, homogenous linear differential equations.
- Trigonometry: Simple identities, trigonometric equations, properties of triangles, solution of triangles, height and distance, inverse function.
- Probability and Statistics : Basic concepts of probability theory, Averages, Dependent and independent events, frequency distributions, and measures of dispersions, skewness and kurtosis, random variable and distribution functions, mathematical expectations, Binomial, Poisson, normal distributions, curve fitting, and principle of least squares, correlation and regression.
- Arithmetic: Ratios and proportions, problems on time-work, distance-speed, percentage, etc.
- Basic Set Theory and Functions: Set, relations and mappings.
- Mensuration: areas, triangles and quadrilaterals, area and circumference of circles, volumes and surface areas of simple solids such as cubes, spheres, cylinders and cones.

2. Computer Concepts

Syllabus

- Computer Basics : Organization of a computer, Central Processing Unit (CPU), Structure of instructions in CPU, input / output devices, computer memory, memory organization, back-up devices.
- Data Representation : Representation of characters, integers, and fractions, binary and hexadecimal representations, Binary Arithmetic: Addition, subtraction, division, multiplication, signed arithmetic and two's complement arithmetic, floating point representation of numbers, normalized floating point representation, Boolean algebra, truth tables, Venn diagrams.
- Computer Architecture: Block structure of computers, communication between processor and I / O devices, interrupts.
- Computer Language: Assembly language and high level language, Multiprogramming and time sharing operating systems, Computer Programming in C.
- Operating System basics: Multiprogramming and timesharing operating systems.

....MCA continued...

TOPICS	No of Questions	Mark/s per Question	Maximum Marks	Total Marks
General Aptitude	25	4	100	200
Computer Concepts- Computer Basics, Data Representation, Computer Architecture, Computer Language, Operating System Basics	25	4	100	
The test will comprise of multiple choice objective type questions (Four Options)				
There is negative marking System for this CET. Each correct answer will carry 4 marks. Each wrong answer will carry 1 negative mark. Unanswered questions will carry zero marks.				
Test Duration: 90 minutes				
Medium of CET: English				
Mode of Examination - Online				

(Dr.Subhash Mahajan)
Director
Technical Education,(M.S), Mumbai

Syllabus and Marking Scheme for Master of Architecture (M. Arch) CET for Academic Year 2016-17

Contents:-

Sr.	Topics	No of Questions	Mark/s per Question	Maximum Marks	Total Marks
1	**Building Technology** Building systems, Building Science and services, concept of green building, construction materials.	10	2 marks	20 Marks	100
2	**Environment** Concept and Ecology and landscape design, Environment laws and regulations, Environment design strategies w.r.t site.	10	2 marks	20 Marks	
3	**Architecture History and humanities** Awareness of Art and culture and architectural theory, major architecture movements in the world and in India.	10	2 marks	20 Marks	
4	**Settlement, design and planning** Urbanization, Urbanism, Urban and rural system, Infrastructure planning theory and history.	10	2 marks	20 Marks	
5	**Current Architecture Practice** Awareness of National building code. Town planning laws and development control regulation, knowledge of Regulatory and professional bodies on architecture.	10	2 marks	20 Marks	
The test will comprise of multiple choice objective type questions(Four Options)					
There is no negative marking System for this test.					
Test Duration: **60 minutes**					
Medium of CET: English					
Mode of Examination - Online					

(Dr.Subhash Mahajan)
Director
Technical Education,(M.S), Mumbai

Syllabus and Marking Scheme for Master of Hotel Management and Catering Technology (M. HMCT) CET for Academic Year 2016-17

Contents:-

Sr.	Topics	No of Questions	Mark/s per Question	Maximum Marks	Total Marks
1	**Food and Beverage Operation** Food and Beverage Service Operations, related terminology, Inventory control, Food & Beverage equipment and infrastructure	10	02	20	100
2	**Food Production** Food Production operations, Indian & International cuisines and related terminology, Bakery and Confectionary, Hygiene and Safety standards, Kitchen equipments and Infrastructure.	10	02	20	
3	**Rooms division** Housekeeping and front office operations and related terminology, fabrics & textiles, Planning & designing of hospitality organisations, Laundry operations and procedures.	10	02	20	
4	English (Word meaning , comprehension, autonyms and synonyms, idioms and phrases, word spellings)	10	02	20	
5	Hospitality Industry related (Types of tourism, hotel and restaurant brands and segments , Airlines, hospitality terms, hospitality related organizations and regulatory bodies)	10	02	20	

The test will comprise of multiple choice objective type questions (Four Options)

There is no negative marking System for this test.

Test Duration: **60 minutes**

Medium of CET: English

Mode of Examination - Online

(Dr.Subhash Mahajan)
Director
Technical Education,(M.S), Mumbai

Syllabus and Marking Scheme for Bachelor of Hotel Management and Catering Technology (B. HMCT) CET for Academic Year 2016-17

Contents :-

The On Line test will have 100 Questions based on Reasoning (Verbal as well as Arithmetic),English Language & General Awareness including questions on culture, current national, international affairs, trade & commerce, sports, scientific inventions and discoveries, travel/tourism etc.

Topics	No of Questions	Mark/s per Question	Maximum Marks	Total Marks
English Language	40	1	40	100
Reasoning (Verbal and Arithmetic)	30	1	30	
General Knowledge & Awareness including questions on current national, international affairs, culture, trade & commerce, sports, scientific inventions and discoveries, travel/ tourism etc.	30	1	30	
The test will comprise of multiple choice objective type questions (Four Options)				
There is no negative marking System for this test.				
Test Duration: 90 minutes				
Medium of CET: English				
Mode of Examination - Online				

(Dr.Subhash Mahajan)
Director
Technical Education,(M.S), Mumbai

महाराष्ट्र शासन
शिक्षण संचालनालय, (उच्च शिक्षण)
महाराष्ट्र राज्य, मध्यवर्ती इमारत, पुणे ४११ ००१.

Web:www.dhepune.gov.in
E-mail : bed.dhepune@nic.in

फोन नं. ०२०/२६०५१७२९,२६१२२११९.२६०५१५१२ फॅक्स न.०२०/२६१११५३

क्रमांक उशिसं/२०१६/सीईटी/प्राधि./बीएड /८५० दिनांक २५.०१.२०१६

प्रवेश नियामक प्राधिकरण,
राज्य सामाईक प्रवेश परीक्षा कक्ष
महाराष्ट्र राज्य, पुणे

आवक क्र. 183
दिनांक 29/1/2016
आयुक्त .....
परिक्षा .....
मु.प्र.अ. .....
प्र.अ. .....

प्रति,

मा.आयुक्त,
प्रवेश नियामक प्राधिकरण,
३०५, शासकीय तंत्रनिकेतन,
अली यावर जंग मार्ग, बांद्रा (पूर्व)
मुंबई ४०००५१

विषय : प्रवेश नियामक प्राधिकरणांतर्गत उच्च शिक्षण संचालनालयाच्या अधिपत्याखालील बी.एड., एम.एड., बी.पी.एड., एम.पी.एड. व लॉ या अभ्यासक्रमासाठी प्रवेश पूर्व परीक्षा २०१६-१७ अभ्यासक्रम व वेळापत्रकाबाबत.

उपरोक्त विषयास अनुसरुन नमुद करण्यांत येते की, बी.एड., एम.एड., बी.पी.एड., एम.पी.एड. व लॉ या अभ्यासक्रमाच्या प्रवेश पूर्व परीक्षेकरीताचा अभ्यासक्रम व वेळापत्रक सोबत जोडून पाठविण्यांत येत आहे, कृपया स्विकार व्हावा.

(डॉ.धनराज माने)
शिक्षण संचालक (उच्च शिक्षण)
महाराष्ट्र राज्य, पुणे १

The CET Syllabus for courses: B.Ed.

Sr. No.	Name of the CET	Maximum Marks	Duration	Nature of Questions	Remark
1	B.Ed.	100	1.5 Hour	Multiple Choice Questions	

Sr. No.	Name of the CET	Syllabus			
1.1	B.Ed. CET	Sr. No.	Subject	Weightage/marks	Remark
		1	Mental Ability	40	
	MEDIUM OF PAPER	2	General Knowledge	30	
	ENGLISH & MARATHI	3	Teacher Aptitude	30	
		Total		100 Marks	

1.1 **Mental Ability** :- (Weightage 40%) : The content of this test aims to judge your reasoning power. It also helps to know how fast and accurate you can think. This test will contain questions based on Series, Syllogism, Coding-Decoding, Relationship, Analogies, Classification, Problems on Dice, etc., either in Verbal or Non-Verbal form.

1.2 **General Knowledge** :- (Weightage 30%) This is a test to see how well you are acquainted with the happenings in the surrounding, at Local / National / International Level including Past Events, Current Affairs and Science, Technology, History, Geography, Civics, Political Science, Literature and Education in general.

1.3 **Teacher Aptitude**: - (Weightage 30%) This test aims to know your capacity to become a teacher. It will contain questions related to your keenness to update your knowledge, leadership qualities, awareness about changes in education and society, communication and professional commitment, etc.

Sr. No.	Name of the CET	Sr. No.	Subject/Topic	Weightage
2.1	B.Ed. English Language Content Test	1	Reading comprehension-Picture, Poetry, Prose, & Dialogue	40%
		2	Vocabulary Focus Spellings, Antonyms, Synonyms, Homonyms	10%
		3	Grammar Focus a) Punctuation, b) Articles C) Prepositions d) Conjunctions e) Degree of Adjectives	16%
		4	Sentence Formation: Conversions: Affirmative – Negative, Interrogative-Assertive-Exclamatory b) Jumbled sentences c) Identifying errors in sentences.	14%
		5	Phonetics-i) Phonetic Transcription, ii) Accent, iii) Intonation Pattern	6%
		6	Verbal Idioms and Proverbs	10%
		7	Figures of Speech	4%
			Total	100%

2.1 (1) Reading Comprehension :- (Weightage 40%) :

Content : (i) Picture, (ii) Prose, (iii) Poetry, (iv) Dialogue.

Purpose : The questions on comprehension passage/s are meant for evaluating the ability to comprehend the given material either in the form of a picture, prose, poetry or dialogue.

These questions judge the ability to comprehend the meaning of the given material.

2.1 (2) Vocabulary Focus :- (Weightage 10%) :

Content : (i) Spellings, (ii) Antonyms, (iii) Synonyms, (iv) Homonyms.

Purpose : The set of questions aim to test the general mastery over vocabulary. The questions will test the ability to use the vocabulary meaningfully in variety of forms like words with similar meanings, opposite words, words having similar pronunciation but different meanings, comparison of the shades of the meanings.

2.1 (3) Grammer Focus :- (Weightage 16%) :

Content : (i) Punctuation, (ii) Articles, (iii) Prepositions, (iv) Conjunctions (v) Degree of Adjectives.

Purpose : The questions in this section aim at testing the application of the understanding of the English Grammar rules in the given context in above five areas.

2.1 (4) Sentence Formation :- (Weightage 14%) :

Content : (i) Affirmative-Negative-Interrogative-Assertive-Exclamatory, (ii) Jumbled Sentences, (iii) Identifying errors in sentences.

Purpose : The questions in this section will test the ability of the candidate to move from one type of sentence to other, ability to rearrange the sentence/s according to the context, identify the problem spot in the sentence.

2.1 (5) Phonetics :- (Weightage 06%) :

Content : (i) Phonetic Transcription, (ii) Accent, (iii) Intonation Pattern.

Purpose : The questions on the three broad areas are designed to test the candidate's awareness about the spoken aspect of the language.

2.1 (6) Verbal Idioms and Proverbs :- (Weightage 10%) :

Content : (i) Verbal Idioms, (ii) Proverbs

Purpose : The objective of these questions is to judge the ability of the candidate to understand and differentiate between the superficial and in-depth meaning of the idoms and proverbs of English.

2.1 (7) Figures of Speech :- (Weightage 04%) :

Content : (i) Simile, (ii) Metaphor, (iii) Climax, (iv) Hyperbole (v) Alliteration, (vi) Repetition, (vii) Anti-Climax etc.

Purpose : The questions in these section aim at judging the ability to identify the figure of speech and name it from the context in the given prose/poetry line/passage.

The CET Syllabus for course: B.P.ED.

Sr. No.	Name of the CET	CET Maximum Marks	Duration	Nature of Questions	Remark
3.1	B.P.Ed.	50	1 Hour	Multiple Choice Questions	No Negative Marking

Sr. No.	Name of the CET	Physical Effieiency Test Maximum Marks	Duration	Nature of TEST	Remark
3.2	B.P.Ed.	50	1 Hour	FIELD/GROUND TEST	No Negative Marking

Sr. No.	Name of the CET	Written Examination	Physical Efficiency Test	Total	Remarks
3.3	B. P.Ed.	50	50	100	

Sr. No.	Name of the CET	Syllabus			
3.1	B. P.Ed. CET (Written Exam Medium of Paper - English & Marathi)	Sr. No.	Subject	Weightage / Marks	Remark
		1	General Knowledge	15	Time 1 Hour No Negative Marking Multiple Choice Questions
		2	Mental Ability	15	
		3	Teacher Aptitude & Sports Related Knowledge	20	
		Total		50 Marks	

3.1 (1) General Knowlege :- (Weightage 30%) :

Content : (a) General Science & Technology, (b) General History & Geography of India, (c) Civics & Political Science (India), (d) Literature, (e) Current Affairs at National level.

3.1 (2) Mental Ability :- (Weightage 30%) :

Content : (a) Logical Diagrams, (b) Directional Sense, (c) Relationship, (d) Coding & Decoding, (e) Number System

3.1 (3) Teacher Aptitude & Sports Related Knowledge :- (Weightage 40%) :

Content : (a) Professional Commitment, (b) Communication, (c) Sports Awards (Central & State Govt.), (d) Olympic Games, (e) Current Affairs on Various Sports & Games.

The CET Syllabus for course: B.P.ED.

		Sr. No.	Subject	Weightage / Marks	Remark
3.2	B. P.Ed. CET				
	Physical Efficiency Test.	1	10 x 4 Shuttle Run Test	10	
		2	400 Meter Run Test	10	
	Field Test	3	Standing Broad Jump Test	10	
		4	Sit Ups Test	10	
		5	Medicine Ball Throw Test	10	
		Total		50 Marks	

The CET Syllabus for course: M.ED.

Sr. No.	Name of the CET	Maximum Marks	Duration	Nature of Questions	Remark
4.1	M.Ed.	100	1.5 Hour	Multiple Choice Questions	

Sr. No.	Name of the CET	Syllabus			
4.1	M.Ed. CET	Sr. No.	Subject	Weightage / Marks	Remark
	Medium of Paper : English & Marathi	1	Educational Philosophy & Sociology	20	
		2	Educational Psychology	20	
		3	Educational Evaluation and Statistics	20	
		4	School Administration and Management	20	
		5	Information and Communication Technology & Research Aptitude	20	
		Total		100 Marks	

1) (A) Educational Philosophy : Idealism, Realism, Naturalism and Pragmatism. **Philosophers :** Rabindranath Tagore, Mahatma Gandhi, Mahatma Phule, Rousseau, John Dewey and Plato.

(B) Educational Sociology : Education as an instrument of Change, Globalization, Modernization, National Integration, Value Education, Women Empowerment and Inclusive Education.

2) Educational Psychology : Personality, Intelligence, Theories of Learning, Mental Health, Social Psychology, Models of Teaching, Constructivism, Guidance and Counseling (Concept).

3) (A) Educational Evaluation: Concept, Types, Techniques, Methods, Taxonomy of Objectives.

(B) Educational Statistics: Measures of Central Tendency and Measures of Variability.

4) School Administration and Management : Kothari Commisssion, National Educational Polity, National Knowledge Commission, School Administration and Management, Current Events, Right to Education, Law regarding Education, Indian Education System and Educational Problems, Secondary School Code.

5) Information and Communication Technology & Research Aptitude : Use of Computers in Education (with reference to teaching, Learning, Evaluation and Administration) and Research Aptitude.

The CET Syllabus for course: M.ED.(SPECIAL EDUCATION)

Sr. No.	Name of the CET	Maximum Marks	Duration	Nature of Questions	Remark
4.2	M.Ed. Special Education	100	1.5 Hour	Multiple Choice Questions	

Sr. No.	Name of the CET	Syllabus			
1	M.Ed. Special Education CET	Sr. No.	Subject	Weightage / Marks	Remark
	Medium of Paper : English & Marathi	1	Disability & Special Education	20	
		2	Educational Psychology & Educational Management	20	
		3	Research, Statistics and Technology	20	
		4	Analytical and Critical Thinking	20	
		5	Aptitude for Master Trainers and Command over Language	20	
		Total		100 Marks	

The CET Syllabus for course: M.P.ED.

Sr. No.	Name of the CET	WRITTEN EXAMINATION	PHYSICAL EFFICIENCY TEST	TOTAL	
5	M. P.Ed.	50	50	100	

Sr. No.	Name of the CET	Syllabus			
5.1	M. P.Ed. CET	Sr. No.	Subject	Weightage / marks	Remark
	Written Exam. Medium of Paper English & Marathi	1	Foundations of Physical Education	10	TIME 1 HOUR
		2	Anatomy Physiology and health education.	10	
		3	Teaching Methodology.	10	
		4	Officiating Coaching and Management in Physical Education.	10	
		5	Tests, Measurement and Evaluation in Physical Education.	10	
			Total	50	

1) Foundation of Physical Education : (a) History of Physical Education, (b) Psychological Foundation of Physical Education, (c) Philosophical Foundation of Physical Education, (d) Sociological Foundation of Physical Education, (e) Various Commissions, Schemes, Policies, Awards and Role and Contribution of Physical Education and Sports Institutes.

2) Anatomy Physiology and health education : (a) Need and Importance of Anatomy in Physical Education, (b) Exercise and Various body systems, (c) Health Education - Need and Importance in school curriculum, (d) Posture, Postural deformities & corrective exercises, (e) Role of Physical Education Teacher in AIDS & Pollution awareness.

3) Teaching Methodology : (a) Various Teaching Methods and Principles, (b) Unit Planning - Types, Pre-preparation, Unit planning and year planning, (c) Types of Competitions - Intramural and Extramural, (d) Maxims of Teaching, Audio-Visual AIDS, (e) Place of Computer and Internet in Teaching.

4) Officiating Coaching and Management in Physical Education : (a) Principles, Purpose of Officiating and Coaching, (b) Periodization and its role in Coaching, (c) Skills, Techniques and Rules of Various Games and Sports, (d) Duties and Responsibilities of Officials, (e) Principles and Need of Sports Managements.

5) Tests, Measurement and Evaluation in Physical Education : (a) Physical Fitness Test - HRPF, Motor Fitness, (b) Sports Skills Test - Football, Volleyball, Basketball, Badminton and Handball, (c) Need and Importance of Tests, (d) Criteria of selection of test, (e) Evaluation - Types, Principles and Purpose.

The CET Syllabus for course: M.P.ED.

5.2	M. P.Ed. CET	Sr. No.	Subject	Weightage / marks	Remark
	Physical Efficiency Test	1	10 x 4 Shuttle Run Test	10	
		2	400 Meter Run Test	10	
	Field Test	3	Standing Broad Jump Test	10	
		4	Sit Ups Test	10	
		5	Medicine Ball Throw Test	10	
		Total		50 Marks	

The CET Syllabus for course : Five Year Law Course:

Sr. No.	Name of the CET	Maximum Marks	Duration	Nature of Questions	Remark
4.1	LAW (LLB-Five Year Programme)	150	2 Hours	Multiple Choice Questions	NO NEGATIVE MARKING

Sr. No.	Name of the CET	Syllabus			
1	LAW (LLB-Five Year Programme)	Sr. No.	Subject	Weightage / Marks	Remark
	Medium of Paper : English	1	Legal Reasoning	40	
		2	General Knowledge including Current Affairs	30	
		3	Logical Reasoning	40	
		4	English	30	
		5	Basic Mathematics	10	
		Total		150 Marks	

1) **Legal Reasoning Aptitude :**
This section will test candidate's interest towards study of law, Research aptitude and problem solving ability. Questions will be framed with the help of legal propositions and a set of facts to which the said propositions has to be applied. Some propositions and set of facts to which the said propositions has to be applied. Some propositions may not be true in the real sense, candidates will have to assume truth of these propositions and answer the questions.

2) **General Knowledge including Current affairs :**
Topics such as :
History (Ancient, medieval and Modern period), Geography, General Science, Economics, Civics & Current Affairs of the past one year. The subject is to assess the knowledge of the recent happening & awareness of the world.

3) **Logical reasoning :**
The subject is to test the candidate's ability to identify patterns, logical links and rectify illogical arguments. It will include a wide variety of logical reasoning questions such as syllogisms, logical sequences, analogies etc.

4) **English :**
Vocabulary :((Synonyms, Antonyms, Analogies etc.) Proficiency (Idioms and Phrases, one word substitution, sentence improvement and rearrangement, fill in the blanks etc.) English usage errors (common errors, spotting errors, inappropriate usages of words, spelling mistakes etc.) English Comprehension.

5) **Basic Mathematics :**
This section is to test the numerical ability of candidates. The mathematics question will be set from 10th & 12th level, of various topics including Profit & Loss, Speed & Distance, Time & Work, Algebra, Average, Permutation & Combination & Venn Diagram

The CET Syllabus for course : THREE Year Law Course:

Sr. No.	Name of the CET	Maximum Marks	Duration	Nature of Questions	Remark
4.2	LAW (LLB-Three Year Programme)	150	2 Hours	Multiple Choice Questions	No Negative Marking

Sr. No.	Name of the CET	Syllabus			
1	LAW (LLB-Three Year Programme)	Sr. No.	Subject	Weightage/ Marks	Remark
	Medium of Paper : English	1	Legal Reasoning	40	
		2	General Knowledge including Current Affairs	40	
		3	Logical Reasoning	40	
		4	English	30	
		Total		150 Marks	

1) **Legal Reasoning Aptitude :**
This section will test candidate's interest towards study of law, Research aptitude and problem solving ability. Questions will be framed with the help of legal propositions and a set of facts to which the said propositions has to be applied. Some propositions and set of facts to which the said propositions has to be applied. Some propositions may not be true in the real sense, candidates will have to assume truth of these propositions and answer the questions.

2) **General Knowledge including Current affairs :**
Topics such as :
History (Ancient, medieval and Modern period), Geography, General Science, Economics, Civics & Current Affairs of the past one year. The subject is to assess the knowledge of the recent happening & awareness of the world.

3) **Logical reasoning :**
The subject is to test the candidate's ability to identify patterns, logical links and rectify illogical arguments. It will include a wide variety of logical reasoning questions such as syllogisms, logical sequences, analogies etc.

4) **English :**
Vocabulary : (Synonyms, Antonyms, Analogies etc.) Proficiency (Idioms and Phrases, one word substitution, sentence improvement and rearrangement, fill in the blanks etc.) English usage errors (common errors, spotting errors, inappropriate usages of words, spelling mistakes etc.) English Comprehension.