PROPOSED SYLLABUS FOR B.Sc. BIOTECHNOLOGY

CENTRAL BOARD OF STUDIES

(Held On 27-28 April 2017)

B.Sc I Year	Title of the Paper	Theory	Internals	Total
BT-101	Cell Structure & Biology	42.5	7.5	50
BT-102	Microbiology	42.5	7.5	50
BT-103	Laboratory			50
				150

B.Sc II Year	Title of the Paper	Theory	Internals	Total
BT-201	Biophysics & Biochemistry	42.5	7.5	50
BT-202	Bioinstrumentation,Biostatistics & Bioinformatics	42.5	7.5	50
BT-203	Laboratory			50
				150

B.Sc III Year	Title of the Paper	Theory	Internals	Total
BT-301	Molecular Biology & Genetic Engineering	42.5	7.5	50
BT-302	Applied Biotechnology	42.5	7.5	50
BT-303	Laboratory			50
				150

GRAND TOTAL- 450

P.K. Singhay

Dr D.S. Rathore

Deepa Rather

Dr Anil Kumar

1 Akhilesh Gautam

B.Sc First Year

Paper I : Cell Structure and Biology

Unit-I:

Cell Structure&Theory, Structure of prokaryotic cell, Eubacteria and Archaebacteria. Size, shape and arrangement of bacterial cells. Gram's positive and Gram's negative cells.

Structure of Eukaryotic cell, plant cells, animal cells. Difference between prokaryotic and eukaryotic cells.

Unit-II:

Structure and function of bacterial cell – flagella, pili, Cell wall, cytoplasmic membrane, nuclear region, mesosomes, ribosomes, vacuoles, metachromatic granules, spores and cysts.

Structure and function of eukaryotic cell – Cell wall, cell membrane, mitochondria, chloroplast, endoplasmic reticulum, Golgi bodies, nucleus, cytoskeleton, microbodies, Centriole, Lysosome.

Unit-III:

Cell cycle and cell division- mitosis, meiosis. Anomalies in cell division and associated diseases.Cell synchrony, Cell-cell interactions, Cell locomotion, Cell differentiation,

Unit-IV:

Transport Process: Cell Membrane: Models of membrane structure, Membrane proteins and their properties, Membrane carbohydrates and their roles. Transport across membranes – active and passive diffusion, mechanisms.

Unit-V:

Introduction to Necrosis, Senescence, Apoptosis – Programmed cell death, Mechanism of Apoptosis,Intrinsic &Extrinsic pathways of cell death, Apoptosis in relation to Cancer, Oncogenes – Types of cancer.

Dr. Rajiv Gothwal

P-K. Singhal

Dr D.S. Rathore

Deepa Kathr

Dr Anil Kumar

Paper-II: Microbiology

Unit-I:

Introduction of Microbiology - History, Applications&Status of Microbiology in India.Classification of Microorganisms-General Features, systems of Classification.Microbial Taxonomy ,Classification and identification of Bacteria, Bergey`s manual.

Unit-II:

Structure and Diversity of Bacteria&Virus, Microbes in extreme environment. Nutritional requirement of microbes.

Bacteriology: Morphology and ultra structure of bacteriomorphologial types, Archaebacteria. Structure and function of cell organelles.

Unit-III:

Structure and Diversity of Algae, Fungi,Protozoans, Mycoplasmas and Extremophiles.General characteristics. Various methods of staining-simple, Gram, endospore, capsule, flagella and negative staining ,Fungal stains, Algal stains.

Unit-IV: Microbial Growth

Microbial growth – mathematical expression of growth, growth curve, factors affecting growth. Batch, continuous, synchronous and diauxic growth. Quantification of microbial growth.

Control of micro organisms- physical & chemical, Evaluation of chemical disinfectants- tube dilution test, agar diffusion test and phenol- coefficient.

Unit-V:

Microbial Nutrition and metabolism- Microbial Metabolism- Concept of Anabolism & catabolism processes.Nitrogen Fixation- Types and mechanisms, Microbial disease in plants & Animals(Only General concept).

Fermentation Process –Fermenter & its microbes of industrial importance.

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Dr D.S. Rathore

Dr. Anjali Chondhekar

Dr. Pragya Gokhale

Deepa Rathor

BT-103 Laboratory

List of Practicals

1. To study the plant cell structure using various plant materials.
2. To study microbial cell by Monochrome staining and Gram staining.
3. To prepare and study the different stages of mitosis and meiosis.
4. Prepare slide for study of stomata.
5. Study of permanent slides like cell division, prokaryotic and eukaryotic cells. Muscles and Nerve cells, T.S. of stomatal cells.
6. To study the animal cell structure using cheek cells.
7. Histochemical localization offlagellin.
8. Viable cell counting usinghaematocytometer.
9. Measurement of cell by light microscope:-
   Calibration of ocular micrometer, finding out average cell size
10. Separation of cell types from blood by TLC/differential counting.
11. Methods of cell lysis: rupture osmotic/chemical/enzymatic.
12. Study of human and animal chromosomes.
13. Aseptic techniques,Cleaning of glassware, Preparation of cotton plugging and sterilization.
14. Isolation of Microbes from Air ,Water and Soil.
15. Dilution and plating by Pour plate ,Spread Plate Methods.
16. Staining Method—Gram Staining , Endospore Staining , Fungal Staining, Algal staining.
17. Identification of Bacteria based on staining, shape and size.
18. Antibiotic Sensitivity of Microbes by the Use of Antibiotic Discs.
19. Isolation and Identification of aquatic Fungi from Local water body.
20. Isolation and Characterisation of green algae from Natural habitats.
21. Measurement of water and soil, pH.

Note: 70% of the above list should be compulsorily performed.

P.K. Singhal

Dr. Anil Kumar

D.S. Rathore

Dr. Anjali Chandel

Deepa Rathi

Dr. Rupini Kothalkar

Scheme of Practical Examination **MM: 50**

Duration: 3 Hrs

1. Major (10)
2. Major (10)
3. Minor (5)
5. Minor (5)
4. Spotting (10)
5. Viva- Voce. (05)
6. Practical Record. (05)

Suggested Reading

1. Cell and molecular. Biology: P.K.Gupta
2. Cell & Molecular biology: S.C.Rastogy
3. Molecular Biology of Cells, (2002), Alberts's et. al.
4. Cell Biology, P.S. Verma & Agarwal.
5. Text book of Microbiology by R.C.Dubey
6. A Text book of Microbiology -Dubey and Maheshwari
7. Essentials of Microbiology -K.S.Bilgrami /R.K.Sinha
8. Microbiology P.D.Sharma
9. General Microbiology Vol I & II Pawar &Dagniwala.
10. Applied Microbiology P.D.Sharma
11. Microbiology Fundamentals &Applications -S.S.Purohit
12. Experiments in Microbiology ,Plant Pathology & Biotechnology -K.R.Ancja
13. Fundamentals of Microbiology & Immunology By A.K.Banerjee.Nirmalaya Banerjee
14. Modern Concept of Microbiology H.D.Kumar&Swati Kumar

P.K. Sinhay Dr Anil Kumar Dr D.S. Rathore Deepa Rathore

Dr. Anjali Chandhary Dr Raghvendra Gothalwal

Paper-II: Bioinstrumentation, Biostatistics and Bioinformatics

Unit-I:

Microscopy – Light, Phase contrast, fluoresenceand Electron microscopy

Centrifugation technique. Principles types & separation of biological molecules.

Unit-II:

Chromatography and Electrophoresis

Chromatography: Principles and applications, Principle and application of electrophoresis. Agarose gel electrophoresis, Immuno electrophoresis, Blotting: Southren, Western and Northern Blotting.

Unit-III:

Spectrophotometry.

Colorimetry (UV and Visible), Radio and Non radio labelling, Autoradiography

Unit-IV:

Biostatistics- Introduction, Scope, application and use of statistic collection and classification of data summarization and presentation of data. Arithmetic mean, median, standard deviation. Probability, definition. Random variable and its distribution. Binomial probability distribution.

Unit-V:

Computers: General introduction (characteristics, capabilities, generations), hardware: organization of hardware (input devices, memory, control unit arithmetic logic unit, output devices); software : (System software; application software, languages -low level, high level), internet application.

Basic Bioinformatics: Introduction to Internet, Search Engines (Google, Yahoo, Entrez etc)

Biological Databases: Sequence databases (EMBL, GenBank, DDBJ, -UNIPROT, PIR, TrEMBL), Protein family/domain databases (PROSITE, PRINTS, Pfam, BLOCK, etc), Cluster databases-An Introduction, Specialised databases (KEGG, etc), Database technologies (Flat-file), Structural databases (PDB)

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Dr D.S. Rathore

Deepa Rathore

BT-203 Laboratory

List of Practicals

1. Principles and working knowledge of instruments like Colorimeter, pH meter, Centrifuge, Spectrophotometer, Microscope etc.
2. Qualitative analysis of Carbohydrates, Proteins and Lipids.
3. Quantitative estimation of Protein by Folin-Lowry method.
4. Quantitative estimation of sugar by Nelson Smogyi'smethod.
5. Determination of enzyme activity by amylase.
6. Study the effect of pH on enzyme activity.
7. Study the effect of temperature on enzyme activity.
8. Separation of amino acids by TLC
9. Separation of leaf pigments by Paper chromatography.
10. Estimation of hemoglobin.
11. RBC counting by haematocytometer.
12. WBC counting by Differential/ or total cell count.
13. Measurement of bleeding and clotting time.
14. Measurement of Hemin Crystals.
15. Estimation of beta carotene in carrots.
16. Estimation of ascorbic acid in lemon juice.
17. Determination of iodine number of fat sample.
18. Determination of phosphorus content in plant material (Colorimetric method).
19. Computer Input and Output devices
20. Prepare a Marksheet of your class Subjects
21. Design your class timetable.
22. Prepare a bar chart ,pie chart for analysis of Election Result.
23. Exercise based on power point presentation.
24. Design a presentation illustrating insertion of pictures , word art & clip art
25. Use MS Word to insert a table into document.
26. Problem based on Mean, Median, Mode.
27. Hardy Weinberg Law applied on Population Genetics.
28. Problem based on Probability.
29. Exercise based on standard Deviation.
30. Biological data resources and data retrieval.

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31. Introduction to NCBI.
32. Retrieving DNA sequence from GenBank and analyzing various formats of the data stored.
33. Analyzing Protein Sequences.
34. Analyzing DNA sequence.

Scheme of Practical Examination **MM: 50**

Duration: 3 Hrs

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5. Minor (5)
4. Spotting (10)
5. Viva- Voce. (05)
6. Practical Record. (05)

P.K. Singhal

Dr A.K. Sharma

Dr D.S. Rathore

Dr. Anjali Chowdhary

Dr. Rajni Gothwal

Dr. Deepa Rathore

Suggested Reading

1. A text book of Bioinformatics by Sharma & Munjal& Shankar.
2. Bioinformatics by CSV Murthy
3. Basic Bioinformatics by S.Ignacimuthu, S.J
4. Bioinformatics: Concepts, Skills and Application By S.C. Rastogi. N. Mendiratta & Parag Rastogi
5. Practical Guide for basic Bioinformatics & Biostatistics By P. Tiwari & P. Pandey
6. Biostatistics by B. Prasad
7. Statistical Methods By S.P. Gupta
8. Fundamentals of Statistics By S.C. Gupta
9. Biostatistics by P.N.Arora
10. Principles of Biochemistry, Lehninger
11. Fundamentals of Biochemistry, J.L. Jain
12. Biochemistry, Voet and Voet.
13. Textbook of Biochemistry - S.P. Singh.
14. Biophysics : Mohan P. Arora
15. Biophysics : Pattabh & Gautham
16. Biochemistry:A.C. Deb
17. Biomolecule:Mohan P.Arora
18. Principles of Biochemistry (2005), Nelson & Cox

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Dr. Anjali Chowdhary.

Dr. Rugjini Gulhane

B.Sc III Year

Paper-I: Molecular Biology and Genetic Engineering

Unit-I:

DNA and RNA, Chemical Structure, Types and Properties, Experimental Proof of DNA as genetic material, Genome- Concept, Plant, Animal, Bacterial and Viral Genome, DNA Replication. Types, Experimental proof of semi conservative replication, Replicon- Concept, proteins and enzymes involved in replication in prokaryotes and eukaryotes, Modes of DNA replication. Unidirectional, Bidirectional, Types of DNA replication. Y shaped, θ mode, rolling circle mechanism.

Unit-II:

Eukaryotic chromosomal organization, Euchromatin, Heterochromatin, chromatin structure, nucleosomes, histone and non histone proteins, Histone modifications, Introduction to epigenetics.

Unit-III:

Origin of life: Classical experiments and current concepts. Evolution of biological macromolecules, Evolution of early forms, Mendeian genetics: Mendel's Law, Chromosomal basis of heredity, Chromosomal analysis, allelic variation, dominance, linkage and crossing over.

Unit-IV:

Introduction to Recombinant DNA technology, Scope & importance, Gene Cloning, PCR, Introduction to Restriction endonuclease, Vectors for DNA transfer and their types: Plasmids, Phagemids, Cosmids, BAC. Gene amplification.

Unit-V:

Plasmids Types Properties and cloning vectors. Recombinant DNA techniques and cloning with Restriction endonuclease and recombinant DNA.

Mutation, Types of mutations; Point mutation (Base pair change, frame shift, deletion).

Transcription, translation and gene expression in eukaryotes (yeast), Alternate splicing.

Paper-II: Applied Biotechnology

Unit-I: Microbial Biotechnology

Food Microbiology-Microbial contamination & Spoilage, Food preservation. Industrial Production of Ethyl Alcohol, Penicillin, Cyanocobalamin, Glutamic Acid, Citric Acid, Amylase, Protease.

Unit-II: Plant Biotechnology-

Introduction to plant tissue culture, Nutritional requirements, In vitro culture. Single cell culture, Anther culture, Ovule culture,Somatic embryogenesis, Organogenesis , Protoplast culture,Somatic hybridization, Genetic manipulation of plants using *Agrobacterium tumefaciens*.

Unit-III: Immunology and Animal Biotechnology

Immunity- Innate and Acquired, Host defense mechanism- Infection and its types, Organs and Cells of Immune system, Vaccines and its types.Antigens- Properties and types, Adjuvants, Immunoglobulins- Structure, types and functions, Generation of Antibodies,Primary and Secondary response, Agglutination and Precipitation reactions,

History , Equipment and materials for animal cell culture technology. Physical requirement for animal cell and their growth curve in culture.

Commonly used cell lines – their organization and characteristics, Differentiation of cells. Organ culture – techniques, advantage and applications.

Applications of animal biotechnology: Methods of Transfection and cell fusion of animal cells, Selectable markers, HAT selection, Transgenic animals, Stem cell culture, Transplantation of cultured cells, Bioreactors for large scale production of animal cells.

Unit-IV: Fermentation Technology

Fermentation Technology, Primary and Secondary Screening, Strain Improvement, Inoculum Development, Industrial Sterilisation process, Scale-up and Harvest and Recovery.

Types of fermentation – batch, continuous, fed batch process; Submerged and Solid State fermentation process, Basic design of a fermentor and factors affecting fermentor design.

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Types of fermentors- Fluidized, Packed Bed, Air lift Fermentor, Tray Fermentor and Tower Fermentor.

Unit-V: Environment Biotechnology

Environment: Basic concept, Significance, Public awareness, Environmental pollution, Assessment of water quality, Treatment of waste-water – Primary, secondary and tertiary treatment. Solid waste management (composting, vermi-composting, methane production). Biopesticides- Bacterial and Fungal, Genetically modified crops, Biofertilizers - Nitrogen fixers, PSB, Mycorrhiza and VAM, Microbial leaching, Microbial Enhanced Oil Recovery, Bioremediation and Biodeterioration. Modern fuels- Methanogenic bacteria and biogas, microbial hydrogen production.

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Dr. Deepa Rathore

Dr. Ragini Gaikwad

BT-303 Laboratory
List of Practicals

1. Chromosomal DNA isolation from Plant cells.
2. Chromosomal DNA isolation from Animal cells.
3. Genomic DNA isolation from Micro-Organisms.
4. Analysis of isolated DNA by Agarose gel electrophoresis.
5. Spectrophotometric analysis of DNA and DNA melting.
6. UV as a physical mutagen
7. Gradient Plate Technique
8. Estimation of DNA using diphenylamine method.
9. Estimation of RNA using orcinol method.
10. Isolation of RNA from Yeast..
11. Isolation of plasmid DNA from bacteria.
12. Effect of UV radiation on microbial cell
13. Demonstration of repair mechanism *in* microbes.
14. Bacteriophage and determination of latent period of infection
15. Isolation of total RNA from Plant tissue by SDS phenol method.
16. Elution of DNA from agarose gel band.
17. Transformation in E-coli cell.
18. Growth of plant tissue into undifferentiated mass of callus.
19. Preparation of animal cell culture media.
20. Separation and culture of lymphocyte from blood.
21. Demonstration of fermentor.
22. Preparation of wine.
23. Extraction of citric acid from *Aspergillus*.
24. Production of ethanol by yeast.
25. Demonstration of PCR.
26. Immobilization of microbial cells.
27. Extraction and preparation of lactic acid.
28. Extraction and preparation of citric acid.
29. Demonstration of Radial immuno diffusion analysis.
30. Isolation of microorganism from polluted site/ industrial waste.
31. Blood group analysis.

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32. Differential count of WBC.

33. To examine flocculation reaction using VDRL test.

34. To observe the agglutination reaction using WIDAL test

35. Determine the concentration of unknown antigen using Radial Immuno Diffusion technique.

Note: 70% of the above list should be compulsorily performed.

Scheme of Practical Examination **MM: 50**

Duration: 3 Hrs

1. Major (10)
2. Major (10)
3. Minor (5)
5. Minor (5)
4. Spotting (10)
5. Viva- Voce. (05)
6. Practical Record. (05)

Suggested Reading

1. Industtrial Microbiology By A. H. Patel
2. Microbial Biotechnology By Hazarre
3. Molecular biology: Avinash & Kakoli Upadhyay
4. Gene Biotechnology: Jogdand
5. Essential of Biotechnology: S.N.Das
6. Text book of Biotechnology:R.C.Dubey
7. Biotechnology & genomics : P.K. Gupta
8. Modern concept of Biotech: H.D.Menon
9. Problems of genetics, Molecular genetics & evolutionary genetics: Pranobh K. Banerjee

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Dr. Anil Kumar

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10. Fundamentals of Microbiology & Immunology : Banerjee& Banerjee
11. Immunology : Rao
12. Biotechnology & Genomics : P.K.Gupta
13. Biotechnology : Satyanarayan
14. Plant tissue culture: Bhajwan
15. Introduction to plant tissue culture:Razadan
16. Introduction to Biotech: Chawla
17. Animal Biotechnology: Srivastava, Singh& Yadav.
18. Text book of Animal Biotechnology, Ramdas and Mecraya,
19. Biotechnology Animal cell, Satish M.K.
20. Animal Biotechnology, Ranga M.M.
21. Text Book of Biotechnology, B.D. Singh. Culture of Animal cell, Freshney.
22. Plant Biotechnology, JitendraParkash.
23. Biotechnology in plant science. Kumar N C.
24. Environmental Biotechnology Agrawal S.K.

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Devi Ahilya Vishwavidyalaya, Indore

Syllabus for B.Sc. Part– I, II, III, Life Science (as one subject),

2017 onwards

Class	Title of the Paper	Distribution of Marks		
		Theory	Internals	Total
B.Sc. I Year	I- Introduction to Biochemistry, Cell Biology, Plant & Animal Diversity	40	10	50
	II- Environmental Biology, Genetics & Evolution	40	10	50
	Practical	-	-	50
	Total			**150**

Class	Title of the Paper	Distribution of Marks		
		Theory	Internals	Total
B.Sc. II Year	I- Morphology, Developmental Biology and Physiology of Angiosperms	40	10	50
	II- Morphology, Developmental Biology and Physiology of Mammals	40	10	50
	Practical	-	-	50
	Total			**150**

Class	Title of the Paper	Distribution of Marks		
		Theory	Internals	Total
B.Sc. III Year	I- Microbiology, Immunology and Animal Cell Culture	40	10	50
	II- Molecular Biology, Genetic Engineering and Plant Tissue Culture	40	10	50
	Practical	-	-	50
	Total			**150**

Scheme of Practical Examination in Each Class/year		
Total Marks- 50 **Duration - 5 Hrs.**	1. Major exercise-1	12 Marks
	2. Major exercise-2	12 Marks
	3. Minor exercise	06 Marks
	4. Spotting	05 Marks
	5. Viva-Voce	05 Marks
	6. Practical record	05 Marks
	7. Project	05 Marks

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Project work
1 Ess only
in Final
Sem.

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Syllabus-B.Sc. Part – I (Life Science)

Paper – I: Introduction to Biochemistry, Cell Biology, Plant & Animal Diversity

Unit-I	Carbohydrates: Classification, Structure and function Lipids: Structure and function Vitamins: Occurrence and function
Unit-II	Amino Acids, Proteins, Structure and Function Enzymes, Classification, kinetics of enzyme catalysed reactions. Factors effecting enzymatic activity. Nucleic acids, structure and function of DNA , RNA
Unit-III	Structure of prokaryotic and eukaryotic cells. Structure and function of Plasma membrane, Endoplasmic reticulum, Golgi apparatus, Lysosomes , Ribosomes, Mitochondria, Chloroplast & Nucleus. Cell division (mitosis & meiosis)
Unit-IV	General Characteristics of Algae and Fungi, Lichens and their economic importance General characteristics, adaptation of Bryophytes, Pteridophytes & Gymnosperms General Characteristics and differences in moncot and dicot plants Anatomical features of woody plants. Economic importance of angiosperm plants
Unit-V	General characteristics of Annelida , Arthropoda, Mollusca, Pisces, Amphibians, Reptiles, Aves and Mammals. Osmoregulation in fishes. Parental care in amphibians. Salient feature of poisonous and non-poisonous snakes. Flight adaptation in birds.

List of Practicals

1. Qualitative tests for carbohydrates. Lipids and proteins.
2. Effect of temperature, pH and concentration on enzyme activity.
3. Chloroplast isolation from spinach leaves and demonstration of Hill's activity.
4. Study of different stages of mitosis and meiosis.
5. Paper chromatographic separation of amino acids.
6. Preparation of hemin or hemochromogen crystals.
7. Preparation of Herbarium.
8. Study and identify the given plant material by section cutting and double staining of Monocot and Dicot-Stem, Leaf and Root.
9. Study of Floral Organs by dissection of Flower and representing it by Floral diagram and Floral Formula.
10. An "animal album" containing photographs/cut outs with write up on different texa /topics.

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Recommended Books

1. Principles of Biochemistry, Lehniger 3rd edition by Nelson and Cox (Worth) ,2000
2. Biochemistry Stryer ,5th edition W.H. Freeman, 2001.
3. Harper's Biochemistry, 1999 (McGraw-Hill).
4. Cell Biology, Powar C.B. Himalaya Publishers, Students Edition.
5. Cell Biology, Rastogi, S.C. (Edn.3) ,New Age International, 2007.
6. Essential Cell Biology, by B. Alberts et al, Taylor & Francis Group, 2nd Edition.
7. Fundamentals of Biochemistry, Jain, J.L.
8. Biochemical Methods of Analysis: Theory and Applications, Saroj Dua S, Garg N, Nerosa Publishing House.
9. Biochemistry, Sharma, D.K. Narosa Publishing House.
10. Cell Biology for Biotechnology, Shaleesha A. Stanley, Narosa Publishing House.
11. Gangulee & Kar,(1998), College Botany, Vol. II. ,New Central Book Agency (P) LTD. ,Kalkota
12. Maheshwari, P., 1950, An Introduction to the embryology of Angiosperm, Mc Graw Hill Inc. New York.
13. R.L. Kotpal: Textbook of Zoology: Vertebrates: Rastogi Publications.
14. Dr. H. N. Baijal: Zoology: Arun Prakashan.
15. Jordan & Smith: Chordate Zoology.
16. Verma ,Tyagi and Agrawal: Chordate Embryology.

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B.Sc. Part – I (Life Science)

Paper – II: Environmental Biology, Genetics & Evolution

Unit-I	Ecosystem concept- Structure and function, Factors of ecosystem (Abiotic and Biotic), Ecological pyramids, Energy flow in ecosystem. Food chain, food web and trophic levels. Ecological factors (Light, Ecological adaptation in plants and animals ,aquatic and desert adaptation. Ecological succession: Hydrosphere and Xerosphere.
Unit-II	Environmental pollution: Sources, nature and effects of air, water, soil, noise, radioactive and nuclear pollution. Ozone layer depletion, acid rain and global warming. Nitrogen, Carbon, Sulphur and Phosphorus cycles. Bio-fertilizers , Bio-pesticides
Unit-III	Mendelian laws of inheritance, Incomplete dominance, Co-dominance, epistasis, Complementary ratio and supplementary radio, Cytoplasmic inheritance, plastid and kappa particles. Linkage and crossing over (Coupling and repulsion hypothesis) Mechanism of sex determination (Chromosomal theory), sex linked inheritance.
Unit-IV	Structure of Chromosomes, Giant chromosome Polytene and Lampbrush Chromosome related disorders: Kleinfelter's syndrome, Turner's syndrome, Down's syndrome and Cri-du-chat syndrome Mutations- Spontaneous and induced, Chemical and Physical mutagens Molecular basis of mutation.
Unit-V	Theories of Organic evolution: Lamarckism and Neo Lamarckism, Darwinism and Neo Darwinism, Germplasm theory, Mutation theory. Gene pool, Random genetic drift, Hardy Weinberg law. Isolation and types of isolating mechanisms (Pre mating and post mating concepts) Instantaneous and gradual speciation.

List of Practicals

1. Determine frequency, density and abundance of vegetation by quadrate method.
2. Study of ecological adaptations in hydrophytes and xerophytes.
3. Soil analysis (pH, temperature, moisture content and inorganic radicals).
4. Water analysis (pH, Dissolved oxygen and Carbon dioxide).
5. Working out the laws of inheritance.
6. Study of Biogeochemical cycles using charts.

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Recommended Books

1. Cytogenetics: Darbeshwar Roy, Narosa Publishing House.
2. Environmental Science: A New Approach, Dahiya, P. and Ahlawat M., Narosa Publishers.
3. Ecology- Subrahmanyam, N.S. and Sambamurty, A.V.S.S. Narosa Publishing House.
4. Fundamentals of Genetics, Miglani, Gurbachan, S. Narosa Publishing House.
5. Genetics, Sambamurty, A.V.S.S. Narosa Publishing House.
6. Molecular Biology of Cell, Alberts B.D., Levis J. R., Ruberts, M. ,Walson Garland Pub.Co.
7. The Science of Genetics, Atherly A.G. ,Girton J.R. & McDonald, J.F. Saunders College Pub.
8. Environmental Studies, Basak, Pearson Publishers.
9. Principles of Cell and Molecular Biology Kleinsumith L.J and Kish, V.M. ,Harper Collins Pub.
10. Concepts of Genetics, Klug, Pearson Publishers.
11. Concepts of Ecology, Kormondy, E.J., Prentice-Hall India.
12. A Text Book of Cell and Molecular Biology, Gupta, P.K. ,Rastogi Publications, Meerut.
13. Genetics, Gupta P.K. ,Rastogi Publications, Meerut.
14. Cell Biology, Genetics, Molecular Biology, Evolution and Ecology, Verma, P.S. & Agrawal, V.K. , S. Chand Publications.
15. Environmental Science: Palanisamy, Pearson Publishers.

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Devi Ahilya Vishwavidylaya, Indore

B.Sc. Part – II (Life Science)

Paper – I: Morphology, Developmental Biology and Physiology of Angiosperms

Unit-I	The Root system: Organization of root apex. Anatomy of root in monocotyledons and di-cotyledons. The Shoot system: Organization of shoot apex. Anatomy of shoot in monocotyledons and di-cotyledons. Anatomy of leaf in monocotyledons and di-otyledons. Stomata: Mechanism of stomatal movement. Secondary growth in di-cotyledons.
U nit-II	Morphology of flower. Microsporogenesis, Megasporogenesis, Pollination. Fertilization. Endosperm. Development of embryo in di-cotyledns and monocotyledons.
Unit-III	Plant Water Relations: Absorption of water, transpiration, ascent of Sap Photosynthesis: Photosynthetic apparatus and photosynthetic pigments. Factors affecting Photosynthesis.
Unit-IV	Respiration: Glycolysis, TCA cycle, Electron transport in Mitochondria, Pentosephosphate pathway in brief. Nitrogen metabolism: Biological nitrogen fixation. Nitrate reduction and its regulation. Ammonia assimilation.
Unit-V	Growth and development: Structure and functions of growth regulators. (Auxins, Cytokinins, Gibberelins, Ethylene and Abcicic acid) Concept of photoperiodism and vernalization. General idea of phytochrome. Plant movements: Autonomic or spontaneous movements, paratonic or induced movements.

List of Practicals

1. Perform histological study of root, stem and leaf for identification of monocotyledonous and dicotyledonous plant system.
2. Study of floral organs, representation of floral parts by floral diagram and floral formula.
3. Absorption spectra of chlorophylls.
4. Separation and identification of plant pigments by paper chromatography.
5. Isolation of viable chloroplast from spinach and demonstration of Hill's activity.
6. Study of plasmolysis and deplasmolysis using Tradescantia peel.
7. Effect of auxin, cytokinin and gibberellins on plant growth.

Recommended Books

1. An Introduction to Embyology of Angiosperms- Maheshwari, P. McGraw Hill Inc. ,N.Y.
2. Embryology of Angiosperms- Bhojwani, S.S. and Bhatnagar, S.P.
3. Anatomy- Singh V, Pandey P.C. and Jain, D.K.
4. Modern Plant Physiology- Sinha, R.K. , Narosa Publishing House.
5. Textbook of Plant Physiology – Verma V. Ane books Publishers.
6. An Introduction to Plant Anatomy-B.P. Pandey, S.Chand Publications.
7. Morphology and Evolution of Vascular Plants- Gfford, E.M. and Foster, A.S. Freeman & Co.
8. Introduction to Plant Physiology- Hopkins W.G., John Wiley & Sons., N.Y.
9. Embryology of Angiosperms- Johri, B.M. Sptinger Verlag. Berlin
10. Plant Physiology Pandey & Sinha, Vikas Publishing House.
11. Plant Physiology- Salisbury and Ross. C.W. Wadworth Pub. Co. ,California
12. Fundamental of Plant Physiology, Shukla&Chandel, S. Chand Publication.

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B.Sc. Part – II (Life Science)

Paper – II: Morphology, Physiology and Developmental Biology of Mammals

Unit-I	Digestive system of mammals: Structure and function, Digestion and absorption of Carbohydrates, Lipids and Proteins. Secretory function of alimentary canal. Excretory System of Mammals: Structure and function, Elementary Ideas of Formation of urea and Urine.
Unit-II	Respiratory system of mammals: Morphology of respiratory organs. Mechanism of respiration, transport of oxygen and carbon dioxide by blood. Circulatory system of mammals: Morphology of heart. Course of blood circulation. Composition of blood and its functions. General characters & Mechanism of blood clotting.
Unit-III	Muscular system of mammals: Types of muscles, their structure and function. Mechanism of muscle contraction. Nervous system of mammals: Structure of nervous tissue (neurons, nerve fibers and neuralgia). Mechanism of nerve impulse transmission, reflex action and neuromuscular junctions.
Unit-IV	Endocrine system of mammals: Structure and function of Pituitary, Hypothalamus Thyroid , Parathyroid, Pancreas and Adrenal glands. Disorders of these endocrine glands. Reproductive system of mammals: Structure of male and female reproductive organs. Female reproductive cycles (Menstrual cycle and estrous cycle).
Unit-V	Gametogenesis (Spermatogenesis and oogenesis). Fertilization; mechanism of fertilization and its significance. Types and patterns of cleavage. Process of blastulation and formation of germinal layers. Extra embryonic membranes and placentation in mammals.

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List of Practicals

1. Study and comment on the histological slides and charts/models related to:
   Digestive system, Excretory system, Respiratory system, Circulatory system, Muscular system, Nervous system, Endocrine system, Reproductive system and Developmental biology.
2. Hematological experiments:
   a. Blood grouping
   b. Differential count of R.B.C. and W.B.C.
   c. Clotting time and bleeding time.
   d. Estimation of hemoglobin.
3. Study of different developmental stages of click embryo.

Recommended Books

1. Chordate Zoology and elements of Animal Physiology, By janardan and Verma P.S.,S. Chand & Company Ltd. New Delhi.
2. An Introduction to Embryology. Balinsky. B.I. Saunders Co. USA.
3. Human reproductive and Developmental Biology. Bagley, D.J. Frith J.A. and Hoult. J.R.S., Mac Millan Press, London.
4. A Text Book of Comparative Endocrinology. Gorbman, A and Bern. H.A. Willy Estern, New Delhi.
5. Developmental Biology, Virbal Rastogi
6. Animal Physiology, Sobti, R.C. Narosa Publishing House.

Devi Ahilya Vishwavidylaya, Indore

B.Sc. Part – III (Life Science)

Paper – I: Microbiology, Immunology and Animal Cell Culture

Unit-I	Microbial classification, Bacterial classification (3kingdom, 5kingdom, 3domain) Bergey's classification. Nutritional classes of bacteria, Microbiological media and its type, pure culture isolation techniques, culture maintenance Staining techniques: Simple, Differential- structural, Gram's and acid fast staining. Bacterial Growth – phases of growth cycle, factors affecting growth, batch and continuous culture, measurement of bacterial growth.
Unit-II	Plasmids: Definition, types, identification and classification of plasmids. Bacterial conjugation: F-mediated, merozygotes. Transformation and Transduction: (General and specialized) in bacteria. Viruses: General characteristics, Classification and Replication of bacteriophages. Principle types of fermentation process- batch and continuous fermentations.
Unit-III	Cells and organs of immune system and their functions. Types of immunity: innate and acquired immunity , Primary and secondary immune responses. Humoral and cell mediated immunity.
Unit-IV	Antigens: Types, haptens , epitopes. Antibody: Structure, types, properties and functions of immunoglobulins. Antigen- antibody reactions. Quantitative precipitin titration. Immunological Techniques: Haemoagglutination, ELISA and Ochterlony Double Diffusion (ODD) Radial Immunodiffusion. Vaccines and immunization.
Unit-V	Animal cell culture: Culture media, primary culture, secondary culture, cell lines, growth curve of animal cells in culture. Transfection of animal cell lines, HAT selection and selectable markers, Antibiotic resistance, expressions of clone proteins in animal cells and its uses. Stem cell culture and its applications.

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List of Practicals

1. Study and working of instruments: Compound Microscope, Autoclave, Hot air oven, pH meter, Laminar air flow bench, Laboratory centrifuge.
2. Staining techniques: Monochrome staining, Gram's staining, Acid fast staining, Negative staining, Endospore staining.
3. Media preparation: Nutrient agar and Nutrient broth.
4. Cultivation techniques: Streak plate method, pour plate method.
5. Isolation of microorganisms from soil, air and water.
6. Isolations of amylase and protease producer from soil.
7. Isolation of antibiotic producing microorganisms from soil.
8. Physical and chemical control of microorganism.
   (i) Effect of UV radiation on microorganisms (ii) Use of ethyl alcohol as sterility
9. Antibiotic sensitivity test.
10. Blood grouping.
11. WIDAL, VDRL Test.
12. Enumeration of RBC.
13. Differential WBC count.
14. DOT ELISA.
15. Ochterlony double diffusion (ODD)
16. Radial immune diffusion (RID)

Recommended Books

1. The genetics of Bacteria and their Viruses- William Hayes Blackwell Scientific Publishers.
2. General Microbiology-Rober Boyd.
3. Microbiology- Pelczar, M.J., Chan, E.C.S. and Kreig, N.R. McGraw Hill.
4. General Microbiology – Stanier, R.V. Ingharam, J.L. Wheelis, M.L. McMillan Edu. Ltd.
5. General Microbiology-Robert Boyd.
6. An Introduction to Microbiology- Tauro, P. Kapoor, K.K. and Yadav, K.S. New Age International (P) Ltd. New Delhi.
7. Essentials of Imunology, Roitt, I.M. ELBS Blackwell Scientific Publishers. London.
8. Immunology II Edition, Author, Kuby, J. WH Freeman and Company, New York.
9. Immunology, Author- Klaus D. Elgert, Wiley-Liss NY.
10. Fundamental Immunlogy, Author-W.E. Paul, Raven Press, New York.
11. Immunology, Authors- D.M. Weir and J. Steward 7th Ed. (1993).
12. Principals of Fermentation Technology. Stanbury PFA Whitaker and Hall 1995.
13. Animal cell culture: concept and Application- Sheelendra M.Bhat, Narosa Publishers.
14. Immunology: A Text Book- Rao, Narosa Publishing House.

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Devi Ahilya Vishwavidylaya, Indore

B.Sc. Part – III (Life Science)

Paper – II: Molecular Biology, Genetic Engineering and Plant Tissue Culture

Unit-I	DNA replication in prokaryotes and eukaryotes. Semi conservative nature of DNA replication. Transcription in Prokaryotes and Eukaryotes RNA processing -5 cap formation, Transformation termination3, end processing, polyadenylation and splicing. Transposable elements: Definition, types of bacterial transposons and applications of transposons.
Unit-II	Genetic code- Important characteristics. Prokaryotic and eukaryotic Translation (Mechanism of initiation, elongation and termination) Regulation of gene expression in prokaryotes. Operon concept (Lac and Trp). Gene regulation in eukaryotic system-promoters, enhancers elements and gene amplification
Unit-III	Genetic engineering Isolation of genomic and plasmid DNA from bacteria, Isolation of genomic DNA from plant and animal cells. Recombinant DNA technology – cloning vectors (pUC19, phage 2, Cosmid and M13); Restriction enzymes & other enzymes of genetic engineering ligation tech. Introduction of DNA into living cells, methods of gene transfer, expression and detection of clones. Introduction to blotting technique: western, Southern and Northern Blots. Introduction to PCR, RAPD and RFLP.
Unit-IV	Terms and definition of plant tissue culture, Media ingredients (inorganic and organic nutrients, role of growth regulators- auxins and cytokinins), Various media and sterilizing agents. Cell culture: Initiation of callus isolation of single cells, suspension cultures batch cultures. Protoplast culture cybrids. Application of tissue, cell and protoplast fusion in agriculture, horticulture and pharmaceutical industry.
Unit-V	Clonal propagation: General techniques, factors affecting clonal propagation, applications, Production of haploid plants, Factors affecting androgenesis, limitations and applications. Plant transformation: methods of gene transfer, *Agrobacterium tumefaciens* mediated transformation, Direct gene transfer methods, selection and identification of transformed cells, applications.

List of Practicals

1. Isolation of genomic DNA from bacteria, plant leaves, bacteria animal cells and its analysis by agarose gel electrophoresis.
2. Restriction digestion DNA using restriction enzymes EcoRI and HindIII and observe its restriction pattern by agarose gel electrophoresis.
3. Bacteria Transformation.
4. Preparation and sterilization of MS media for explants culture.
5. Germination of seed in *in vitro* for axenic cultures.
6. Primary establishment of culture (Callus induction from leaf and stem explants)
7. Clonal propagation using ap
8. Anther and pollen culture and check the viability of pollens.

Recommended Books

1. Current protocols in molecular biology, 2000. Ausbel et. al.
2. Principles of gene manipulation. 1994 Old and Primrose, Blackwell Scientific Publications.
3. Molecular Cloning 3 volumes Sambrose and Russelll, 2000 CSH Press.
4. Plant tissue culture: Theory and practice Bhojwani S.S. and Razdon. M.K. Elsevict Holland
5. Plant cell and Tissue culture, Narayanswami, S. Tata, McGraw Hill co. New Delhi
6. An Introduction to Plant Tissue culture, Razdan, M.K., Oxford & IBH Publ., New Delhi
7. Greenhouse Technology for Controlled Environment- Tiwari, G.N. Narosa Publishing House
8. Plant Cell, Tissue and Organ Culture Fundamental Methods Eds. Gamborg, O.L. and Phillips, G.C. Narosa Publishing House.
9. Molecular Biology- Sambanmurty, A.V.S.S., Narosa Publishing House.
10. Molecular Genetics- Sambamurty A.V.S.S. Narosa Publishing House.
11. Molecular Biology- Freifelder D Narosa Publishing House.

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Department of Higher Education, Government of Madhya Pradesh
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As recommended by Central Board of Studies of Computer Science and
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B.Sc. I YEAR COMPUTER SCIENCE
PAPER I: FUNDAMENTALS OF COMPUTERS

Max Marks : 42.5 Min Marks:15

UNIT I

Block diagram of computer: input unit, output unit, CPU, memory unit, generations of computers, types of Computers: desktop, laptop, palmtop, and workstations & super computers. All types of input and output devices. hardware, software and firmware.

Windows: features of windows – desktop, start menu, control panel, my computer, windows explorer, accessories. Managing multiple windows, arranging icons on the desktop, creating and managing folders, managing files and drives, logging off and shutting down windows.

UNIT II

Word: What is word processing, creating documents in MS-Word, formatting features of MS-Word, standard toolbar, drawing toolbar, tables and other features. Mail-merge, insertion of files, pictures, clipboard, graphs, print formatting, page numbering and printing documents.

Excel - Introduction to workbook and worksheet. Entering information in a worksheet - numbers, formula, etc., saving a workbook, editing cells, using commands and functions, moving and copying, inserting and deleting rows and columns, creating charts. Page setup: margins, adding headers & footers before printing, print preview of worksheet, removing grid lines from printout, printing the title rows.

UNIT III

Number system: decimal, binary, octal, hexadecimal, conversions from one base to another base. Codes: ASCII code, EBCDIC code, Gray code. Boolean algebra, de -morgan's theorem, binary arithmetic: - addition, subtraction, multiplication & division, unsigned binary numbers, signed magnitude numbers, 1's complement & 2's complement representation of numbers, 2's complement arithmetic. Boolean functions & truth tables. SOP, POS form, minterms/maxterms, simplification of logic circuits using boolean algebra and karnaugh maps. Logic gates: - AND, OR, NOT, NAND, NOR, X -OR and X -NOR gates, their symbols and truth tables, circuit design with gates: adder/subtractor circuit.

UNIT IV

Memory cell, primary memory: RAM, static and dynamic RAM, ROM, PROM, EPROM, EEPROM, cache memory, secondary memory and its types, virtual memory concept, memory accessing methods: serial and random access. Data bus, control bus &address bus. Word length of a computer, memory addressing capability of a cpu, processing speed of a computer, microprocessors, single chip microcomputers (microcontrollers).

UNIT V

General architecture of a CPU, instruction format, and data transfer instructions, data manipulation instructions and program control instructions. Types of CPU organization: accumulator based machine, stack based machine and general- purpose register based machine, addressing modes, data transfer schemes: (i) programmed data transfer: synchronous, asynchronous and interrupt driver data transfer (ii) direct memory access data transfer: Cycle stealing block transfer and burst mode of data transfer.

M.R.S.C.P.S. INDORE

R.K. Katare 28-4-2017 — 28.4.17 — 21.4.17 — 28-4-17

2 — 28.4.17 — 28/4/17 — 28/4/17 — 28/4/17

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B.Sc. I YEAR COMPUTER SCIENCE
PAPER II: PROGRAMMING IN C

Max Marks : 42.5 Min Marks:15

UNIT-I

Classification of programming language: procedural languages, problem oriented languages, non-procedural languages. Structured programming concepts: modular programming: top-down analysis, bottom-up analysis, structured programming. Problem solving using computers: problem definition and analysis, problem design, coding, compilation, debugging and testing, documentation, implementation and maintenance.

UNIT-II

Introduction to C language: constants, variables, keywords, data types, operators, expressions, operator precedence and associativity. Structure of C program: variable declaration, declaration of variable as constant.

UNIT-III

Managing input/output operators: formatted and unformatted. Control statements: branching, jumping & looping, scope rules, storage classes.

UNIT-IV

Arrays (one and two dimensional). Functions: user defined function, standard function, categories in functions, passing arguments to a function, recursion. Pointers: operators, declaration, pointer to arithmetic, array of pointers. Structures: declaring, accessing, initializing, array of structures.

UNIT-V

File handling in C: opening and closing a data file, inserting data to data file. Graphics programming-introduction, functions, stylish lines, drawing and filling images, palettes and colours, justifying text, bit of animation.

Text Books-

How to solve it by Computers by R. G. Dromy, PHI
Let us C by Yashwant Kanetkar
ANSI C by E. Balagurusamy
Programming in C by S.S. Bhatia

Reference Books-

How to design Programs-An Introduction to programming and computing- Felleisen, et,al, PHI Publication
Introduction to Algorithms by Cormen, PHI
Programming in C: Denis Richie

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B.Sc. II YEAR COMPUTER SCIENCE

PAPER I: OBJECT ORIENTED PROGRAMMING CONCEPTS USING C++

Max Marks : 42.5 **Min Marks:15**

UNIT I

Introduction to C++: programming paradigms, key concepts of object-oriented programming, advantages of Oop's. Input and output in C++: pre-defined streams, unformatted console I/O operations, formatted console I/O operations.

UNIT-II

C++ declarations: parts of C++ program, types of tokens, keywords, identifiers, data types, constants, operators, precedence of operators, referencing and dereferencing operators, scope access operator. Control structures: decision making statements, looping statement.

UNIT-III

Functions: main(), parts of function, passing arguments: value, address, reference, inline functions, function overloading: principles, precautions, library functions. Classes and objects: declaring classes and objects, accessing class members, keyword: public, private, protected, defining member functions: member function inside the class, member function outside the class, static member variables and functions, friend function, friend classes, overloading member functions.

UNIT-IV

Constructors and Destructors: characteristics, applications, constructors with arguments, overloading constructors, types of constructors. Operator overloading: overloading unary operator, binary operator. Inheritance: access specifiers: public inheritance, private inheritance, protected data with private inheritance, Types of inheritances: single, multiple, hierarchical, multilevel, hybrid, multipath, virtual base class.

UNIT-V

Pointers & arrays: pointer declaration, pointer to class & object, Array: declarations & initialization, arrays of classes. Polymorphism: Static(Early) binding, Dynamic (Late) Binding, virtual function, pure virtual function.

Text books:

Object-Oriented Programming with ANSI & Turbo C++ by Ashok N. Kamthane.
Object Oriented Programming in C++ by E. Balagurusamy

Reference Books:

C++ The complete Reference by Herbert Schildt, TMH publication.
Object Oriented Programming in C++ by Robert Lafore.

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B.Sc. II YEAR COMPUTER SCIENCE
PAPER II: DATA STRUCTURES

Max Marks : 42.5 Min Marks:15

UNIT-I

Concept of data structure and analysis of algorithm, abstract data structure, introduction to stack and primitive operations on stack, stack as an abstract data type, stack application: infix, prefix, postfix and recursion, introduction to queues, primitive operation on queues, circular queue, dequeue , priority queue and applications of queue.

UNIT-II

Introduction to linked list, basic operations on linked list, stacks and queues using linked list, doubly linked list, circular linked list, applications of linked list.

UNIT-III

Trees-basic terminology ,binary trees, tree representations as array and linked list, basic operations on binary tree, traversal of binary trees:- inorder, preorder, postorder. Applications of binary tree, threaded binary tree, AVL tree, binary tree representations of trees.

UNIT-IV

Sequential search, binary search, insertion sort, selection sort, quick sort, bubble sort, heap sort, comparison of sorting methods.

UNIT-V

Hash Table, Collision resolution technique, Introduction to graphs, Definition, Terminology, Directed, Undirected and Weighted Graph, Representation of Graph, Graph Traversal-Depth first, Breadth first search, Spanning tree, Minimum Spanning tree, Shortest path algorithm.

Text Books-

Data Structure: By Lipschultz (Schaums Outline Series)
Data Structures through C (A Practical Approach) by G.S. Baluja
Data Structure: By Trembley & Sorrenson

Reference Books-

Fundamental of Data Structure By S.Sawhney& E. Horowitz

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B.Sc. III YEAR COMPUTER SCIENCE
PAPER I: DATABASE MANAGEMENT SYSTEM

Max. Marks : 42.5 Min. Marks:15

UNIT-I

Purpose of database system, views of data, data models: relation, network, hierarchical, instances and schemas, data dictionary, types of database languages:-DDL, DML, structure of DBMS, advantages and disadvantages of DBMS, 3-level architecture proposal:-external, conceptual & internal levels.

UNIT-II

Entity relationship model as a tool of conceptual design: entities & entities set, relationship and relationship set, attributes and mapping constraints, keys, ER diagram:-strong and weak entities, generalization, specialization & aggregation, reducing ER diagram to tables

UNIT-III

Fundamentals of set theoretical notations: relations, domains, attributes, tuples, concept of keys: primary key, super key, alternate key, candidate key, foreign key, fundamentals of integrity rules: entity & referential integrity ,extension and intention, relational algebra: select, project, cartesian product, different types of joins: theta, equi, natural, outer joins, set operations.

UNIT-IV

Functional Dependencies, Good & Bad Decomposition and Anomalies as a database: A consequences of bad design, Universal relation, Normalization: 1NF, 2NF, 3NF &BCNF normal forms, multivalued dependency, join dependency, 4NF, 5NF.

UNIT-V

Basic concepts: -Indexing and Hashing, B-tree Index files, Hashing: Static & Dynamic hash function, Index definition in SQL: Multiple key accesses.

Text Books-

Database System Concepts by Henry Korth and A. Silberschatz.
Simplified approach to DBMS, Prateek Bhatia, Gurvinder Singh Kalyani Publication

Reference Books-

An Introduction to Database System by Bipin Desai
An Introduction to Database System by C.J.Date.

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Suggested list of programs for practical

Create the appropriate table and apply the following queries

1. WAQ to insert some new records in emp table.
2. WAQ to list the number of employees whose name is not 'ford', 'jams' or 'jones.
3. WAQ to list the name and salary and sort them in descending order of their salary
4. WAQ to list the details of employees whose name is starts from 'a'
5. WAQ to delete all records from emp table
6. WAQ to insert values in 3 fields.
7. WAQ to list the student name having 'd' as second character.
8. WAQ to list the name and salary and sort them in descending order of their salary
9. WAQ to list the name and salary and sort them in descending order of their salary
10. WAQ in employee table find all the manager who earns between 1000 and 2000.
11. Display record of employee who have salary between 1000 and 2000.
12. List the name salary and department number of the employee and order them by their salary in descending order.
13. In employee table change the city of employee from existing one to new one.
14. Add a column salary of datatype "number" & having size '5' with default value 1000.
15. WAQ to find the employee who earns the lowest salary in each department. Display in ascending order of salary.
16. List the employee who earns maximum salary in their department. Find the name of all employees who works for "first bank corporation". Display the record of employee whose name start with 's' & age is greater than 18.
17. Find the name, street & city of residence of all employee who works for "tbc"
18. WAQ to update the salary of employee number 1902 to Rs. 10,000
19. WAQ to find the name, street and city of all employee who works for "tbc" and who earn more than 1000.
20. WAQ to increase the salary by 2000 and rename the column as "newsalary"
21. WAQ to find the name, street and city of all employee who works for "tbc" and who earn more than 1000.
22. WAQ to find total of salaries of all employees from emp table
23. WAQ to decrease the salary of emp from 5000 and rename column as "newsalary"
24. List the employee number of employee who belone to department 10,20.
25. List the employee no of employees who earn greater than 2000
26. Insert new field called category in emp table.
27. Display different jobs in departments 20,30
28. List the names of employees having two "aa" in the name
29. Print the name , emp no, sal of employees in emp table.
30. List the names of employees who do the job of clerks or salesman

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B.Sc. III YEAR COMPUTER SCIENCE
PAPER I: DATABASE MANAGEMENT SYSTEM

Max. Marks : 4[illegible] Min. Marks: 1[illegible]

UNIT-I

Purpose of database system, views of data, data models: relation, network, hierarchical, instances and schemas, data dictionary, types of database languages:-DDL, DML, structure of DBMS, advantages and disadvantages of DBMS, 3-level architecture proposal:-external, conceptual & internal levels.

UNIT-II

Entity relationship model as a tool of conceptual design: entities & entities set, relationship and relationship set, attributes and mapping constraints, keys, ER diagram:-strong and weak entities, generalization, specialization & aggregation, reducing ER diagram to tables

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B.Sc. III YEAR COMPUTER SCIENCE

PAPER II: OPERATING SYSTEM CONCEPTS

Max. Marks : 4~~0~~ 3

Min. Marks: 1~~5~~

UNIT I

Operating system definitions, its components, evolution of operating system, types of operating systems: batch, multiprogramming, multitasking, multiprocessor, real time, client-server, peer-to-peer, distributed, clustered, operating system services, system calls, protection of I/O, memory and CPU.

UNIT II

Process scheduling: concept of a process, process states, PCB, process life cycle, operations on processes, context switch, types of schedulers, CPU burst- I/O burst cycles, dispatcher, scheduling criteria, scheduling algorithms – FCFS, SJF, STRN, Round Robin, priority, event driven, multilevel queue. Performance evaluation of algorithms through deterministic modelling.

UNIT III

Memory Management: address binding, logical and physical address space, dynamic loading and linking. Contiguous memory allocation: static and dynamic partitioned memory, fragmentation, swapping relocation, compaction, protection. Non-contiguous memory allocation: Paging Segmentation. Virtual Memory: demand paging, page fault, page replacement algorithms- FIFO, LRU, optimal. Thrashing, page fault frequency.

UNIT IV

Interprocess communication need for synchronization, Deadlocks- definition, avoidance, prevention, detection and recovery. Disk organization, Directory structure, disk space management- contiguous and non-contiguous allocation strategies, disk address translation, disk caching, disk scheduling algorithms. Device Management: dedicated devices, shared devices. Security and protection : security threats and goals, penetration attempts. Security policies and mechanisms, authentication, protection and access control.

UNIT V

Linux: History and features of Linux, Linux architecture, file system of Linux, hardware requirements, Linux standard directories, Linux Kernel.
Working with Linux: KDE and Gnome graphical interface, various types of shells available in Linux, Vi editor, Linux commands, File security in Linux.

TEXT BOOKS AND REFERENCE BOOKS

1. Operating system Concepts: by Silberschatz, Galvin and Gagne.
2. Operating system Design and Concepts, by Milan Milenkovic
3. Operating system by Andrew Tanenbaum
4. Operating system by Peterson
5. Linux Bible by Christopher Negus
6. Linux by Sumitabh Das

Suggested Practical
Basic Linux Commands and vi editor

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BA, BSC, B.COM (I) year Foundation

Department of Higher Education Govt. Of M.P.
Under Graduate year wise syllabus
As recommended by central board of studies and approved by
The governor of M.P.

उच्च शिक्षा विभाग, म.प्र. शासन
स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम
केन्द्रीय अध्ययन मण्डल द्वारा अनुशंसित तथा म.प्र. के राज्यपाल द्वारा अनुमोदित
सत्र 2017-18

Class : B.A./B.Sc./B.Com./B.Sc. (Home Science)/BCA/B.A.(Mgt.) I Year

Subject : Foundation Course (आधार पाठ्यक्रम)

Paper : I

Title of Paper : हिन्दी भाषा और नैतिक मूल्य (Hindi Language & Moral Values)

Compulsory / Optional : Compulsory

Max. Marks : नियमित (Hindi Language = 25) + (Moral Values 05) + CCE 05 = 35

स्वाध्यायी = 35

Particulars / विवरण

Unit-I	हिन्दी भाषा 1. स्वतंत्रता पुकारती (कविता) – जयशंकर प्रसाद 2. पुष्प की अभिलाषा (कविता) – माखनलाल चतुर्वेदी 3. वाक्य संरचना और अशुद्धियाँ (संकलित)
Unit-II	हिन्दी भाषा 1. नमक का दरोगा (कहानी) – प्रेमचंद 2. एक थे राजा भोज (निबंध) – डॉ. त्रिभुवननाथ शुक्ल 3. पर्यायवाची, विलोम, एकार्थी, अनेकार्थी एवं शब्दयुग्म शब्द (संकलित)
Unit-III	हिन्दी भाषा 1. भगवान बुद्ध (निबंध) – स्वामी विवेकानंद 2. लोकतंत्र एक धर्म है (निबंध) – डॉ. सर्वपल्ली राधाकृष्णन 3. नहीं रुकती है नदी – हीरालाल बाछोतिया 4. पत्रलेखन
Unit-IV	हिन्दी भाषा 1. अफसर (निबंध) – शरद जोशी 2. हमारी सांस्कृतिक एकता (निबंध) – रामधारी सिंह दिनकर (एक भारत श्रेष्ठ भारत के अन्तर्गत) 3. संक्षेपण (संकलित)
Unit-V	नैतिक मूल्य 1. नैतिक मूल्य परिचय एवं वर्गीकरण (आलेख) – डॉ. शशि राय 2. आचरण की सभ्यता (निबंध) – सरदार पूर्णसिंह 3. अध्यात्म और नैतिक जीवन (लेख) – डॉ. सर्वपल्ली राधाकृष्णन 4. श्रम दीपो भव (लेख) – स्वामी श्रद्धानंद

15.6.17
(डॉ॰ के॰ पी॰ मिश्र)

15.6.17
डॉ. प्रतिमा यादव

15.6.17

15.6.17
प्रोफे॰ मिनेश कुशवाह

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड–अ–प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न 1x5=5

खण्ड–ब–इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न

आन्तरिक विकल्प के साथ 3x3 =9

खंड —स—इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न ... 4x4 = 16

आन्तरिक विकल्प के साथ

स्वाध्यायी विद्यार्थियों के लिए कुल 35 अंक

खण्ड – अ– प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न 1x5 = 5

खण्ड – ब– इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न...

आंतरिक विकल्प के साथ 3x4=12

खण्ड – स– इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न 4x4 ½ = 18

अतिरिक्त विकल्प के साथ

नोट – निर्धारित पाठयपुस्तक हिन्दी भाषा और नैतिक मूल्य मध्यप्रदेश हिन्दी ग्रथ अकादमी भोपाल से प्रकाशित।

15.6.17
(डॉ० के० जी० मिश्र)

15.6.17
डॉ. प्रतिमा यादव
15-6-17
(डॉ. कृष्ण किशोर श्रीवास्तव)

15.6.17
प्रोफे० दिनेश कुशवाह

Department of Higher Education, Govt. of M.P.

Syllabus for Under Graduate Annual Exam Pattern As recommended by Central Board of Studies and Approved by the Governor of M.P.

With effect from : 2017-18

Class	:	B.A./B.Sc/B.Com/B.Sc.(Home Science)/B.A.(Mgt.) BCA
Year	:	I
Subject	:	Foundation Course
Paper Name	:	English Language
Paper	:	II
Compulsory / Optional	:	Compulsory

Max. Marks : Marks : 30 + Internal assessment (5) = 35

Note : Max. Marks for private students shall be 35.

Particulars

UNIT - I

1. Where the mind is without fear : Rabindranath Tagore
2. The Hero: R.K. Narayan
3. Tryst with Destiny: Jawaharlal Nehru
4. Indian weavers: Sarojini Naidu
5. The portrait of a lady: Khushwant Singh
6. The Solitary Reaper: William Wordsworth

UNIT - II

Basic Language Skills: vocabulary, Synonyms, Antonyms, Word formation, Prefixes, Suffixes.

UNIT – III

Basic Language Skills: Uncountable nouns, verbs, tenses, adverbs.

UNIT - IV

Comprehension / Unseen Passage

UNIT - V

Composition and Paragraph writing.

Department of Higher Education, Govt. of M.P.

Syllabus for Under Graduate Annual Exam Pattern As recommended by Central Board of Studies and Approved by the Governor of M.P.

With effect from : 2017-18

FORMAT OF QUESTION PAPER

Class	:	B.A./B.Sc/B.Com/B.Sc.(Home Science)/B.A.(Mgt.) BCA
Year	:	I
Subject	:	Foundation Course
Paper Name	:	English Language
Paper	:	II
Compulsory / Optional	:	Compulsory

Max. Marks : 30 + Internal assessment (5) = 35

Note : Max. Marks for private students shall be 35.

Ques. 1 Six objective type questions to be set any **four** to be attempted from the prescribed text (multiple choice, non-multiple choice, fill in the blanks)

1 x 4 = 4 marks

Ques. 2 Six short answer type to be set based on the lessons; **three** to be attempted

2x3=6 marks

Ques. 3 Basic Language Skills: vocabulary, Synonyms, Antonyms, Word formation, Prefixes, Suffixes, Confusing words, Misused words, Similar words with different meanings.

Basic Language Skills: Uncountable nouns, verbs, tenses, articles, adverbs.

(Ten items to be set **Eight** to be attempted) 8 marks

Long answer type question

Ques. 4 Comprehension / Unseen passage 6 marks

Ques 5 Paragraph Writing

(**Three** topics to be given **One** to be attempted) 6 marks

उच्च शिक्षा विभाग म0प्र0 शासन

स्नातक कक्षाओं के लिये वार्षिक पद्धति के अनुसार पाठ्यक्रम

केन्द्रीय अध्ययन मण्डल द्वारा अनुशंसित तथा मध्य प्रदेश के राज्यपाल द्वारा अनुमोदित

कक्षा – बी. ए. / बी.कॉम. /बी.एस.सी./ बी. एस .सी . (गृह विज्ञान) प्रथम वर्ष हेतु

सत्र – 2017–18 से लागू

विषय – आधार पाठ्यक्रम

प्रश्नपत्र–तृतीय – उद्यमिता विकास

इकाई 1 – उद्यमिता विकास – अवधारणायें एवं महत्व , उद्यमी के कार्य , लक्ष्य निर्धारण, समस्या चुनौतियाँ एव समाधान।

इकाइ – 2 परियोजना प्रस्ताव – आवश्कता एवं उद्देश्य– संगठन का स्वरूप , उत्पादन प्रबंधन , वित्तीय प्रबंधन , विपणन एवं उपभोक्ता प्रबंधन ।

इकाई –3 उद्यमिता हेतु नियामक संस्थाओं की भूमिका । विकासात्मक संस्थाओं की भूमिका , स्वरोजगार मूलक योजनायें, विभिन्न अनुदान योजनायें।

इकाई 4 परियोजना हेतु वित्तीय प्रबंधन– पूंजी अनुमान एवं व्यवस्था , लागत एवं मूल्य निर्धारण,लेखा–जोखा रखना ।

इकाई –5 पूंजी सबंधी समस्याऐं, पंजीकरण संबंधी समस्यायें, प्रशासकीय समस्याऐं एवं उपरोक्त समस्याओं का समाधान ।

Dr. Shubha Tripathi

Dr. Pushpalata Choudhary

Dr. Rani Javed

15-6-17

Dr. Renu Mishra

15/6/17

15.6.17

M.R.S.C.P.S. INDORE

Department of higher education govt. of M.P.

Under graduate year wise syllabus

As recommended by central board of studies and approved by the governer of M.P.

Class – B.A./B.Com./ B.Sc./ B.Sc.(Home Scince) I Year

Subject – foundation Course

Session – 2017-18

Paper-3 **Enterprenuership Development**

Unit 1- Enterprenuership Development – Concept and importance , function of Enterprisar , Goal determination – Problems Challenges and solutions.

Unit -2 Project Proposal – need and Objects –Nature of organisation , Production Management, Financial Management , Marketing Management , Consumer Management .

Unit -3 Role of regulatory Institutions , Role of development Organisations , self employement oriented schems , Various growth Schemes .

Unit -4 Financial Managemet for Project –Financial institution and their role ,Capital estimation and arrangment,cost and price determination,accounting management

Unit -5 Problem of enterpreneour – Problem relating Capital, Problem relating Registration , administration problem and how to overcome from above problems .

B.Com (II) Yr
B Com, B A, B Sc
(Foundation)
II year

Department of Higher Education Govt. Of M.P.
Under Graduate year wise syllabus
As recommended by central board of studies and approved by
The governor of M.P.
उच्च शिक्षा विभाग, म.प्र. शासन
स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम
केन्द्रीय अध्ययन मण्डल द्वारा अनुशंसित तथा म.प्र. के राज्यपाल द्वारा अनुमोदित
सत्र 2018–19

Class : B.A./B.Sc./B.Com./B.Sc. (Home Science)/BCA/B.A.(Mgt.)II Year

Subject : Foundation Course (आधार पाठ्यक्रम)

Paper : I

Title of Paper : हिन्दी भाषा और नैतिक मूल्य (Hindi Language & Moral Values)

Compu sory / Optional : Compulsory

Max. Marks : नियमित (Hindi Language = 25) + (Moral Values 05) + CCE 05 = 35

स्वाध्यायी = 35

Particulars / विवरण

Unit-I	हिन्दी भाषा 1. वह तोड़ती पत्थर (कविता) – सूर्यकांत त्रिपाठी निराला 2. दिमागी गुलामी (निबंध) – राहुल सांकृत्यायन 3. वर्ण – विचार (स्वर–व्यंजन, वर्गीकरण, उच्चारण स्थान)
Unit-II	हिन्दी भाषा 1. नारीत्व का अभिशाप (निबंध) – महादेवी वर्मा 2. चीफ की दावत (कहानी) – भीष्म साहनी 3. विराम चिन्ह – (संकलित)
Unit-III	हिन्दी भाषा 1. चली फगुनाहट बौरे आम (ललित निबंध) – विवेकी राय 2. इन्द्रधनुष का रहस्य (वैज्ञानिक लेख) – डॉ. अमूरमल जैन 3. संधि (संकलित)
Unit-IV	हिन्दी भाषा 1. सपनों की उड़ान (प्रेरक निबंध) – ए.पी.जे अब्दुल कलाम 2. हमारा सौर मण्डल (संकलित) 3. प्रमुख वैज्ञानिक आविष्कार (संकलित) 4. समास (संकलित)
Unit-V	नैतिक मूल्य 1. शिकागो व्याख्यान (व्याख्यान) – स्वामी विवेकानंद 2. धर्म और राष्ट्रवाद – (लेख) महर्षि अरविन्द 3. सादगी (आत्मकथा) – महात्मा गाँधी 4. चित्त जहाँ भय शून्य (कविता) – रवीन्द्रनाथ टैगोर

15.6.17 (डॉ. केजी. मिश्र)
15.6.17 प्रो. दिनेश कुशवाह
15.6.17 (डॉ. कृष्ण किरण गहलोत)
15.6.17 डॉ. प्रतिमा याद

M.R.S.C.P.S. INDORE

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड–अ–प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न 1×5=5

खण्ड–ब–इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न

आन्तरिक विकल्प के साथ 3×3 =9

खंड –स– इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न 4×4 = 16

आन्तरिक विकल्प के साथ

स्वाध्यायी विद्यार्थियों के लिए कुल 35 अंक

खण्ड – अ– प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न 1×5 = 5

खण्ड – ब– इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न

आंतरिक विकल्प के साथ 3×4=12

खण्ड – स– इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न 4×4 ½ = 18

अतिरिक्त विकल्प के साथ

नोट – निर्धारित पाठ्यपुस्तक हिन्दी भाषा और नैतिक मूल्य मध्यप्रदेश हिन्दी ग्रंथ अकादमी भोपाल से प्रकाशित।

15.6.17
(डॉ० मो० नी० मिश्र)

15.6.17
प्रो० दिनेश कुमार

15-6-17
डा० प्रतिमा यादव

15/6/17
डा० उदय शंकर मालवीय

Department of Higher Education, Govt. of M.P.
Syllabus for Under Graduate Annual Exam Pattern As recommended by Central Board of Studies and Approved by the Governor of M.P.
With effect from : 2018-19

Class	:	B.A./B.Sc/B.Com/B.Sc.(Home Science)/B.A.(Mgt.) BCA
Year	:	II
Subject	:	Foundation Course
Paper Name	:	English Language
Paper	:	II
Compulsory / Optional	:	Compulsory

Max. Marks : 30 + Internal assessment (5) = 35

Note : Max. Marks for private students shall be 35.

Particulars

UNIT - I

1. Tree : Tina Morris
2. Night of the Scorpion : Nissim Ezekiel
3. Idgah : Premchand (translated by Khushwant Singh)
4. Letter to God : G.L.Swanteh (translated by Donald A.Yates)
5. My Bank Account : Stephen Leacock
6. God sees the truth but waits: Leo Tolstoy

UNIT – II

Basic English Language : Idioms, Proverbs and Phrasal Verbs, Tenses, Prepositions, Determiners, Verbs, Articles, Nouns & Pronouns.

UNIT – III

1. Short Essay on given topics
2. Correspondence Skills (formal & informal letters and Application)

UNIT – IV

Translation of sentences / passage English to Hindi and Hindi to English.

UNIT - V

Department of Higher Education, Govt. of M.P.

Syllabus for Under Graduate Annual Exam Pattern As recommended by Central Board of Studies and Approved by the Governor of M.P.

With effect from : 2018-19

FORMAT OF QUESTION PAPER

Class : B.A./B.Sc/B.Com/B.Sc.(Home Science)/B.A.(Agri.)/BCA

Year : II

Subject : Foundation Course

Paper Name : English Language

Paper : II

Compulsory / Optional : Compulsory

Max. Marks : 30 + Internal assessment (5) = 35

Note : Max. Marks for private students shall be 35.

Ques. 1 Six objective type questions to be set any four to be attempted (multiple choice, non multiple choice, fill in the blanks) 1 x 4 = 4 marks

Ques. 2 Six short answer type to be set based on the lessons three to be attempted 3x3=9 marks

Ques 3 Basic English Language : Tenses, Prepositions, Determiners, Verbs, Articles, Nouns & Pronouns, Idioms, Proverbs and Phrasal Verbs. 8 marks

Ques 4 Short essay on any one of the topics (1 out of 3). 6 marks

OR

Letter / Application

Ques 5 Translation of sentences / passage English to Hindi and Hindi to English. 6 marks

Department of Higher Education, Govt. of M. P.
Under Graduate Semester wise Syllabus
As recommended by Central Board of Studies and Approved by the
Governor or M. P.
Session 2018-19

उच्च शिक्षा विभाग, म. प्र. शासन
स्नातक कक्षाओं के लिये सेमेस्टर अनुसार पाठ्यक्रम
केन्द्रीय अध्ययन मण्डल द्वारा अनुशंसित तथा म. प्र. के राज्यपाल द्वारा अनुमोदित

कक्षा –बी.ए. / बी.एस.सी / बी.काम / बी.एस.सी. (गृह विज्ञान) II Year
विषय – आधार पाठ्यक्रम
पेपर तृतीय– III – पर्यावरणीय अध्ययन

Max. Marks : theory 25+05 CCE

इकाई 1 पर्यावरण एवं पारिस्थितिकीय अध्ययन

(क) परिभाषा एव महत्व
(ख) जनभागीदारी एवं जन जागरण
(ग) पारिस्थितिकी– प्रस्तावना
(घ) पारिस्थितिक तन्त्र– अवधारणा, घटक, संरचना तथा कार्यप्रणाली ऊर्जा का प्रवाह, खाद्य श्रृंखला, खाद्य जाल, पारिस्थितिक पिरामिड तथा प्रकार।

इकाई 2 पर्यावरणीय प्रदूषण तथा जनसंख्या

(क) वायु, जल, ध्वनि, ताप एवं आणविक प्रदूषण– परिभाषा प्रदूषण के कारण प्रभाव एवं रोकथाम ।
(ख) जनसंख्या– वृद्धि, राष्ट्रों के बीच अन्तर।
(ग) जनसंख्या– विस्फोट, परिवार कल्याण कार्यक्रम।
(घ) पर्यावरण और मानव स्वास्थ्य।
(ङ) स्वच्छता एवं घरेलू कचरे का निष्पादन।

इकाई 3 प्राकृतिक संसाधन, समस्याएँ तथा संरक्षण

(क) जल संसाधन
(ख) वन संसाधन
(ग) भूमि संसाधन
(घ) खाद्य संसाधन
(ड) ऊर्जा संसाधन

15.6.17
प्रोफेसर सितेश कुशवाहा

15.6.17
(डॉ० के०जी० मिश्र)

15-6-17
डॉ. प्रतिमा यादव

15/6/17
डॉ. उषा किरण श्रीवास्तव

16/17

NKSCPS INDORE

इकाई 4 जैव विविधता और उसका संरक्षण

(क) प्रस्तावना: अनुवांषिक, जातीय तथा पारिस्थितिक विविधता
(ख) जैव विविधता का मूल्य– उपभोग्य उपयोग,
3 उत्पादक उपयोग सामाजिक, नैतिक तथा सौन्दर्यगत मूल्य
(ग) वृहत जैवविवधिता केन्द्र के राष्ट्र रूप में भारत, राष्ट्रीय तथा स्थानीय स्तरों पर जैव विविधता।
(घ) जैव विविधता के खतरे– आवासीय हानि, वन्य जीवन में अनाधिकार घुसपैठ तथा मानव वन्य जीवन–संघर्ष

इकाई 5 आपदा प्रबंधन तथा पर्यावरण संरक्षण कानून

(क) आपदा प्रबंधन– बाढ़, भूकंप, चक्रवात एवं भूस्खलन
(ख) वायु तथा जल प्रदूषण– संरक्षण कानून
(ग) वन्य प्राणी संरक्षण कानून
(घ) पर्यावरण तथा स्वास्थ्य रक्षा में सूचना प्रौद्योगिकी की भूमिका।

संदर्भ पुस्तक– मध्यप्रदेष हिन्दी ग्रथ अकादमी, भोपाल द्वारा प्रकाषित पुस्तक।

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 25 अंक

खण्ड अ – प्रत्येक इकाई से एक वस्तुनिष्ठ प्रष्न ½ x 5 = 2.5
खण्ड ब – प्रत्येक इकाई से एक लघु उत्तरीय प्रष्न – आंतरिक विकल्प के साथ 1.5 x 5 = 7.5
खण्ड स– प्रत्येक इकाई से एक दीर्घ उत्तरीय प्रष्न 3 x 5 = 15
आंतरिक विकल्प के साथ

स्वाध्यायी विद्यार्थियों के लिए कुल 30 अंक

खण्ड अ – प्रत्येक इकाई से एक वस्तुनिष्ठ प्रष्न 1 x 5 = 5
खण्ड ब – प्रत्येक इकाई से एक लघु उत्तरीय प्रष्न – आंतरिक विकल्प के साथ 2 x 5 = 10
खण्ड स– प्रत्येक इकाई से एक दीर्घ उत्तरीय प्रष्न 3 x 5 = 15
आंतरिक विकल्प के साथ

15.6.17
(डॉ० के० पी० मिश्र)

15.6.17
प्रो० के० सिंह ठाकुर

15-6-17
डॉ० प्रतिभा यादव

15/6/17

15/6/17
Dr Renu Mishra

Department of Higher Education, Govt. of M. P.
Under Graduate Semester wise Syllabus
As recommended by Central Board of Studies and Approved by HE the Governor or M. P.
With effect from : 2018-19

Class	:	B.A./B.Sc./B.Com./B.Sc. (Home Science) B.A. (Mgt.) BCA
Year	:	II
Subject	:	Foundation Course
Paper Title	:	Paper III : Environmental Studies

Max. Marks : 25+05 CCE

Unit I Study of Environment and Ecology

(a) Definition and importance.
(b) Public participation and public awareness.
(c) Ecology – Introduction
(d) Ecosystem – Concepts, components, structure & function, energy flow, food, chain, food web, ecological pyramids and types.

Unit II Environmental Pollution and Population

(a) Air, water, noise, heat and nuclear pollution - definition, causes, effect and prevention of pollution.
(b) Population growth, disparities between countries.
(c) Population explosion, family welfare programme.
(d) Environment and human health.
(e) Cleanliness and disposal of domestic waste.

Unit III Natural resources, Problems and Conservation

(a) Water resources
(b) Forest resources
(c) Land resources
(d) Food resources
(e) Energy resources

Unit IV Bio-diversity and its Protection

(a) Introduction-Genetic, species and ecosystem diversity.
(b) Value of bio-diversity- Consumable use: Productive use, Social, Moral and Aesthetic values.
(c) India as a nation of mega bio-diversity centre, bio-diversity at national and local levels.
(d) Threats to bio-diversity – Loss of habitat, poaching of wildlife, man and wildlife conflicts.

15.6.17
प्रोफेसर दिनेश कुशवाह

15.6.17
(डॉ० के० जी० मिश्र)

15/6/17
डॉ. अर्चना किरण श्रीवास्तव

15.6.17
डॉ. प्रनिमा यादव

18/6/17
Dr. Renu Mis

M.R.S.C.P.S. INDORE

Unit V Disaster Management and Environmental laws

(a) Disaster Management- flood, earthquake, cyclones and landslides.
(b) Conservation of laws for air and water pollution.
(c) Wildlife conservation laws.
(d) Role of information technology in protecting environment and health.

Marks distribution for paper setters:		for Regular students	for Private students
Section A:	Objective type	½ x 5 = 2.5	1 x 5 = 5
Section B:	Short Answer type	1 ½ x 5 = 7.5	2 x 5 = 10
Section C:	Long Answer type	3 x 5 = 15	3 x 5 = 15
	Total	25	30

15.6.17
प्रोफेसर दिनेश कुशवाह

15.6.17
(डॉ० केशव० मिश्र)

15.6.17
डॉ. प्रनिमा यादव

15.6.17
डॉ. उमेश कुमार सिंघल

15/6/17
(Dr. Renu Mishra)

I.I.R.S.C.P.S. INDORE

B.Com, B.A, B.Sc
B.Com (III) Year
(foundation)
2019-20

Department of Higher Education Govt. Of M.P
Under Graduate year wise syllabus
As recommended by central board of studies and approved by
The governor of M.P.
उच्च शिक्षा विभाग, म.प्र. शासन
स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम
केन्द्रीय अध्ययन मण्डल द्वारा अनुशंसित तथा म.प्र. के राज्यपाल द्वारा अनुमोदित
सत्र 2019–20

Class : B.A./B.Sc./B.Com./B.Sc. (Home Science)/BCA/B.A.(Mgt.)III Year

Subject : Foundation Course (आधार पाठ्यक्रम)

Paper : I

Title of Paper : हिन्दी भाषा और नैतिक मूल्य (Hindi Language & Moral Values)

Compulsory / Optional : Compulsory

Max. Marks : नियमित (Hindi Language = 25) + (Moral Values 05) + CCE 05 = 35

स्वाध्यायी = 35

Particulars / विवरण

Unit-I	हिन्दी भाषा 1. मेरे सहयात्री (यात्रा वृतांत) – अमृतलाल बेगड 2. मध्यप्रदेश की लोक कलाए (संकलित) 3. लोकोक्तियाँ एवं मुहावरे (संकलित)
Unit-II	हिन्दी भाषा 1. जनसंचार माध्यम (प्रिन्ट, इलै. एवं सोशल मीडिया) 2. टूटते हुए (एकांकी) – सुरेश शुक्ल चंद्र 3 संक्षिप्तियाँ
Unit-III	हिन्दी भाषा 1. पत्रकारिता के विभिन्न आयाम (संकलित) 2. मध्यप्रदेश का लोक साहित्य (संकलित) 3. पत्र लेखन – आवेदन, प्रारूपण, आदेश परिपत्र, ज्ञापन, अनुस्मारक (संकलित)

15.6.17
(डॉ० के० जी० मिश्र)

15.6.17
प्रो. दिनेश कुशवाहे

15/6/17
डॉ. प्रतिमा गोदरे

15/6/17
डॉ. उषा किरण श्रीवास्तव

IHRSCPS INDORE

Unit-IV	हिन्दी भाषा 1. राजभाषा हिन्दी (संकलित) हिन्दी की संवैधानिक एवं व्यावहारिक स्थिति 2. दूरभाष और मोबाईल (संकलित) 3. हिन्दी की शब्द सम्पदा (संकलित) 4. अनुवाद : अर्थ प्रकार एवं अभ्यास
Unit-V	नैतिक मूल्य 1. विश्व के प्रमुख धर्म एवं महत्वपूर्ण विशेषताएं हिन्दू धर्म, जैन धर्म, बौद्ध धर्म, सिक्ख धर्म, ईसाई धर्म, इस्लाम धर्म 2. सत्य के साथ मेरे प्रयोग (महात्मा गाँधी की आत्म कथा का संक्षिप्त संस्करण)

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड–अ–प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न 1x5=5

खण्ड–ब–इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न

आन्तरिक विकल्प के साथ 3x3=9

खंड –स–इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न ... 4x4=16

आन्तरिक विकल्प के साथ

स्वाध्यायी विद्यार्थियों के लिए कुल 35 अंक

खण्ड – अ– प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न 1x5=5

खण्ड – ब– इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न

आंतरिक विकल्प के साथ 3x4=12

खण्ड – स– इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न 4x4½=18

अतिरिक्त विकल्प के साथ

नोट – निर्धारित पाठ्यपुस्तक हिन्दी भाषा और नैतिक मूल्य मध्यप्रदेश हिन्दी ग्रंथ अकादमी भोपाल से प्रकाशित।

15.6.17
(डॉ०के०जी०मिश्र)

15.6.17
प्रो० दिनेश

डॉ. प्रतिमा यादव

INDORE

Unit-IV	हिन्दी भाषा 1. राजभाषा हिन्दी (संकलित) हिन्दी की संवैधानिक एवं व्यावहारिक स्थिति) 2. दूरभाष और मोबाईल (संकलित) 3. हिन्दी की शब्द सम्पदा (संकलित) 4. अनुवाद : अर्थ प्रकार एवं अभ्यास
Unit-V	नैतिक मूल्य 1. विश्व के प्रमुख धर्म एवं महत्वपूर्ण विशेषताएं (हिन्दू धर्म, जैन धर्म, बौद्ध धर्म, सिक्ख धर्म, ईसाई धर्म, इस्लाम धर्म) 2. सत्य के साथ मेरे प्रयोग (महात्मा गांधी की आत्म कथा का संक्षिप्त संस्करण)

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड–अ–प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न 1x5=5

खण्ड–ब–इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न

आन्तरिक विकल्प के साथ 3x3 =9

खंड —स—इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न 4x4 = 16

आन्तरिक विकल्प के साथ

स्वाध्यायी विद्यार्थियों के लिए कुल 35 अंक

खण्ड – अ– प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न 1x5 = 5

खण्ड – ब– इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न

आंतरिक विकल्प के साथ 3x4=12

खण्ड – स– इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न 4x4 ½ = 18

अतिरिक्त विकल्प के साथ

नोट – निर्धारित पाठ्यपुस्तक हिन्दी भाषा और नैतिक मूल्य मध्यप्रदेश हिन्दी ग्रंथ अकादमी भोपाल से प्रकाशित।

15.6.17
(डॉ० [illegible])

15.6.17
प्रो० दिनेश कुमार

15-6-17
डॉ. प्रतिमा यादव

15/6/17
(डॉ. [illegible])

Department of Higher Education, Govt. of M.P.

Syllabus for Under Graduate Annual Exam Pattern As recommended by Central Board of Studies and Approved by the Governor of M.P.
With effect from : 2019-20

Class	:	B.A./B.Sc/B.Com/B.Sc.(Home Science)/B.A.(Mgt.) BCA
Year	:	III
Subject	:	Foundation Course
Paper Name	:	English Language
Paper	:	II
Compulsory / Optional	:	Compulsory

Max. Marks : 30 + Internal assessment (5) = 35

Note : Max. Marks for private students shall be 35.

UNIT – I

1. Stopping by Woods on a Snowy Evening; Robert Frost.
2. Cherry Tree : Ruskin Bond
3. The Axe: R.K. Narayan
4. The Selfish Giant: Oscar Wilde
5. On the Rule of the Road: A.G. Gardiner
6. The song of Kabir: Translated by Tagore

UNIT – II

Basic Language Skills –

Transformation of sentences, Direct-Indirect Speech, Active-Passive Voice, Confusing words, Misused words, Similar words with different meaning.

UNIT – III

Report Writing, Narration Skills, Narration of events and situations.

UNIT - IV

Drafting of E-mails

UNIT – V

Drafting CV.

Department of Higher Education, Govt. of M.P.

Syllabus for Under Graduate Annual Exam Pattern As recommended by Central Board of Studies and Approved by the Governor of M.P.

With effect from : 2019-20

QUESTION PAPER FORMAT

Class	:	B.A./B.Sc/B.Com/B.Sc.(Home Science)/B.A.(Mgt.) BCA
Year	:	III
Subject	:	Foundation Course
Paper Name	:	English Language
Paper	:	II
Compulsory / Optional	:	Compulsory

Max. Marks : 30 + Internal assessment (5) = 35

Note : Max. Marks for private students shall be 35

Ques. 1 **Six** objective type questions to be set any **four** to be attempted (multiple choice, non multiple choice, fill in the blanks) **1 x 4 = 4 marks**

Ques. 2 **Six** short answer type to be set based on the lessons **three** to be attempted

2x3=6 marks

Ques 3 Basic Language Skills – Confusing words, Misused words, Similar words with different meanings, proverbs, Transformation of sentences, Direct-Indirect Speech, Active-Passive Voice.

(**Ten** to be set **eight** to be attempted) **8 marks**

Ques 4 English Language –

Report Writing, Narration Skills - Narration of events and situations.

6 marks

Ques 5 Drafting E-mails / Drafting CV.

6 marks

Department of Higher Education, Govt. of M.P

Yearly syllabus for under Graduate classes

As recommended by central Board of Studies and

Approved by HE the Government of M.P.

With effect from: Session 2019-20

Class	-	बी.ए./बी.एस.सी./बी.काम / बी.एस.सी. होम साइंस/बी.ए.(मैनेजमेंट)/ बी.सी.ए.
Year	-	तृतीय
Subject	-	आधार पाठ्यक्रम
Paper Title	-	कम्प्यूटर के मूल तत्व एवं सूचना प्रौद्योगिकी
Paper	-	III

इकाई–1 कम्प्यूटर का परिचय

कम्प्यूटर प्रणाली के मूल संगठनः– ब्लॉक आरेख एवं कार्य (केन्द्रीय प्रोसेसिंग इकाई, निवेशी/निर्गत इकाई, भण्डारण इकाई) अभिलक्षण ; क्षमताएँ एवं सीमाएँ।

कम्प्यूटर युक्तियों के प्रकारः– डेस्कटॉप, लैपटॉप एवं नोटबुक, स्मार्ट–फोन, टेबलेट पीसी, सर्वर, वर्कस्टेशन एवं इनके अभिलक्षण।

प्राथमिक स्मृति एवं उसके प्रकारः– RAM, ROM, कैश स्मृति।

निवेश युक्तियांः– कुंजीपटल, मॉउस, ट्रैकबाल, जॉयस्टिक, डिजीटाईजर अथवा ग्राफिक टेबलेट, स्कैनर, डिजिटल कैमरा, वेब कैमरा MICR,OCR,OMR, बारकोड रीडर, ध्वनि अभिज्ञान युक्तियाँ, लाइट–पेन एवं टच–स्क्रीन।

निर्गत युक्तियांः– प्रदर्शन युक्तियां (CRT,TFT,LCD,LED मल्टीमिडिया प्रोजेक्टर), विडियो मानक, VGA, SVGA, XGA आदि; आघात प्रिंटर(डिजीथ्वील, डॉट–मैट्रिक एवं लाइन प्रिंटर); गैर आघात प्रिंटर(इंकजेट, लेजर एवं थर्मल); प्लॉटर्स (ड्रम एवं पंलैट–बेड); स्पीकर्स।

चुम्बकीय टेप कार्टिज टेप, डाटा ड्राइव, हार्डडिस्क ड्राइव(आंतरिक एवं बाह्य) फ्लॉपी डिस्क,CD,VCD,CD-R,CD-RW, जिप ड्राइव, DVD, DVD-RW,यूएसबी फ्लैश ड्राइव, ब्लू रे डिस्क, स्मृति कार्ड।

इकाई–II परिचालन प्रणाली

परिचालन प्रणाली के कार्य एवं प्रकार, आई–पैड एवं स्मार्ट –फोन के लिये प्रयुक्त परिचालन प्रणालियों से परिचय।

डॉस, विंडोज एवं लिनक्स परिचालन प्रणालियों का प्रारम्भिक ज्ञान।

डॉस के मूल तत्वः **FAT,**फाइल एवं डायरेक्ट्री संरचना एवं उनके नामकरण के नियम, बूटिंग प्रकिया, डॉस प्रणाली की फाइलें। डॉस के आंतरिक एवं वाह्य निर्देश।

विंडोज के मूल तत्व (केवल प्राथमिक जानकारी): विंडोज 7 एवं 8: डेस्कटॉप, कन्ट्रोल पैनल; फाइल एवं फोल्डर का नाम परिवर्तन, स्थानांतरण, प्रतिलिपिकरण और खोज; रीसायकिल बिन से फाइल एवं फोल्डर की पुनः प्राप्ति; शॉटकट बनाना, नेटवर्क कनेक्शन की स्थापना।

इकाई–III माइक्रोसाफ्ट वर्ड

वर्ड 2007 एवं आगामी संस्करणों द्वारा पाठ्य सामग्री का संपादन एवं फॉर्मेटिंगः टेम्पलेट द्वारा दस्तावेज बनाना, वर्ड फाइल को विभिन्न फार्मेटों में सुरक्षित(SAVE) करना, दस्तावेज का पूर्वावलोकन (preview), दस्तावेज को फाइल अथवा पेज पर मुद्रित करना; दस्तावेज का संरक्षण, चयनित पाठ्य सामग्री का संपादन; पाठ्य सामग्री को जोड़ना, हटाना एवं स्थानांतरित करना।

दस्तावेजों की फॉर्मेटिंगः पेज लेआउट, पैराग्राफ फार्मेट, पाठ्य सामग्री एवं पैराग्राफ का संरक्षण, बॉर्डर एवं शैडिंग हैडर एवं फुटर।

इकाई–IV– माईक्रोसॉफ्ट पॉवरपॉइंट और एक्सेल

- स्लाइड मास्टर और टेम्पलेट का उपयोग करते हुए विभिन्न थीम्स और वैरिएंट्स में प्रस्तुति बनाना।
- स्लाइड के साथ कार्य करना: नई–स्लाइड बनाना, मूव करना, प्रतिलिपि बनाना,डिलीट करना डुप्लीकेट बनाना,स्लाइड ले–आउट, प्रेजेंटेशन व्यूज।
- फोर्मेट मेनू: फॉन्ट, पैराग्राफ, ड्राइंग और संपादन।
- प्रस्तुति का मुद्रण: स्लाइड्स, नोट्स पेजेस, हैंडआउट्स और रूपरेखा की प्रिंटिंग।
- विभिन्न फाइल स्वरूपों में प्रस्तुति का संरक्षण।
- स्लाइड शो को प्रस्तुत करना: सेटअप स्लाइड शो एवं रीहर्सल–टाइमिंग।
- वर्कबुक और वर्कशीट के मूल तत्व: पंक्ति, स्तम्भ और सेल की अवधारणा, नई वर्कबुक को खोलना और टेम्पलेट की सहायता से बनाना।
- वर्कशीट में कार्य: वर्कशीट में डाटा (सामान्य, नंबर, करन्सी, डेट, टाइम, टेक्स्ट, एकाउंटिंग इत्यादि) प्रविष्ट करना; वर्कशीट का नाम बदलना, प्रतिलिपि बनाना, प्रविष्ट करना, हटाना तथा रक्षित करना।
- पंक्ति और स्तम्भ के साथ कार्य (डालना, हटाना, फ्रीज करना, आकार बदलना और छुपाना) सेल और सेल फॉर्मेटिंग, रैंज की अवधारणा।

इकाई–V– इंटरनेट एवं साइबर सुरक्षा

इंटरनेट–वर्ल्ड–वाइड–वेब, डायलअप कनेक्टिविटी, लीजड लाइन, वी.सैट, ब्रॉडबैंड, वायरलाई, सूआरएल, डोमेन, नेम वेब–ब्राउजर (इंटरनेट एक्स्प्लोरर, फायरफॉक्स, गूगल क्रोम, ऑपेरा,यूसी ब्राउजर इत्यादि), सर्च इंजन (गूगल, बिंग Ask इत्यादि); वेबसाइड: स्थैतिक व गतिकीय, पोर्टल और वेबसाइड में अंतर।

इमेल: खाता खोलना, मेल को भेजना एवं प्राप्त करना, कोन्टेक्ट्स एवं फोल्डर्स को मैनेज करना।

साइबर शिष्टाचार, सुरक्षा और गोपनीयता

इमेल, इंटरनेट एवं सोशल नेटवर्किंग शिष्टाचार।
वायरस और एंटीवायरस के प्रकार।
कम्प्यूटर सुरक्षा के मुद्दे और फायरवाल व एंटीवायरस के माध्यम से सुरक्षा।
सुरक्षित तरीके से ऑनलाइन लेन–देन का निष्पादन करना।

संदर्भ ग्रंथसूची:–

1. पी.सी. सॉफ्टवेयर फॉर बिजिनेज – आर के टकसाली ।
2. फन्डामेन्टल ऑफ कम्प्यूटर्स – आर के सिन्हा।
3. कम्प्यूटर टुडे – सुरेश कुमार बसन्ता।
4. कम्प्यूटर्स फन्डामेन्टल एंड आरकीटेक्चर –बी राम।
5. इंटरनेट सिक्योरटी–कैगथ इनर हीमा, 2007
6. इंटरनेट सिक्योरटी सीक्रेट्स– जॉन आर वैक्का, 2007

Marks distribution for paper setters:		for Regular students	for private students
Section A :	Objective type	½ x 5 = 2.5	1 x 5 =5
Section B :	Short Answer Type	1 ½ x 5 = 7.5	2 x 5 = 10
Section C :	Long Answer Type	3 x 5 = 15	3 x 5 = 15
	Total	25	30

Department of Higher Education, Govt. of M.P.

Yearly syllabus for Under Graduate classes

As recommended by Central Board of Studies and Approved by the Governor of M.P.

With effect from : 2019-20

Class	:	B.A./B.Sc/B.Com/B.Sc.(Home Science)/B.A.(Mgt.) / BCA
Year	:	III
Subject	:	Foundation Course
Paper Name	:	Basics of Computer & Information Technology
Paper	:	III

Max. Marks : 25

UNIT I **INTRODUCTION TO COMPUTER**

BASIC Organization of Computer System : Block diagram & Functions (Central Processing Unit, Input/ Output Unit, Storage Unit); Characteristics; Capabilities & Limitations.
Types of Computing Devices : Desktop, Laptop & Notebook Smart-Phone, Tablet PC, Server, Workstation & their Characteristics.
Primary Memory & Their Types : RAM, ROM, PROM, EPROM, EEPROM,; Cache Memory.

PERIPHERAL DEVICES

Input Devices : Keyboard, Mouse, Trackball, Joystick, Digitizer or Graphic tablet, Scanners, Digital Camera, Web Camera, MICR, OCR, OMR, Bar-Code Reader, Voice Recognition device, Light pen & Touch Screen.
Output Devices : Display Devices (CRT, TFT, LCD, LED, Multimedia Projectors); Video Standard : VGA, SVGA, XGA etc. Impact Printers (Daisy Wheel , Dot Matrix & Line Printer); Non impact printer (Inkjet, Laser, Thermal);

STORAGE DEVICES

Magnetic Tape, Cartridge, Data Drives, Hard Disk Drives (Internal & External), Floppy Disks, CD, VCD, CD-RW, Zip Drive, DVD, DVD-RW, USB Flash Drive, Blue Ray Disc & Memory cards.

UNIT I **OPERATING SYSTEM (OS)**

DOS Basics : FAT, File & Directory Structure and naming rules, Booting process, DOS system files. Internal & External DOS commands.
Windows Basics (only elementary ides):
Windows 7 & 8: Desktop, Control Panel; saving, renaming, moving, copying and searching files & folders, restoring from recycle Bin. Creating shortcut, Establishing Network Connections.

UNIT III **MS Word -**

Text Editing and formatting using Word 2007 & onwards versions: Creating documents using Template; Saving Word file in various file formats; Previewing documents, Printing document to file/page; Protecting document; Editing of selected text, Inserting, Deleting and Moving text.
Formatting documents: page Layout, Paragraph format, Aligning text and Paragraph, Borders and Shading, Headers and Footers.

Unit IV MS Power Point & MS Excel

- Creating presentation using slide master and template in various themes & variants.
- Working with slides: New slide, move, copy, delete, duplicate, slide layouts, presentation views.
- Format menu: Font, paragraph, drawing & Editing.
- Printing presentation: Print slides, notes, handouts and outlines.
- Saving presentation in different file formats.
- Workbook & Worksheet Fundamentals: Concept of Row, Column & Cell; Creating a new workbook through blank & template.
- Working with worksheet: Entering data into worksheet (General , Number, Currency, Date, Time, Text, Accounting, etc); Renaming, Copying, Inserting, deleting & protecting worksheet.
- Working with Row & Column (Inserting, deleting, Pasting, Resizing & Hiding), Cell & Cell formatting , Concept of range.

Unit – V : **Internet and Cyber Security**

- Internet: World wide Web, Dial up connectivity, leased line, VSAT, Broad Band, Wi-Fi, URL, Domain name, Web Browser (Internet Explorer, Firefox, Google Chrome, Opera, UC Browser, etc.) Search Engine (Google, Bing, Ask, etc) ; Website: Static & Dynamic; Difference between Website & Portal.
- E-mail: Account opening. Sending & Receiving Mails, Managing Contacts & Folders.
- E-mail, Internet & Social Networking Ethics.
- Types of viruses & antivirus.
- Computer security Issues & its protection through firewall & antivirus
- Making secured online transactions.

Text Books :

1. PC Software for Windows by R.K. Taxali
2. Fundamental of Computers by P.K. Sinha
3. Computer Today by Suresh K. Basandra
4. Computer fundamental s and Architecture by B.Ram
5. Internet Security by Kenneth Einar Himma, 2007
6. Internet Security Secrets by John R. Vacca, 2007

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Section C :	Long Answer Type	3 x 5 = 15	3 x 5 = 15
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M.R.S.C.P.S. INDORE