UNIVERSITY OF CALCUTTA

Notification No. CSR/ 12 /18

It is notified for information of all concerned that the Syndicate in its meeting held on 28.05.2018 (vide Item No.14) approved the Syllabi of different subjects in Undergraduate Honours / General / Major courses of studies (CBCS) under this University, as laid down in the accompanying pamphlet:

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28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

Paul 4/6/18
(Dr. Santanu Paul)
Deputy Registrar

CC – 12 (Semester 5)
Statistics In Education

Objectives:

- To develop the concept of statistics and to develop skill in analyzing descriptive measures
- To be acquainted with the concept of Normal Probability Curve and its uses in education
- To develop a concept of measures of relationship
- To develop the ability to organize relevant educational data and to represent educational data through graphs and to develop skill in analyzing and displaying data

Unit: 1 = Concept of Statistics and Descriptive Statistics

- Concept of Statistics. Uses of Statistics in Education, Organization and presentation of data – tabulation, graphical representation(Frequency Polygon, Histogram, Ogive, Pie)
- Meaning & measures of Central Tendency- Arithmetic Mean, Median and Mode-their Properties, Calculation and Application.
- Meaning & measures of Variability- Range, Standard Deviation and Quartile Deviation - their Properties, Calculation and Application
- Percentile and Percentile Rank - Definition, Calculation, Application, Graphical Determination

Unit: 2 = Normal Distribution and Derived Score

- Concept of Normal Distribution- Properties
- Uses of NPC in Education
- Divergence from Normality- Skewness and Kurtosis.(Concept and Calculation)
- Derived Scores- Z-Score, T Score and Standard Score (Concept, Calculation and Uses).

Unit: 3 = Measure of Relationship

- Bi-variate Distribution- Concept and types of Linear Correlation
- Scatter Diagram (only Concept)
- Uses of Correlation
- Computation of Co-efficient of Correlation by Rank Difference method and Product Moment method, Interpretation of Co-efficient of Correlation

Unit:4 = Statistics (Practical)

- Students are expected to collect relevant data (Bi-variate educational data) from their college or neighbourhood (minimum sample size must be 50) with the objective of
  - describing the nature and characteristics of the two distributions,
  - comparing two distributions and
  - finding association between two sets of data by applying the following:

Method: i) Tabulation of data
ii) Determination of central tendencies and variability (standard deviation)
iii) Graphical Representation- Bar graph, Frequency Polygon, Cumulative frequency graph.
iv) Determination of the type of association between two sets of data by drawing scatter diagram

UNIVERSITY OF CALCUTTA

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SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

Paul 4/6/18
(Dr. Santanu Paul)
Deputy Registrar

7. Determination of the temperature coefficient of the material of a coil using a Carey-Foster bridge (3 sets of readings for both temperatures to be taken, also the resistance per unit length of the wire to be measured).

8. To draw the I-V characteristics of a bridge rectifier (4-diode) (i) without using any filter and (ii) using a capacitive filter. (Percentage voltage regulation to be calculated for each case at a specified load current.)

9. To draw the reverse characteristics of a Zener diode & to study its voltage regulation characteristics using a variable load. (Breakdown region to be identified on the graph and Percentage voltage regulation to be calculated for two load currents.)

10. To draw the output characteristics of a transistor in C-E configuration (for at least 5 base currents) and hence to determine the A.C. current gain from the active region of the characteristics.

11. To verify the truth tables of OR and AND logic gates using diodes and construction of AND, OR and NOT gates using NOR / NAND IC gates on breadboard.

12. To draw the resonance curve of a series LCR circuit and hence to determine the Quality-factor of the circuit.

Paper IV

Module I (Computer lab)

Full Marks: 25
(Experiment - 15, Project Report - 5, Viva -5)

Time: 3 hours

1. To familiarise with the hardware and the operating system and to solve simple problems by programming in C or Fortran as per the syllabus.

(i) Computer hardware: basic building blocks, central processing units, memory, hard disc, RAM. ROM, CD-ROM, DVD, pen drive, memory units: bits and bytes, input-output devices,
(ii) Computer software: Operating system, Windows, Unix/Linux

(iii) Programmingin C: basic structure, character set, keywords, identifiers, constants, variables, type declaration, operators --- arithmetic, rational, logical, assignment, increment, increment and decrement, operator precedence and associativity, arithmetic expression, evaluation and type conversion character I/O, escape sequence and formatted I/O, branching and looping, if, if-else, while, do-while, for, arrays (one and two dimensional).

OR

(iii) Programming in Fortran : constants, variables, arrays, dimension-type statements, arithmetic expressions, input and output statements, control statements – jumping, branching, and looping.

Problems

(i) Sorting: arranging in ascending/descending order
(ii) Read N numbers ,find their mean, median, mode
(iii) Sum of a G.P. series term by term
(iv) Solution of a quadratic equation with real / complex roots
(v) Simple matrix operations (addition, subtraction, multiplication)

2. To use database package and word processor.

Module II

(All experiments are of project type)

Full Marks: 25

(Experiment – 15, Project report – 5, Viva – 5)

Time: 3Hours

1. To convert a given ammeter into a voltmeter and a given voltmeter into an ammeter. To calibrate the instrument and to measure the internal resistance of it in each case.
2. To construct an adjustable voltage power supply using appropriate IC and to study its regulation.
3. To measure the internal resistance of an analog voltmeter and to increase its internal resistance by using an OP AMP.
4. To use OP AMP as inverting, non-inverting, differential amplifier and as an adder.
5. To calibrate a given temperature sensor and to use the sensor to control the temperature of a heat bath.
6. To develop a photo-sensor using a phototransistor followed by an amplifier and to use the same to control the switching of a bulb.

UNIVERSITY OF CALCUTTA

NotificationNo.CSR/47/19

It is notified for information of all concerned that the Syndicate at its meeting held on 08.08.2019 (vide Item No.19) subsequently confirmed by the Syndicate 27.08.2019 (Item No.01) approved the revised syllabus of B.Sc. Physics (Honours/General) under CBCS, under this University, as laid down in the accompanying pamphlet.

The above shall take effect from the academic session 2019 -2020 and the students who are at present attending semester-3 classes will continue with the old syllabus.

SENATE HOUSE
KOLKATA-700 073
The 11th November, 2019.

11/11/19
Prof.(Dr.) Debasis Das
Registrar
11.11.19

SEC B -1 (Technical Skill)

4.2 Arduino (Project type)

4.2.1 Arduino

Paper PHS-A-SEC-B-TH **Credit 1**

2 Lectures

1. Introduction to Arduino
Brief history of the Arduino; open-source electronics prototyping.

3 Lectures

2. Basic ideas
Basic ideas of Arduino, Familiarize the Arduino board, Setting up the arduino board. Installation of IDE in PC/ laptop for Arduino programming(Sketch)

10 Lectures

3. Arduino Programming:
(a) Program structure:
data types, variables and constants, operators, control statements, loops, functions, string.
(b) Interfacing:
serial communication, digital and analog input/output, getting input from sensors(e.g. temperature sensor, ultrasonic sensor etc)

Books and references

1. Arduino Cookbook, Michael Margolis, O'Reilly Media (2011)
2. Getting Started with Arduino, Massimo Banzi, O'Reilly Media(2009)
3. Arduino as a tool for physics experiments, Giovanni Organtini 2018 J. Phys.: Conf. Ser. 1076 012026
4. https://www.arduino.cc/en/Guide/HomePage
5. Physics Today 66, 11, 8 (2013); https://doi.org/10.1063/PT.3.2160
6. The Physics Teacher 52, 157 (2014); https://doi.org/10.1119/1.4865518

4.2.2 Practical Projects

Paper PHS-A-SEC-B-PR **Credit 1**

1. LED Blinking and fading.
2. Measurement of voltages (Below 5 V and above).
3. Interfacing 7 Segment display.
4. Construction of thermometer using LM35 or Others.

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SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

Paul 4/6/18
(Dr. Santanu Paul)
Deputy Registrar

2.20 GEO-A-CC-4-10-P – Soil and Biogeography Lab ✧ 30 Marks / 2 Credits

A laboratory notebook, comprising class assignments of the following is to be prepared and submitted. The exercises are to be drawn in pencil with photocopied representation of source materials where necessary. All texts are to be handwritten.

1. Determination of soil reaction (pH) and salinity using field kit [15]
2. Determination of soil type by ternary diagram textural plotting [15]
3. Plant species diversity determination by matrix method [10]
4. Time series analysis of biogeography data [20]
5. Viva-voce based on laboratory notebook (5 Marks)

References

Monkhouse, F.J., Wilkinson, H.R. 1971. Maps and Diagrams: Their Compilation and Construction, 3rd ed (2017 reprint), Alphaneumera-Kolkata.

Stohlgren, T.J. 2007. Measuring Plant Diversity: Lessons from the Field. Oxford University Press.

USDA: United States Department of Agriculture. 2014. Soil Survey and Laboratory Methods Manual, Soil Survey Investigations Report No. 51.

Walters,M., Scholes, R.J. (Eds.) 2017. The GEO Handbook on Biodiversity Observation Networks, Springer International Publishing.

Xiao, M. 2009. Soil Testing Laboratory Manual, Bent Tree Press.

2.21 GEO-A-CC-5-11-TH – Research Methodology and Fieldwork ✧ 60 Marks / 4 Credits

Unit I: Research Methodology

1. Research in Geography: Meaning, types and significance [5]
2. Literature review and formulation of research design [5]
3. Defining research problem, objectives and hypothesis [6]
4. Research materials and methods [4]
5. Techniques of writing scientific reports: Preparing notes, references, bibliography, abstract, and keywords [6]
6. Plagiarism: Classification and prevention [4]

Unit II: Fieldwork

7. Fieldwork in Geographical studies: Role and significance. Selection of study area and objectives. Pre-field academic preparations. Ethics of fieldwork [6]
8. Field techniques and tools: Observation (participant, non-participant), questionnaires (open, closed, structured, non-structured). Interview [5]
9. Field techniques and tools: Landscape survey using transects and quadrants, constructing a sketch, photo and video recording [5]
10. Positioning and collection of samples. Preparation of inventory from field data [4]
11. Post-field tabulation, processing and analysis of quantitative and qualitative data [5]
12. Fieldwork: Logistics and handling of emergencies [5]

References

Clifford, N., Cope, M., Gillespie, T.W., French, S. (Eds) 2016. Key Methods in Geography, 3rd ed, Sage.

Gomes, B., Jones III, J.P. (Eds) 2010. Research Methods in Geography: A Critical Introduction, Wiley-Blackwell.

Lenon, B., Cleves, P. 2015. Geography Fieldwork and Skills, Harper-Collins.

Montello , D.R, Sutton, P. 2012. An Introduction to Scientific Research Methods in Geography and Environmental Studies, 2nd ed, Sage.

Murthy , K.L.N. 2004. Research Methodology in Geography: A Text Book, Concept Publishing Co.

Northey, N., Draper, D., Knight, D.B. 2015. Making Sense in Geography and Environmental Sciences: A Student's Guide to Research and Writing, 6th ed, Oxford University Press.

Parsons, T., Knight, P.G. 2015. How To Do Your Dissertation in Geography and Related Disciplines, 3rd ed, Routledge.

Riordan, D. 2013. Technical Report Writing Today, 10th ed, Wadsworth Publishing.

Phillips, R., Johns, J. 2012. Fieldwork for Human Geography, Sage.

Thornbush, M.J., Allen, C.D., Fitzpatrick, F.A. (Eds) 2014. Geomorphological Fieldwork, Elsevier.

2.22 GEO-A-CC-5-11-P – Research Methodology and Fieldwork Lab ✧ 30 Marks / 2 Credits

Every student needs to participate in fieldwork and prepare a field report according to the following guideline, failing which he/she will not be evaluated for GEO-A-CC-5-11-P.

1. Each student will prepare a report based on primary data collected from field survey and secondary data collected from different sources.
2. Students will select either one rural area (*mouza*) or an urban area (municipal ward) for the study, with the primary objective of evaluating the relation between physical and cultural landscape.
3. A specific problem or a special feature should be identified based on which, the study area will be selected.
4. The report should be handwritten in English on A4 size paper in candidate's own words within 5,000 words (Introductory Chapter: 1000 words; Physical Aspects: 1500 words; Socio-economic Aspects: 1500 words; Concluding Chapter: 500 words, approximately) excluding tables, photographs, maps, diagrams, references and appendices.
5. Photographs, maps and diagrams should not exceed 15 pages.
6. A copy of the bound report, duly signed by the concerned teacher, will be submitted during examination.
7. The field work and post-field work will include:
   a. Collection of primary data on physical aspects (relief and soil) of the study area. Students should use survey instruments like prismatic compass, dumpy level, Abney level or clinometer wherever necessary.
   b. Collection of soil samples from different land cover land use regions of the study area for determining pH and NPK values with help of a soil kit.
   c. Collection of socio economic data, at the household level (with the help of a questionnaire) in the selected study area.
   d. Plot to plot land use survey for preparation of a land use map, covering whole or part of the selected area.
   e. Visit to different organisations and departments for collection of secondary data.
   f. Any other survey relevant to the objective of the study.
8. The Field Report should contain the following sections (a–e).
   a. Introduction: Study area extent and space relations, reasons for selection of the study area on the basis of a specific problem or special feature, objectives, methods of data collection, analyses and presentation, sources of information, etc.
   b. Physical aspects: Lithology and geological structure, relief, slope, drainage, climate, soil, vegetation, environmental issues, proneness to natural hazards, etc.
   c. Socio-economic aspects:
      i. Population attributes: Number, sex ratio, literacy, occupational structure, ethnic and religious composition, language, per capita income, etc.
      ii. Settlement characteristics: Number of houses, building materials, number and size of rooms, amenities, etc.
      iii. Agriculture: General land use, crop-combination, use of fertiliser and irrigational facilities, production and marketing etc.
      iv. Other economic activities: Fishing, horticulture, brick-making, household and other industries, etc.

UNIVERSITY OF CALCUTTA

NISHAT ALAM
Secretary,
Councils for Undergraduate Studies,
University of Calcutta.

SENATE HOUSE
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Website: www.caluniv.ac.in

Ref. No. CUS/154/17

Dated the 26th May, 2017

To
The Principals
of all the Undergraduate Colleges
offering B.Com (Honours & General) courses
affiliated to the University of Calcutta.

Sir/Madam,

The undersigned is directed to forward you the University Notification No. CSR/26/17, dt. 26.05.2017 containing new course structure, syllabi and revised admission regulations for three-year B.Com. (*Honours & General*) Courses of Studies.

The above shall be effective for the students getting admission to the three-year six-semester B.Com. (Honours & General) Courses of Studies under CBCS, from the academic session 2017-18 and onwards.

The said notification along with detail course structure, syllabi and admission regulations are available in the Calcutta University website.

Thanking you,

Yours faithfully,

26/05/17

(NISHAT ALAM)
Secretary

26/5/17

Enclo.: C.U. Notification No. CSR/26/17, dt. 26.05.2017

Year 3: Semester VI

		Marks	Credit Hours	
AECC 6.1Chg	Environmental Studies	100	2	
SEC 6.1Chg	Computerised Accounting and e-Filing of Tax Returns	100	4	
CC 6.1 Ch	Project Work	100	6	
DSE 6.1 A**	Financial Reporting and Financial Statement Analysis	100	6	
DSE 6.2 A**	Financial Management	100	6	
			24	

Chg: Common for Honours and General; **Ch:** Core Course for Honours

Options:

**Or DSE 6.1 M (Retail Management and Marketing of Services (50+50)
& DSE 6.2 M (Rural Marketing and International Marketing (50+50)

**Or DSE 6.1 T (Indirect Tax: Laws and Practices)
& DSE 6.2 T (Tax Procedures and Planning)

**Or DSE 6.1 e-B (Internet & WWW and Functional e-Business System (50+50)
& DSE 6.2 e-B(Computer Applications and e-Business Applications – Practical (50+50)

Summary for B.Com. Hons.

		Marks	Credit Hours	
Ability Enhancement Compulsory Course (AECC)	Two Papers	200	2 x 2 = 4	
Skill Enhancement Elective Course (SEC)	Two Papers	200	2x4 = 8	
Generic Elective (GE)	Four Papers	400	4 x 6 = 24	
CORE COURSE (CC)	Fourteen Papers	1400	14x 6 = 84	
Discipline Specific Elective (DSE)	Four Papers	400	4 x 6 = 24	
		2600	Total 144	

Marks shown against the units indicate marks for Semester-end Examinations

Unit-1: Computerized Accounting Package: Using Generic Software [40 Marks, Class: 40]

(a) Company creation, ledger creation, order processing, accounting voucher, inventory voucher, memorandum voucher, invoicing, multiple godown handling, Transfer of materials across godowns, Bank Reconciliation,
(b) Cost Centre, Cost Category, Bill of Material (BoM), Budget and Controls
(c) Payroll Accounting
(d) TDS, GST
(e) Back up & Restore, Export and Import data

Unit 2: Designing Computerized Accounting System [15 Marks, Class:15]

(a) Introduction to DBMS Package – Table, Query, Form and Report
(b) Designing Computerized Accounting System using DBMS Package
Creating a voucher entry Form, Preparing ledgers, trial balance, profit & loss a/c, and balance sheet with Form wizard and Report
(c) Designing Payroll System for Accounting using Form, Query, and Report

Unit-3: E-filing of Tax return [25 Marks, Class: 25]

(a) Preparation and submission of the Income Tax Return (ITR) offline/online for individual taxpayer [e-filing without using DSC and with using DSC, EVC]
(b) View form 26AS,Upload return, View e-file returns, e-verification
(c) Use of e-tax calculator (including interest calculation u/s 234A, 234B, 234C)
(d) E-Pay tax (Challan No./ITNS 280, ITNS 281)
(e) Preparation and submission online form 10E [Relief u/s 89(1)]

Project Work: **Assignment based for each and every topic should be prepared**

- Software: Singhania, V.K., E-Filing of Income Tax Returns and Computations of Tax, Taxmann
- Software: "Excel Utility", incometaxindiaefiling.gov.in

CC 6.1 Ch
Project Work (Project Report - 50 + Viva-Voce Examination - 50)
Full Marks 100

UNIVERSITY OF CALCUTTA

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15	Environmental Studies (AECC2)	43	Women Studies (General)
16	Film Studies (General)	44	Zoology (Honours / General)
17	Food Nutrition (Honours / General)	45	Industrial Fish and Fisheries – IFFV (Major)
18	French (General)	46	Sericulture – SRTV (Major)
19	Geography (Honours / General)	47	Computer Applications – CMAV (Major)
20	Geology (Honours / General)	48	Tourism and Travel Management – TTMV (Major)
21	Hindi (Honours / General /LCC2 /AECC1)	49	Advertising Sales Promotion and Sales Management –ASPV (Major)
22	History (Honours / General)	50	Communicative English –CMEV (Major)
23	Islamic History Culture (Honours / General)	51	Clinical Nutrition and Dietetics CNDV (Major)
24	Home Science Extension Education (General)	52	Bachelor of Business Administration (BBA) (Honours)
25	House Hold Art (General)	53	Bachelor of Fashion and Apparel Design – (B.F.A.D.) (Honours)
26	Human Development (Honours / General)	54	Bachelor of Fine Art (B.F.A.) (Honours)
27	Human Rights (General)	55	B. Music (Honours / General) and Music (General)
28	Journalism and Mass Communication (Honours / General)		

The above shall be effective from the academic session 2018-2019.

SENATE HOUSE
KOLKATA-700073
The 4th June, 2018

Paul 4/6/18
(Dr. Santanu Paul)
Deputy Registrar

University of Calcutta

Under Graduate Curriculum under Choice Based Credit System (CBCS)

Syllabus forAbility Enhancement Compulsory Course-2 (AECC-2) in
Environmental Studies

Semester-2

Total Marks-100*(Credit -2)*
(50 Theory-MCQ type + 30 Project + 10 Internal Assessment + 10 Attendance)

[Marks obtained in this course will be taken to calculate SGPA & CGPA]

Theory

Unit 1 **Introduction to environmental studies** — 2 lectures

•Multidisciplinary nature of environmental studies;
•Scope and importance; Concept of sustainability and sustainable development.

Unit 2 **Ecology and Ecosystems** — 6 lectures

•Concept of ecology and ecosystem, Structure and function of ecosystem; Energy flow in an ecosystem; food chains, food webs; Basic concept of population and community ecology; ecological succession.
•Characteristic features of the following:
a) Forest ecosystem
b) Grassland ecosystem
c) Desert ecosystem
d) Aquatic ecosystems (ponds, streams, lakes, wetlands, rivers, oceans, estuaries)

Unit 3 **Natural Resources** — 8 lectures

• Concept of Renewable and Non-renewable resources
• Land resources and landuse change; Land degradation, soil erosion and desertification.
•Deforestation: Causes, consequences and remedial measures
•Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state).
•Energy resources: Environmental impacts of energy generation, use of alternative and nonconventional energy sources, growing energy needs.

Unit 4 **Biodiversity and Conservation** — 8 lectures

•Levels of biological diversity: genetic, species and ecosystem diversity;
• Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots
•India as a mega-biodiversity nation; Endangered and endemic species of India
•Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions;
•Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
•Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

Unit 5 **Environmental Pollution** — 8 lectures

• Environmental pollution: concepts and types,
• Air, water, soil, noise and marine pollution- causes, effects and controls
• Concept of hazards waste and human health risks
• Solid waste management: Control measures of Municipal, biomedical and e-waste.

Unit 6	Environmental Policies and Practices	7 lectures
	•Climate change, global warming, ozone layer depletion, acid rain and their impacts on human communities and agriculture •Environment Laws: Wildlife Protection Act; Forest Conservation Act. Water (Prevention and control of Pollution) Act; Air (Prevention & Control of Pollution) Act; Environment Protection Act; Biodiversity Act. •International agreements: Montreal Protocol, Kyoto protocol and climate negotiations; Convention on Biological Diversity (CBD). •Protected area network, tribal populations and rights, and human wildlife conflicts in Indian context.	
Unit 7	**Human Communities and the Environment**	6 lectures
	•Human population growth: Impacts on environment, human health and welfare. •Case studieson Resettlement and rehabilitation. • Environmental Disaster: Natural Disasters-floods, earthquake, cyclones, tsunami and landslides; Manmade Disaster- Bhopal and Chernobyl. •Environmental movements: Bishnois.Chipko, Silent valley,Big dam movements. •Environmental ethics: Role of gender and cultures in environmental conservation. •Environmental education and public awareness	
Project/ Field work		Equal to 5 lectures
	•Visit to an area to document environmental assets: Natural resources/flora/fauna, etc. •Visit to a local polluted site-Urban/Rural/Industrial/Agricultural. •Study of common plants, insects, fish, birds, mammals and basic principles of identification. •Study of ecosystems-pond, river,wetland, forest,estuary and agro ecosystem.	
	Total	50 Lectures

Suggested Reading:

Asthana, D. K. (2006).*Text Book of Environmental Studies*. S. Chand Publishing.

Basu, M., Xavier, S. (2016). Fundamentals of Environmental Studies, Cambridge University Press, India

Basu, R. N., (Ed.) (2000). *Environment*. University of Calcutta, Kolkata

Bharucha, E. (2013). *Textbook of Environmental Studies for Undergraduate Courses*. Universities Press.

De, A.K., (2006).*Environmental Chemistry*, 6th Edition, New Age International, New Delhi.

Mahapatra, R., Jeevan, S.S., Das, S. (Eds) (2017). *Environment Reader for Universities*, Centre for Science and Environment, New Delhi.

Masters, G. M., &Ela, W. P. (1991).*Introduction to environmental engineering and science*. Englewood Cliffs, NJ: Prentice Hall.

Odum, E. P., Odum, H. T., & Andrews, J. (1971).*Fundamentals of ecology*. Philadelphia: Saunders.

Sharma, P. D., & Sharma, P. D. (2005).*Ecology and environment*.Rastogi Publications.