DOWNLOAD PDF UGC NET ENVIRONMENTAL SCIENCE SYLLABUS 2015

Chapter 1 : CBSE UGC NET Question Paper with Answers

UGC NET Environmental Sciences Syllabus July UGC NET Environmental Science Paper II and Paper III (Part - A & B): Unit - I: Definition, principles and scope of Environmental Science.

Environmental Sciences Code No: Part â€" A will have 10 short essay type questions words carrying 16 marks each. There will be one question from each unit with internal choice from the same unit. Total marks will be The candidate will attempt one question from Part â€" B words carrying 40 marks. Earth, Man and Environment. Ecosystems, Pathways in Ecosystems. Physico-chemical and Biological factors in the Environment. Geographical classification and zones. Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere. Mass and Energy transfer across the various interfaces, material balance. First and Second law of thermodynamics, heat transfer processes. Scale of Meteorology, pressure, temperature, precipitation, humidity, radiation and wind. Atmospheric stability, inversions and mixing heights, windroses. Natural resources, conservation and sustainable development. Chemical composition of Air: Classification of elements, chemical speciation. Particles, ions and radicals in the atmosphere. Chemical processes for formation of inorganic and organic particulate matter. Thermochemical and photochemical reactions in the atmosphere. Oxygen and ozone chemistry, Chemistry of air pollutants, Photochemical smog. Inorganic and organic components of soil, Nitrogen pathways and NPK in soils. Toxic Chemicals in the environment â€" Air, Water: Principles of Analytical Methods: X â€" ray fluorescence, X â€" ray diffraction, Flame photometry. Ecosystems Structure and functions, Abiotic and Biotic components, energy flows, Food chains, Food web, Ecological pyramids, types and diversity. Common flora and fauna in India Aquatic: Phytoplankton, Zooplankton and Macrophytes. Forests Endangered and Threatened Species Biodiversity and its conservation: National Parks and Sanctuaries. Air â€" borne diseases and allergies. Fermentation Technology, Vermiculture technology, Biofertilizer technology. Unit â€" IV Environmental Geosciences: The earth systems and Biosphere: Conservation of matter in various geospheres â€" lithosphere, hydrosphere, atmosphere and biosphere. Energy budget of the earth. Ecosystems flow of energy and matter. Coexistence in communities-food webs. General relationship between landscape, biomes and climate. Tropical cyclones and Western Disturbances. Earths processes; concept of residence, time and rates of natural cycles. Study of floods, landslides, earthquakes, volcanism and avalanche. Prediction and perception of the hazards and adjustments to hazardous activities. Mineral Resources and Environment: Resources and Reserves, Minerals. Oceans as new areas for exploration of mineral resources. Ocean ore and recycling of resources. Environmental impact of exploitation, processing and smelting of minerals. Water Resources and Environment: Ice sheets and fluctuations of sea levels. Origin and composition of seawater. Factors influencing the surface water. Ocean pollution by toxic wastes. Human use of surface and groundwaters. Soil surveys in relation to landuse planning. Methods of site selection and evaluation. Concept of major, trace and REE. Classification of trace elements, Mobility of trace elements, Geochemical cycles. Biogeochemical factors in environmental health. Human use, trace elements and health. Possible effects of imbalance of some trace elements. Diseases induced by human use of land. Principles of Remote sensing and its application of Environmental Sciences. Unit â€" V Sun as source of energy; solar radiation and its spectral characteristics; Fossil fuels-classification, composition, physico â€" chemical characteristics and energy content of coal, petroleum and natural gas. Principles of generation of hydroelectric power, tidal, Ocean Thermal Energy Conversion, wind, geothermal energy; solar collectors, photovoltaics, solar ponds; nuclear energy â€" fission and fusion; magnetohydrodynamic power, bio-energy-energy from biomass and biogas, anaerobic digestion; energy use pattern in different parts of the world. Environmental implication of energy use; C02 emissions, global warming; air and thermal pollution; radioactive waste and radioactivity from nuclear reactors; impacts of large-scale exploitation of Solar, Wind, Hydro and Ocean energy. Unit â€" VI Air: Natural and anthropogenic sources of pollution. Primary and Secondary pollutants. Transport and diffusion of pollutants. Gas laws governing the behaviour of pollutants in the atmosphere. Effects of pollutants on human beings, plants, animals, materials and on climate. Types, sources and consequences of water pollution. Physico â€"

chemical and Bacteriological sampling and analysis of water quality. Standards, sewage and waste water treatment and recycling. Physico â€" chemical as bacteriological sampling as analysis of soil quality. Industrial waste effluents and heavy metals, their interactions with soil components. Soil micro â€" organisms and their functions, degradation of different insecticides, fungicides and weedicides in soil. Sources of noise pollution, measurement of noise and Indices, effect of meteorological parameters on noise propagation. Noise exposure levels and standards. Noise control and abatement measures. Impact of noise on human health. Sources of marine pollution and control. Criteria employed for disposal of pollutants in marine system-coastal management. Radioactive and Thermal Pollution. Introduction to environmental impact analysis. Environmental impact Statement and Environmental Management Plan. Generalized approach to impact analysis. Procedure for reviewing Environmental impact analysis and statement. Guidelines for Environmental audit. Introduction to Environmental planning. Base line information and predictions land, water, atmosphere, energy, etc. Restoration and rehabilitation technologies.

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Chapter 2 : Download NTA UGC NET Syllabus December for All Subjects

UGC NET Environmental Sciences Syllabus June Code No.: Subject: Environmental Sciences Note: There will be two question papers. UGC NET Environmental Science Paper II will cover 50 Multiple Choice Questions (Multiple choice.

Definition, principles and scope of Environmental Science. Earth, Man and Environment. Ecosystems, Pathways in Ecosystems. Physico-chemical and Biological factors in the Environment. Geographical classification and zones. Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere. Mass and Energy transfer across the various interfaces, material balance. First and Second law of thermodynamics, heat transfer processes. Scale of Meteorology, pressure, temperature, precipitation, humidity, radiation and wind. Atmospheric stability, inversions and mixing heights, windroses. Natural resources, conservation and sustainable development. Fundamentals of Environmental Chemistry: Chemical composition of Air: Classification of elements, chemical speciation. Particles, ions and radicals in the atmosphere. Chemical processes for formation of inorganic and organic particulate matter. Thermochemical and photochemical reactions in the atmosphere. Oxygen and ozone chemistry, Chemistry of air pollutants, Photochemical smog. Inorganic and organic components of soil, Nitrogen pathways and NPK in soils. Toxic Chemicals in the environment â€" Air, Water: Principles of Analytical Methods: X â€" ray fluorescence, X â€" ray diffraction, Flame photometry. Definition, Principles and scope of ecology, Human ecology and Human settlement, Evolution, Origin of life and speciation. Structure and functions, Abiotic and Biotic components, energy flows, Food chains, Food web, Ecological pyramids, types and diversity. Common flora and fauna in India: Phytoplankton, Zooplankton and Macrophytes. Forests Endangered and Threatened Species: Biodiversity and its conservation: National Parks and Sanctuaries. Air â€" borne diseases and allergies. Fermentation Technology, Vermiculture technology, Biofertilizer technology. The earth systems and Biosphere: Conservation of matter in various geospheres â€" lithosphere, hydrosphere, atmosphere and biosphere. Energy budget of the earth. Ecosystems flow of energy and matter. Coexistence in communities-food webs. General relationship between landscape, biomes and climate. Tropical cyclones and Western Disturbances. Earths processes; concept of residence, time and rates of natural cycles. Study of floods, landslides, earthquakes, volcanism and avalanche. Prediction and perception of the hazards and adjustments to hazardous activities. Mineral Resources and Environment: Resources and Reserves, Minerals. Oceans as new areas for exploration of mineral resources. Ocean ore and recycling of resources. Environmental impact of exploitation, processing and smelting of minerals. Water Resources and Environment: Ice sheets and fluctuations of sea levels. Origin and composition of seawater. Factors influencing the surface water. Ocean pollution by toxic wastes. Human use of surface and groundwaters. Soil surveys in relation to landuse planning. Methods of site selection and evaluation. Concept of major, trace and REE. Classification of trace elements, Mobility of trace elements, Geochemical cycles. Human use, trace elements and health. Possible effects of imbalance of some trace elements. Diseases induced by human use of land. Principles of Remote sensing and its application of Environmental Sciences. Sun as source of energy; solar radiation and its spectral characteristics; Fossil fuels-classification, composition, physico â€" chemical characteristics and energy content of coal, petroleum and natural gas. Principles of generation of hydroelectric power, tidal, Ocean Thermal Energy Conversion, wind, geothermal energy; solar collectors, photovoltaics, solar ponds; nuclear energy â€" fission and fusion; magnetohydrodynamic power, bio-energy-energy from biomass and biogas, anaerobic digestion; energy use pattern in different parts of the world. Environmental implication of energy use; C02 emissions, global warming; air and thermal pollution; radioactive waste and radioactivity from nuclear reactors; impacts of large-scale exploitation of Solar, Wind, Hydro and Ocean energy. Natural and anthropogenic sources of pollution. Primary and Secondary pollutants. Transport and diffusion of pollutants. Gas laws governing the behaviour of pollutants in the atmosphere. Effects of pollutants on human beings, plants, animals, materials and on climate. Types, sources and consequences of water pollution. Physico â€" chemical and Bacteriological sampling and analysis of water quality. Standards, sewage and waste water treatment and recycling. Physico â€" chemical as bacteriological sampling as analysis of soil

quality. Industrial waste effluents and heavy metals, their interactions with soil components. Soil micro â€" organisms and their functions, degradation of different insecticides, fungicides and weedicides in soil. Sources of noise pollution, measurement of noise and Indices, effect of meteorological parameters on noise propagation. Noise exposure levels and standards. Noise control and abatement measures. Impact of noise on human health. Sources of marine pollution and control. Criteria employed for disposal of pollutants in marine system-coastal management. Radioactive and Thermal Pollution. Introduction to environmental impact analysis. Environmental impact Statement and Environmental Management Plan. Generalized approach to impact analysis. Procedure for reviewing Environmental impact analysis and statement. Guidelines for Environmental audit. Introduction to Environmental planning. Base line information and predictions land, water, atmosphere, energy, etc. Restoration and rehabilitation technologies.

Chapter 3 : Latest UGC NET Syllabus for All Subjects, Scheme of Examination

Politics including International Relations/International Studies including Defence/Strategic Studies, West Asian Studies, South East Asian Studies, African Studies, South Asian Studies, Soviet Studies, American Studies.

There will be two question papers. Part â€" A will have 10 short essay type questions words carrying 16 marks each. There will be one question from each unit with internal choice from the same unit. Total marks will be The candidate will attempt one question from Part â€" B words carrying 40 marks. Definition, principles and scope of Environmental Science. Earth, Man and Environment. Ecosystems, Pathways in Ecosystems. Physico-chemical and Biological factors in the Environment. Geographical classification and zones. Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere. Mass and Energy transfer across the various interfaces, material balance. First and Second law of thermodynamics, heat transfer processes. Scale of Meteorology, pressure, temperature, precipitation, humidity, radiation and wind. Atmospheric stability, inversions and mixing heights, windroses. Natural resources, conservation and sustainable development. Fundamentals of Environmental Chemistry: Chemical composition of Air: Classification of elements, chemical speciation. Particles, ions and radicals in the atmosphere. Chemical processes for formation of inorganic and organic particulate matter. Thermochemical and photochemical reactions in the atmosphere. Oxygen and ozone chemistry, Chemistry of air pollutants, Photochemical smog. Inorganic and organic components of soil, Nitrogen pathways and NPK in soils. Toxic Chemicals in the environment â€" Air, Water: Principles of Analytical Methods: X â€" ray fluorescence, X â€" ray diffraction, Flame photometry. Definition, Principles and scope of ecology, Human ecology and Human settlement, Evolution, Origin of life and speciation. Structure and functions, Abiotic and Biotic components, energy flows, Food chains, Food web, Ecological pyramids, types and diversity. Common flora and fauna in India: Phytoplankton, Zooplankton and Macrophytes. Forests Endangered and Threatened Species: Biodiversity and its conservation: National Parks and Sanctuaries. Air â€" borne diseases and allergies. Fermentation Technology, Vermiculture technology, Biofertilizer technology. The earth systems and Biosphere: Conservation of matter in various geospheres â€" lithosphere, hydrosphere, atmosphere and biosphere. Energy budget of the earth. Ecosystems flow of energy and matter. Coexistence in communities-food webs. General relationship between landscape, biomes and climate. Tropical cyclones and Western Disturbances. Earths processes; concept of residence, time and rates of natural cycles. Study of floods, landslides, earthquakes, volcanism and avalanche. Prediction and perception of the hazards and adjustments to hazardous activities. Mineral Resources and Environment: Resources and Reserves, Minerals. Oceans as new areas for exploration of mineral resources. Ocean ore and recycling of resources. Environmental impact of exploitation, processing and smelting of minerals. Water Resources and Environment: Ice sheets and fluctuations of sea levels. Origin and composition of seawater. Factors influencing the surface water. Ocean pollution by toxic wastes. Human use of surface and groundwaters. Soil surveys in relation to landuse planning. Methods of site selection and evaluation. Concept of major, trace and REE. Classification of trace elements, Mobility of trace elements, Geochemical cycles. Human use, trace elements and health. Possible effects of imbalance of some trace elements. Diseases induced by human use of land. Principles of Remote sensing and its application of Environmental Sciences. Sun as source of energy; solar radiation and its spectral characteristics; Fossil fuels-classification, composition, physico â€" chemical characteristics and energy content of coal, petroleum and natural gas. Principles of generation of hydroelectric power, tidal, Ocean Thermal Energy Conversion, wind, geothermal energy; solar collectors, photovoltaics, solar ponds; nuclear energy â€" fission and fusion; magnetohydrodynamic power, bio-energy-energy from biomass and biogas, anaerobic digestion; energy use pattern in different parts of the world. Environmental implication of energy use; C02 emissions, global warming; air and thermal pollution; radioactive waste and radioactivity from nuclear reactors; impacts of large-scale exploitation of Solar, Wind, Hydro and Ocean energy. Natural and anthropogenic sources of pollution. Primary and Secondary pollutants. Transport and diffusion of pollutants. Gas laws governing the behaviour of pollutants in the atmosphere. Effects of pollutants on human beings, plants, animals, materials and on climate. Types, sources and consequences of water

pollution. Physico â€" chemical and Bacteriological sampling and analysis of water quality. Standards, sewage and waste water treatment and recycling. Physico â€" chemical as bacteriological sampling as analysis of soil quality. Industrial waste effluents and heavy metals, their interactions with soil components. Soil micro â€" organisms and their functions, degradation of different insecticides, fungicides and weedicides in soil. Sources of noise pollution, measurement of noise and Indices, effect of meteorological parameters on noise propagation. Noise exposure levels and standards. Noise control and abatement measures. Impact of noise on human health. Sources of marine pollution and control. Criteria employed for disposal of pollutants in marine system-coastal management. Radioactive and Thermal Pollution. Introduction to environmental impact analysis. Environmental impact Statement and Environmental Management Plan. Generalized approach to impact analysis. Procedure for reviewing Environmental impact analysis and statement. Guidelines for Environmental audit. Introduction to Environmental planning. Base line information and predictions land, water, atmosphere, energy, etc. Restoration and rehabilitation technologies.

Chapter 4 : Answer Key of Environmental Sciences CBSE UGC NET December Exam â€“ UGC NET | Qui

Answer Key of French CBSE UGC NET June - calendrierdelascience.com Answer Key of Kashmiri CBSE UGC NET June - calendrierdelascience.com Answer Keys CBSE NET June Paper 2 UGC NET UnOfficial Answer Keys.

Composition, structure and function of biomolecules carbohydrates, lipids, proteins, nucleic acids and vitamins. Stabilizing interactions Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc. Principles of biophysical chemistry pH, buffer, reaction kinetics, thermodynamics, colligative properties. Bioenergetics, glycolysis, oxidative phosphorylation, coupled reaction, group transfer, biological energy transducers. Principles of catalysis, enzymes and enzyme kinetics, enzyme regulation, mechanism of enzyme catalysis, isozymes Conformation of proteins Ramachandran plot, secondary structure, domains, motif and folds. Stability of proteins and nucleic acids. Metabolism of carbohydrates, lipids, amino acids nucleotides and vitamins. Structure of model membrane, lipid bilayer and membrane protein diffusion, osmosis, ion channels, active transport, membrane pumps, mechanism of sorting and regulation of intracellular transport, electrical properties of membranes. Structural organization and function of intracellular organelles: Organization of genes and chromosomes: Operon, unique and repetitive DNA, interrupted genes, gene families, structure of chromatin and chromosomes, heterochromatin, euchromatin, transposons. Cell division and cell cycle: Mitosis and meiosis, their regulation, steps in cell cycle, regulation and control of cell cycle. Growth yield and characteristics, strategies of cell division, stress response. Unit of replication, enzymes involved, replication origin and replication fork, fidelity of replication, extrachromosomal replicons, DNA damage and repair mechanisms, homologous and site-specific recombination. RNA synthesis and processing: Ribosome, formation of initiation complex, initiation factors and their regulation, elongation and elongation factors, termination, genetic code, aminoacylation of tRNA, tRNA-identity, aminoacyl tRNA synthetase, and translational proof-reading, translational inhibitors, Post- translational modification of proteins. Control of gene expression at transcription and translation level: CELL COMMUNICATION AND CELL SIGNALING Host parasite interaction Recognition and entry processes of different pathogens like bacteria, viruses into animal and plant host cells, alteration of host cell behavior by pathogens, virus-induced cell transformation, pathogen-induced diseases in animals and plants, cell-cell fusion in both normal and abnormal cells Cell signaling Hormones and their receptors, cell surface receptor, signaling through G-protein coupled receptors, signal transduction pathways, second messengers, regulation of signaling pathways, bacterial and plant two-component systems, light signaling in plants, bacterial chemotaxis and quorum sensing. Cellular communication Regulation of hematopoiesis, general principles of cell communication, cell adhesion and roles of different adhesion molecules, gap junctions, extracellular matrix, integrins, neurotransmission and its regulation. Genetic rearrangements in progenitor cells, oncogenes, tumor suppressor genes, cancer and the cell cycle, virus-induced cancer, metastasis, interaction of cancer cells with normal cells, apoptosis, therapeutic interventions of uncontrolled cell growth. Innate and adaptive immune system Cells and molecules involved in innate and adaptive immunity, antigens, antigenicity and immunogenicity. B and T cell epitopes, structure and function of antibody molecules. Potency, commitment, specification, induction, competence, determination and differentiation; morphogenetic gradients; cell fate and cell lineages; stem cells; genomic equivalence and the cytoplasmic determinants; imprinting; mutants and transgenics in analysis of development. Gametogenesis, fertilization and early development: Production of gametes, cell surface molecules in sperm-egg recognition in animals; embryo sac development and double fertilization in plants; zygote formation, cleavage, blastula formation, embryonic fields, gastrulation and formation of germ layers in animals; embryogenesis, establishment of symmetry in plants; seed formation and germination. Morphogenesis and organogenesis in animals: Cell aggregation and differentiation in Dictyostelium; axes and pattern formation in Drosophila, amphibia and chick; organogenesis â€” vulva formation in Caenorhabditis elegans, eye lens induction, limb development and regeneration in vertebrates; differentiation of neurons, post embryonic development- larval formation, metamorphosis; environmental regulation of normal development; sex determination. Morphogenesis and organogenesis in plants: Organization of shoot and root apical

meristem; shoot and root development; leaf development and phyllotaxy; transition to flowering, floral meristems and floral development in Arabidopsis and Antirrhinum Programmed cell death, aging and senescence 6. Citric acid cycle; plant mitochondrial electron transport and ATP synthesis; alternate oxidase; photorespiratory pathway. Nitrate and ammonium assimilation; amino acid biosynthesis. Biosynthesis, storage, breakdown and transport; physiological effects and mechanisms of action. Structure, function and mechanisms of action of phytochromes, cryptochromes and phototropins; stomatal movement; photoperiodism and biological clocks. Solute transport and photoassimilate translocation: Biosynthesis of terpenes, phenols and nitrogenous compounds and their roles. Responses of plants to biotic pathogen and insects and abiotic water, temperature and salt stresses. Blood corpuscles, haemopoiesis and formed elements, plasma function, blood volume, blood volume regulation, blood groups, haemoglobin, immunity, haemostasis. Comparative anatomy of heart structure, myogenic heart, specialized tissue, ECG â€" its principle and significance, cardiac cycle, heart as a pump, blood pressure, neural and chemical regulation of all above. Comparison of respiration in different species, anatomical considerations, transport of gases, exchange of gases, waste elimination, neural and chemical regulation of respiration. Neurons, action potential, gross neuroanatomy of the brain and spinal cord, central and peripheral nervous system, neural control of muscle tone and posture. Vision, hearing and tactile response. Comparative physiology of excretion, kidney, urine formation, urine concentration, waste elimination, micturition, regulation of water balance, blood volume, blood pressure, electrolyte balance, acid-base balance. Comfort zone, body temperature â€" physical, chemical, neural regulation, acclimatization. Endocrine glands, basic mechanism of hormone action, hormones and diseases; reproductive processes, gametogenesis, ovulation, neuroendocrine regulation 8. Dominance, segregation, independent assortment. Allele, multiple alleles, pseudo-allele, complementation tests Extensions of Mendelian principles: Co-dominance, incomplete dominance, gene interactions, pleiotropy, genomic imprinting, penetrance and expressivity, phenocopy, linkage and crossing over, sex linkage, sex limited and sex influenced characters. Linkage maps, tetrad analysis, mapping with molecular markers, mapping by using somatic cell hybrids, development of mapping population in plants. Inheritance of Mitochondrial and chloroplast genes, maternal inheritance. Methods of genetic transfers â€" transformation, conjugation, transduction and sex-duction, mapping genes by interrupted mating, fine structure analysis of genes. Pedigree analysis, lod score for linkage testing, karyotypes, genetic disorders. Polygenic inheritance, heritability and its measurements, QTL mapping. Types, causes and detection, mutant types â€" lethal, conditional, biochemical, loss of function, gain of function, germinal verses somatic mutants, insertional mutagenesis. Structural and numerical alterations of chromosomes: Deletion, duplication, inversion, translocation, ploidy and their genetic implications. Homologous and non-homologous recombination including transposition 9. Levels of structural organization: Unicellular, colonial and multicellular forms. Comparative anatomy, adaptive radiation, adaptive modifications. Important criteria used for classification in each taxon. Classification of plants, animals and microorganisms. Evolutionary relationships among taxa. Natural history of Indian subcontinent: Major habitat types of the subcontinent, geographic origins and migrations of species. Common Indian mammals, birds. Seasonality and phenology of the subcontinent. Common parasites and pathogens of humans, domestic animals and crops. Organisms of conservation concern: Physical environment; biotic environment; biotic and abiotic interactions. Concept of habitat and niche; niche width and overlap; fundamental and realized niche; resource partitioning; character displacement. Characteristics of a population; population growth curves; population regulation; life history strategies r and K selection ; concept of metapopulation â€" demes and dispersal, interdemic extinctions, age structured populations. Types of interactions, interspecific competition, herbivory, carnivory, pollination, symbiosis. Nature of communities; community structure and attributes; levels of species diversity and its measurement; edges and ecotones. Types; mechanisms; changes involved in succession; concept of climax. Ecosystem structure; ecosystem function; energy flow and mineral cycling C,N,P ; primary production and decomposition; structure and function of some Indian ecosystems: Major terrestrial biomes; theory of island biogeography; biogeographical zones of India. Environmental pollution; global environmental change; biodiversity: Lamarck; Darwinâ€"concepts of variation, adaptation, struggle, fitness and natural selection; Mendelism; Spontaneity of mutations; the evolutionary synthesis. Origin of cells

and unicellular evolution: Origin of basic biological molecules; Abiotic synthesis of organic monomers and polymers; Concept of Oparin and Haldane; Experiment of Miller ; The first cell; Evolution of prokaryotes; Origin of eukaryotic cells; Evolution of unicellular eukaryotes; Anaerobic metabolism, photosynthesis and aerobic metabolism. Paleontology and Evolutionary History: The evolutionary time scale; Eras, periods and epoch; Major events in the evolutionary time scale; Origins of unicellular and multi cellular organisms; Major groups of plants and animals; Stages in primate evolution including Homo. Concepts of neutral evolution, molecular divergence and molecular clocks; Molecular tools in phylogeny, classification and identification; Protein and nucleotide sequence analysis; origin of new genes and proteins; Gene duplication and divergence. Population genetics â€" Populations, Gene pool, Gene frequency; Hardy-Weinberg Law; concepts and rate of change in gene frequency through natural selection, migration and random genetic drift; Adaptive radiation; Isolating mechanisms; Speciation; Allopatricity and Sympatricity; Convergent evolution; Sexual selection; Co-evolution. Brain, Behavior and Evolution: Approaches and methods in study of behavior; Proximate and ultimate causation; Altruism and evolution-Group selection, Kin selection, Reciprocal altruism; Neural basis of learning, memory, cognition, sleep and arousal; Biological clocks; Development of behavior; Social communication; Social dominance; Use of space and territoriality; Mating systems, Parental investment and Reproductive success; Parental care; Aggressive behavior; Habitat selection and optimality in foraging; Migration, orientation and navigation; Domestication and behavioral changes. Microbial fermentation and production of small and macro molecules. Application of immunological principles, vaccines, diagnostics. Tissue and cell culture methods for plants and animals. Transgenic animals and plants, molecular approaches to diagnosis and strain identification. Genomics and its application to health and agriculture, including gene therapy. Bioresource and uses of biodiversity. Breeding in plants and animals, including marker â€" assisted selection Bioremediation and phytoremediation Biosensors Expression of recombinant proteins using bacterial, animal and plant vectors. In vitro mutagenesis and deletion techniques, gene knock out in bacterial and eukaryotic organisms. Protein sequencing methods, detection of post translation modification of proteins. DNA sequencing methods, strategies for genome sequencing. Measures of central tendency and dispersal; probability distributions Binomial, Poisson and normal ; Sampling distribution; Difference between parametric and non-parametric statistics; Confidence Interval; Errors; Levels of significance; Regression and Correlation; t-test; Analysis of variance; X2 test;; Basic introduction to Muetrovariate statistics, etc.

Chapter 5 : UGC NET Environmental Sciences Syllabus June â€“ sanjay's Blog

Thanks for asking! There was few media report which says the syllabus for ugc net exam is going to change but its not at-least for July exam. The syllabus is same - You can check it here Paper 1 Syllabus -CBSE UGC NET Syllabus Paper 1,Tips.

Vector algebra and vector calculus. Linear algebra, matrices, Cayley-Hamilton Theorem. Fourier series, Fourier and Laplace transforms. Elementary probability theory, random variables, binomial, Poisson and normal distributions. Dynamical systems, Phase space dynamics, stability analysis. Central force Two body Collisions â€" scattering in laboratory and Centre of mass frames. Rigid body dynamicsmoment of inertia tensor. Non-inertial frames and pseudoforces. Lagrangian and Hamiltonian formalism and equations of motion. Conservation laws and cyclic coordinates. Special theory of relativityLorentz transformations, relativistic kinematics and massâ€"energy equivalence. Scalar and vector potentials, gauge invariance. Electromagnetic waves in free space. Dynamics of charged particles in static and uniform electromagnetic fields. Quantum Mechanics Wave-particle duality. Eigenvalue problems particle in a box, harmonic oscillator, etc. Tunneling through a barrier. Wave-function in coordinate and momentum representations. Commutators and Heisenberg uncertainty principle. Dirac notation for state vectors. Motion in a central potential: Time independent perturbation theory and applications. Identical particles, Pauli exclusion principle, spin-statistics connection. Thermodynamic and Statistical Physics Laws of thermodynamics and their consequences. Thermodynamic potentials, Maxwell relations, chemical potential, phase equilibria. Phase space, micro- and macro-states. Micro-canonical, canonical and grand-canonical ensembles and partition functions. Free energy and its connection with thermodynamic quantities. Classical and quantum statistics. Ideal Bose and Fermi gases. Principle of detailed balance. Electronics and Experimental Methods Semiconductor devices diodes, junctions, transistors, field effect devices, homo- and hetero-junction devices , device structure, device characteristics, frequency dependence and applications. Opto-electronic devices solar cells, photo-detectors, LEDs. Operational amplifiers and their applications. Digital techniques and applications registers, counters, comparators and similar circuits. Microprocessor and microcontroller basics. Data interpretation and analysis. Error analysis, propagation of errors. Elementary set theory, finite, countable and uncountable sets, Real number system as a complete ordered field, Archimedean property, supremum, infimum. Sequences and series, convergence, limsup, liminf. Bolzano Weierstrass theorem, Heine Borel theorem. Continuity, uniform continuity, differentiability, mean value theorem. Sequences and series of functions, uniform convergence. Riemann sums and Riemann integral, Improper Integrals. Monotonic functions, types of discontinuity, functions of bounded variation, Lebesgue measure, Lebesgue integral. Functions of several variables, directional derivative, partial derivative, derivative as a linear transformation, inverse and implicit function theorems. Metric spaces, compactness, connectedness. Spaces of continuous functions as examples. Vector spaces, subspaces, linear dependence, basis, dimension, algebra of linear transformations. Algebra of matrices, rank and determinant of matrices, linear equations. Eigenvalues and eigenvectors, Cayley-Hamilton theorem. Matrix representation of linear transformations. Change of basis, canonical forms, diagonal forms, triangular forms, Jordan forms. Inner product spaces, orthonormal basis. Quadratic forms, reduction and classification of quadratic forms. Algebra of complex numbers, the complex plane, polynomials, power series, transcendental functions such as exponential, trigonometric and hyperbolic functions. Analytic functions, Cauchy-Riemann equations. Taylor series, Laurent series, calculus of residues. Conformal mappings, Mobius transformations. Permutations, combinations, pigeon-hole principle, inclusion-exclusion principle, derangements. Rings, ideals, prime and maximal ideals, quotient rings, unique factorization domain, principal ideal domain, Euclidean domain. Polynomial rings and irreducibility criteria. Fields, finite fields, field extensions, Galois Theory. Basis, dense sets, subspace and product topology, separation axioms, connectedness and compactness. Existence and uniqueness of solutions of initial value problems for first order ordinary differential equations, singular solutions of first order ODEs, system of first order ODEs. Numerical solutions of algebraic equations, Method of iteration and Newton-Raphson method, Rate of convergence, Solution of systems of linear

algebraic equations using Gauss elimination and Gauss-Seidel methods, Finite differences, Lagrange, Hermite and spline interpolation, Numerical differentiation and integration, Numerical solutions of ODEs using Picard, Euler, modified Euler and Runge-Kutta methods. Variation of a functional, Euler-Lagrange equation, Necessary and sufficient conditions for extrema. Variational methods for boundary value problems in ordinary and partial differential equations. Linear integral equation of the first and second kind of Fredholm and Volterra type, Solutions with separable kernels. Characteristic numbers and eigenfunctions, resolvent kernel. UNIT â€" 4 Descriptive statistics, exploratory data analysis Sample space, discrete probability, independent events, Bayes theorem. Random variables and distribution functions univariate and multivariate ; expectation and moments. Independent random variables, marginal and conditional distributions. Probability inequalities Tchebyshef, Markov, Jensen. Modes of convergence, weak and strong laws of large numbers, Central Limit theorems i. Markov chains with finite and countable state space, classification of states, limiting behaviour of n-step transition probabilities, stationary distribution, Poisson and birth-and-death processes. Standard discrete and continuous univariate distributions. Methods of estimation, properties of estimators, confidence intervals. Analysis of discrete data and chi-square test of goodness of fit. Simple nonparametric tests for one and two sample problems, rank correlation and test for independence. Gauss-Markov models, estimability of parameters, best linear unbiased estimators, confidence intervals, tests for linear hypotheses. Analysis of variance and covariance. Fixed, random and mixed effects models. Simple and multiple linear regression. Multivariate normal distribution, Wishart distribution and their properties. Distribution of quadratic forms. Inference for parameters, partial and multiple correlation coefficients and related tests. Principle component analysis, Discriminant analysis, Cluster analysis, Canonical correlation. Simple random sampling, stratified sampling and systematic sampling. Probability proportional to size sampling. Ratio and regression methods. Completely randomized designs, randomized block designs and Latin-square designs. Connectedness and orthogonality of block designs, BIBD. Hazard function and failure rates, censoring and life testing, series and parallel systems. Linear programming problem, simplex methods, duality. Elementary queuing and inventory models. Steady-state solutions of Markovian queuing models: Although there are many coaching institutes in Hyderabad City of Forts promising to provide quality education, but students have experienced that they all had been givingfalse promises. To them distance is not the matter.

Chapter 6 : CSIR NET Life Sciences Syllabus Latest | easybiologyclass

CBSE NET Environmental Sciences Syllabus Subject: Environmental Sciences (Code No: 89) Note. There will be two question papers. UGC NET Environmental Science Paper II will cover 50 Multiple Choice Questions (Multiple choice.

Vector algebra and vector calculus. Linear algebra, matrices, Cayley-Hamilton Theorem. Fourier series, Fourier and Laplace transforms. Elementary probability theory, random variables, binomial, Poisson and normal distributions. Dynamical systems, Phase space dynamics, stability analysis. Central force Two body Collisions â€" scattering in laboratory and Centre of mass frames. Rigid body dynamicsmoment of inertia tensor. Non-inertial frames and pseudoforces. Lagrangian and Hamiltonian formalism and equations of motion. Conservation laws and cyclic coordinates. Special theory of relativityLorentz transformations, relativistic kinematics and massâ€"energy equivalence. Scalar and vector potentials, gauge invariance. Electromagnetic waves in free space. Dynamics of charged particles in static and uniform electromagnetic fields. Quantum Mechanics Wave-particle duality. Eigenvalue problems particle in a box, harmonic oscillator, etc. Tunneling through a barrier. Wave-function in coordinate and momentum representations. Commutators and Heisenberg uncertainty principle. Dirac notation for state vectors. Motion in a central potential: Time independent perturbation theory and applications. Identical particles, Pauli exclusion principle, spin-statistics connection. Thermodynamic and Statistical Physics Laws of thermodynamics and their consequences. Thermodynamic potentials, Maxwell relations, chemical potential, phase equilibria. Phase space, micro- and macro-states. Micro-canonical, canonical and grand-canonical ensembles and partition functions. Free energy and its connection with thermodynamic quantities. Classical and quantum statistics. Ideal Bose and Fermi gases. Principle of detailed balance. Electronics and Experimental Methods Semiconductor devices diodes, junctions, transistors, field effect devices, homo- and hetero-junction devices , device structure, device characteristics, frequency dependence and applications. Opto-electronic devices solar cells, photo-detectors, LEDs. Operational amplifiers and their applications. Digital techniques and applications registers, counters, comparators and similar circuits. Microprocessor and microcontroller basics. Data interpretation and analysis. Error analysis, propagation of errors. Elementary set theory, finite, countable and uncountable sets, Real number system as a complete ordered field, Archimedean property, supremum, infimum. Sequences and series, convergence, limsup, liminf. Bolzano Weierstrass theorem, Heine Borel theorem. Continuity, uniform continuity, differentiability, mean value theorem. Sequences and series of functions, uniform convergence. Riemann sums and Riemann integral, Improper Integrals. Monotonic functions, types of discontinuity, functions of bounded variation, Lebesgue measure, Lebesgue integral. Functions of several variables, directional derivative, partial derivative, derivative as a linear transformation, inverse and implicit function theorems. Metric spaces, compactness, connectedness. Spaces of continuous functions as examples. Vector spaces, subspaces, linear dependence, basis, dimension, algebra of linear transformations. Algebra of matrices, rank and determinant of matrices, linear equations. Eigenvalues and eigenvectors, Cayley-Hamilton theorem. Matrix representation of linear transformations. Change of basis, canonical forms, diagonal forms, triangular forms, Jordan forms. Inner product spaces, orthonormal basis. Quadratic forms, reduction and classification of quadratic forms. Algebra of complex numbers, the complex plane, polynomials, power series, transcendental functions such as exponential, trigonometric and hyperbolic functions. Analytic functions, Cauchy-Riemann equations. Taylor series, Laurent series, calculus of residues. Conformal mappings, Mobius transformations. Permutations, combinations, pigeon-hole principle, inclusion-exclusion principle, derangements. Rings, ideals, prime and maximal ideals, quotient rings, unique factorization domain, principal ideal domain, Euclidean domain. Polynomial rings and irreducibility criteria. Fields, finite fields, field extensions, Galois Theory. Basis, dense sets, subspace and product topology, separation axioms, connectedness and compactness. Existence and uniqueness of solutions of initial value problems for first order ordinary differential equations, singular solutions of first order ODEs, system of first order ODEs. Numerical solutions of algebraic equations, Method of iteration and Newton-Raphson method, Rate of convergence, Solution of systems of linear algebraic equations using Gauss elimination and Gauss-Seidel methods, Finite differences, Lagrange, Hermite

and spline interpolation, Numerical differentiation and integration, Numerical solutions of ODEs using Picard, Euler, modified Euler and Runge-Kutta methods. Variation of a functional, Euler-Lagrange equation, Necessary and sufficient conditions for extrema. Variational methods for boundary value problems in ordinary and partial differential equations. Linear integral equation of the first and second kind of Fredholm and Volterra type, Solutions with separable kernels. Characteristic numbers and eigenfunctions, resolvent kernel. UNIT â€" 4 Descriptive statistics, exploratory data analysis Sample space, discrete probability, independent events, Bayes theorem. Random variables and distribution functions univariate and multivariate ; expectation and moments. Independent random variables, marginal and conditional distributions. Probability inequalities Tchebyshef, Markov, Jensen. Modes of convergence, weak and strong laws of large numbers, Central Limit theorems i. Markov chains with finite and countable state space, classification of states, limiting behaviour of n-step transition probabilities, stationary distribution, Poisson and birth-and-death processes. Standard discrete and continuous univariate distributions. Methods of estimation, properties of estimators, confidence intervals. Analysis of discrete data and chi-square test of goodness of fit. Simple nonparametric tests for one and two sample problems, rank correlation and test for independence. Gauss-Markov models, estimability of parameters, best linear unbiased estimators, confidence intervals, tests for linear hypotheses. Analysis of variance and covariance. Fixed, random and mixed effects models. Simple and multiple linear regression. Multivariate normal distribution, Wishart distribution and their properties. Distribution of quadratic forms. Inference for parameters, partial and multiple correlation coefficients and related tests. Principle component analysis, Discriminant analysis, Cluster analysis, Canonical correlation. Simple random sampling, stratified sampling and systematic sampling. Probability proportional to size sampling. Ratio and regression methods. Completely randomized designs, randomized block designs and Latin-square designs. Connectedness and orthogonality of block designs, BIBD. Hazard function and failure rates, censoring and life testing, series and parallel systems. Linear programming problem, simplex methods, duality. Elementary queuing and inventory models. Steady-state solutions of Markovian queuing models: Although there are many coaching institutes in Delhi and NCR promising to provide quality education, but students have experienced that they all give false promises. To them distance is not the matter.

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Chapter 7 : Welcome to UGC, New Delhi, India

Below is complete syllabus in Hindi and English language, latest and best books to buy from Flipkart or Amazon and previous year's question papers to download in pdf for UGC NET Environmental Sciences exam.

This work is licensed under a Creative Commons Attribution 4. Unit â€" I Definition, principles and scope of Environmental Science. Earth, Man and Environment. Ecosystems, Pathways in Ecosystems. Physico-chemical and Biological factors in the Environment. Geographical classification and zones. Structure and composition of atmosphere, hydrosphere, lithosphere and biosphere. Mass and Energy transfer across the various interfaces, material balance. First and Second law of thermodynamics, heat transfer processes. Scale of Meteorology, pressure, temperature, precipitation, humidity, radiation and wind. Atmospheric stability, inversions and mixing heights, windroses. Natural resources, conservation and sustainable development. Chemical composition of Air: Classification of elements, chemical speciation. Particles, ions and radicals in the atmosphere. Chemical processes for formation of inorganic and organic particulate matter. Thermochem i cal and photochemical reactions in the atmosphere. Oxygen and ozone chemistry, Chemistry of air pollutants, Photochemical smog. Inorganic and organic components of soil, Nitrogen pathways and NPK in soils. Toxic Chemicals in the environment â€" Air, Water: Principles of Analytical Methods: X â€" ray fluorescence, X â€" ray diffraction, Flame photometry. Structure and functions, Abiotic and Biotic components, energy flows, Food chains, Food web, Ecological pyramids, types and diversity. Common flora and fauna in India: Phytoplankton, Zooplankton and Macrophytes. Forests Endangered and Threatened Species: Biodiversity and its conservation: National Parks and Sanctuaries. Air â€" borne diseases and allergies. Fermentation Technology, Vermiculture technology, Biofertilizer technology. Unit â€" IV Environmental Geosciences: The earth systems and Biosphere: Conservation of matter in various geospheres â€" lithosphere, hydrosphere, atmosphere and biosphere. Energy budget of the earth. Ecosystems flow of energy and matter. Coexistence in communities-food webs. General relationship between landscape, biomes and climate. Tropical cyclones and Western Disturbances. Earths processes; concept of residence, time and rates of natural cycles. Study of floods, landslides, earthquakes, volcanism and avalanche. Prediction and perception of the hazards and adjustments to hazardous activities. Mineral Resources and Environment: Resources and Reserves, Minerals. Oceans as new areas for exploration of mineral resources. Ocean ore and recycling of resources. Environmental impact of exploitation, processing and smelting of minerals. Water Resources and Environment: Ice sheets and fluctuations of sea levels. Origin and composition of seawater. Factors influencing the surface water. Ocean pollution by toxic wastes. Human use of surface and groundwaters. Soil surveys in relation to landuse planning. Methods of site selection and evaluation. Concept of major, trace and REE. Classification of trace elements, Mobility of trace elements, Geochemical cycles. Human use, trace elements and health. Possible effects of imbalance of some trace elements. Diseases induced by human use of land.

Chapter 8 : UGC NET Syllabus for Environmental Sciences - Free Online NTA UGC NET/JRF Guide Book

Environmental Science Previous Years (Past) Papers (PDF) for CBSE (UGC) NET from Paper 3 has been removed from NET from (Notification)- now paper 2 and 3 syllabus is included in paper 2.

Chapter 9 : Upadetd NTA UGC NET Syllabus For All Subjects December

CBSE UGC NET Dec Answer key. CBSE UGC NET Answer key are provided here. Paper I; Paper II; Paper III; CBSE UGC NET June Question Paper. CBSE UGC NET Question Papers are provided here.