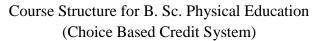
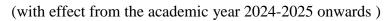


# MANONMANIAM SUNDARANAR UNIVERISTY, TIRUNELVELI-12

# **SYLLABUS**

# UG - COURSES – AFFILIATED COLLEGES







Semester-III							
Part	Subject Status	Subject Title	Subject Code	Credit			
Ι	LANGUAGE	TAMIL/MALAYALAM/HINDI	F1TL31/ F1MY31/ F1HD31	3			
II	ENGLISH	ENGLISH	F2EN31	3			
III	CORE VI	SPORTS PSYCHOLOGY AND SOCIOLOGY	FCPE31	5			
III	CORE VII	SPORTS BIOMECHANICS AND KINESIOLOGY	FCPE32	5			
III	ELECTIVE	PRACTICAL - TEACHING PRACTICE	FEPEP1	3			
IV	SEC	PRACTICAL - APPLIED SPORTS PSYCHOLOGY	FSPEP3	1			
IV	EVS	ENVIRONMENTAL STUDIES	FEVS31	2			
		NAAN MUTHALVAN Fitness and Wellness*		2			



#### Total Marks: 100 Internal Exam: 25 marks + External Exam: 75 marks

#### A. Scheme for internal Assessment:

Maximum marks for written test: 20 marks

**3 internal tests**, each of **I hour** duration shall be conducted every semester.

To the average of the **best two** written examinations must be added the marks scored in. The **assignment** for 5 marks.

The break up for internal assessment shall be:

Written test- 20 marks; Assignment -5 marks Total - 25 marks

## **B.** Scheme of External Examination

3 hrs. examination at the end of the semester

A-Part: 1 mark question two - from each unit B-Part: 5 marks question one - from each unit C-Part: 8 marks question one - from each unit

# > Conversion of Marks into Grade Points and Letter Grades

S.No	Marks	Letter Grade	Grade point (GP)	Performance
1	90-100	O	10	Outstanding
2	80-89	A+	9	Excellent
3	70-79	A	8	Very Good
4	60-69	B+	7	Good
5	50-59	В	6	Above Average
6	40-49	С	5	Pass
7	0-39	RA	-	Reappear
8	0	AA	-	Absent

# **Cumulative Grade Point Average (CGPA)**

$$CGPA = \frac{\Sigma (GP \times C)}{\Sigma C}$$

- **GP** = Grade point, **C** = Credit
- CGPA is calculated only for Part-III courses
- CGPA for a semester is awarded on cumulative basis

# > Classification

a) First Class with Distinction : CGPA ≥ 7.5\*
 b) First Class : CGPA ≥ 6.0

c) Second Class :  $CGPA \ge 5.0$  and < 6.0

d) Third Class : CGPA < 5.0



# Part I TAMIL தமிழக வரலாறும் பண்பாடும்

#### **அலகு** 1

## தொல் பழங்கால வரலாறும் சங்ககால வரலாறும்

- 1. தொல் தமிழர்
- 2. பழைய கற்காலம்
- 3. புதிய கற்காலம்
- 4. உலோகக் காலம்
- 5. அகழ்வாராய்ச்சியில் தமிழும் தமிழரும் (கீழடி வரை)
- 6. திணை வாழ்வியல் (களவு வாழ்க்கை, கற்பு வாழ்க்கை, உணவு, அணிகலன்கள், வாணிகம், விளையாட்டுகள்)
- 7. கல்வியும் கலைகளும்
- 8. தமிழ் வளர்த்த சங்கம்
- 9. சங்க கால ஆட்சி முறை
- 10. அயல்நாட்டுத் தொடர்புகள்

#### அலகு 2

#### ஆட்சியர் வரலாறு

- மூவேந்தர் வரலாறு
- 2. பல்லவர் வரலாறு
- 3. நாயக்கர் ஆட்சி
- 4. முகம்மதியர் ஆட்சி
- 5. **மராட்டியர் ஆட்சி**

#### அலகு 3

## ஐரோப்பியர் கால வரலாறு

- 1. போர்த்துகீசியர்
- 3. டேனிஸ்காரர்கள்
- 4. பிரெஞ்சுக்காரர்கள்
- 5. ஆங்கிலேயர்கள்
- 6. பாளையக்காரர்கள்
- 7. இந்தியா விடுதலை போராட்டத்தில் தமிழ்நாடு

#### அலகு 4

# விடுதலைக்குபின் தமிழ்நாட்டு வரலாறு

- 1. மொழிப்போராட்டம்
- 2. சமூக மறுமலர்ச்சி
- தொழில்நுட்ப வளர்ச்சி

### அலகு 5

#### மொழிப்பயிற்சி

- நிறுத்தக் குறிகள்
- கலைச்சொற்கள்
- மொழிபெயர்ப்பு

#### Text Books

- 1. தமிழக வரலாறும் பண்பாடும் கே. கே. பிள்ளை, உலகத் தமிழாராய்ச்சி நிறுவனம் , சென்னை
- 2. தமிழர் நாகரீ கம் பண்பாடும் அ. தட்சிணாமூர்த்தி, யாழ் வெளியீடு, சென்னை
- 3. தமிழக வரலாறும் பண்பாடும்-வே.தி.செல்லம், மணிவாசகர் பதிப்பகம், சென்னை

#### Reference Books

- 1. தமிழக சமூதாய பண்பாட்டு கலை வரலாறு கு சேதுராமன் , என்,சி,பி.எச், சென்னை
- 2. தமிழர் கலையும் பண்பாடும்-அ.கா.பெருமாள், என்,சி,பி.எச், சென்னை
- 3. ஒரு பண்பாட்டின் பயணம்: சிந்து முதல் வைகை வரை ஆர். பாலகிருஷ்ணன், ரோஜா முத்தையா ஆராய்ச்சி நூலகம், சென்னை



# **MALAYALAM - POETRY**

#### UNIT I

This unit focus on significance of Malayalam Poetry and trends.

To familiarize the early stages of Malayalam poetry- Folklore heritage-Pattu-Bhakthi movement-Cherussery-Ezhutachan- Kunjan Nambiar-

Detailed study:

Jaritha Vilapam (Mahabharatam kilippattu) Ezhutachan

#### **UNIT II**

Romanticism – Asan- Ulloor – Vallathol

Detailed study:

- 1. Veena Poovu (First 7 slokas only)- Asan
- 2. Aa poomala- Changampuzha

#### UNIT III

Modernity in Malayalam poetry- First phase

Post Independent India and Modernization of Nation in Malayalam poetry Detailed study

- 1. Yuga Parivarthanam- Vailoppilli Sreedhara Menon
- 2. Gandhiyum Godseyum- N.V.Krishna Warrier

#### **UNIT IV**

Modernity in Malayalam poetry- second phase

**Detailed Study** 

- 1. Gajendra moksham \_ Sugathakumari
- 2. Kozhi Kadammanitta
- 3. Megharoopan Aattoor Ravi Varma
- 4. Budhanum Attin kuttiyum A. Ayyappan

#### **UNIT V**

This unit introduces the nature of samakalika kavitha It also evaluates s a m a k a l i k a kavitha,- the contemporary poetry originated after modern poetry- women, Dalit, environment and cyber issues. Detailed study

- 1.Pattanbipuzhamanalil P P Ramachandran
- 2.Malayalakayithakku oru Kathu- S. Joseph
- 3. Thoramazha Rafeek Ahammad
- 4.Muttamadikkumbol Anitha Thampi
- 5.Survey of India-B.M.Manoj

## **Recommended Text**

Puthukavitha Ed by Dr.O.K.Santhosh.Madras University Publication (5 poems only)

- (a) pattambipuzhamanalil,
- (b) Malayala kavithakku oru kathu,
- (c) Muttamadikkumbol,
- (d) Thoramazha,
- (e) Survey of India

## **Reading List (Print and Online)**

- 1. Aadhunika Malayala Sahithya Charithram prasthanangaliloode Dr. K.M.George (Ed.)
- 2. Kairaliyute Kadha N.Krishnapillai
- 3. Kavitha Sahitya Charithram M.Leelavathi
- 4. Adrushyathayute Akhyanangal- Rajesh Chirapadu
- 5. Adhunikananthara Malayala Kavitha -C.R.Prasad
- 6. Pen kavitha malayalathil-Sheeba Divakaran,kerala bhasha institute.Thiruvananthapuram
- 7. Samakalika Malayala kavitha-M.B.Manoj,Samayam Classics. Kannoor
- 8. Varnnaraji Dr.M.Leelavathi



# HINDI - Patra Lekhan aur Paribhashik Shabdavali

# Unit I

Niji Patra Lekhan

- Niji Patra Arth aur Bhed
- Pitaji/Mataji ke naam patra
- Mitra, Bhai aadi ke naam patra
- Paribhashik Shabdawali 20 words

## Unit II

Samajik Patra Lekhan

- Samajik Patra Arth aur Bhed
- Aavedan Patra Noukri, Chutti aadi
- Dak Adhikari ke naam patra
- Paribhashik shabdawali 20 words

## **Unit III**

Vyavasayik Patra Lekhan

- Vyavasayik Patra Arth aur Bhed
- Prakashak ke naam patra
- Shikayathi
- Paribhashik shabdavali 20 words

## Unit IV

- Samanya Parichay
- Sarkari Patra
- Ardh-Sarkari Patra
- Gyapan, Paripatra
- Anusmarak
- Paribhashik Shabdavali 20 words

# Unit V

• Precis Writing And Applied Grammar (Ling, Vachan and Karak)

# **Reference Books**

- 1. Viyavaharik Hindi, Hindi Prachar press, T.Nagar, Madras-600 017
- 2. Alekhan aur Tippan Prof. Viraj
- 3. Alekhan Kichlu

**Related Online Contents** (MOOCs, SWAYAM, NPTEL, YouTube, Websites, etc.)

- 1. https://youtu.be/-kUPGG0B4tU
- 2. https://www.youtube.com/watch?v=xk14MNb1r7k



# **GENERAL ENGLISH**

# **Unit I ACTIVE LISTENING**

# **Short Story**

- 1.1 In a Grove Akutagawa Ryunosuke Translated from Japanese by Takashi Kojima
- 1.2 The Gift of the Magi O' Henry

#### **Prose**

- 1.3 Listening Robin Sharma
- 1.4 Nobel Prize Acceptance Speech Wangari Maathai

# **Unit II INTERPERSONAL RELATIONSHIPS**

## **Prose**

- 2.1 Telephone Conversation Wole Soyinka
- 2.2 Of Friendship Francis Bacon

# **Song on (Motivational/ Narrative)**

- 2.3 Ulysses Alfred Lord Tennyson
- 2.4 And Still I Rise Maya Angelou

#### Unit III COPING WITH STRESS

## Poem

- 3.1 Leisure W.H. Davies
- 3.2 Anxiety Monster Rhona Mc Ferran

# **Readers Theatre**

- 3.3 The Forty Fortunes: A Tale of Iran
- 3.4 Where there is a Will Mahesh Dattani

## **Unit IV Grammar**

- 4.1 Phrasal Verbs & Idioms
- 4.2 Modals and Auxiliaries
- 4.3 Verb Phrases Gerund, Participle, Infinitive

# **Unit V Composition/ Writing Skills**

- 5.1 Official Correspondence Leave Letter, Letter of Application, Permission Letter
- 5.2 Drafting Invitations
- 5.3 Brochures for Programmes and Events

## **Text Books** (Latest Editions)

- 1. Wangari Maathai Nobel Lecture. Nobel Prize Outreach AB 2023. Jul 2023.
- 2. Mahesh Dattani, Where there is a Will. Penguin, 2013.
- 3. Martin Hewings, Advanced English Grammar, Cambridge University Press, 2000
- 4. Essential English Grammar by Raymond Murphy

#### Web Resources

- 1. WangariMaathai Nobel Lecture. Nobel Prize Outreach AB 2023. Mon. 17 Jul 2023. https://www.nobelprize.org/prizes/peace/2004/maathai/lecture/
- 2. Telephone Conversation Wole Soyinka <a href="https://www.k-state.edu/english/westmank/spring">https://www.k-state.edu/english/westmank/spring</a> 00/SOYINKA.html
- 3. Anxiety Monster-RhonaMcFerran www.poetrysoup.com



# SPORTS PSYCHOLOGY & SOCIOLOGY

# **Learning outcomes:**

- Orient the student in basic concepts of psychology.
- Identify the factors determining one's over all personality.
- Understand various laws of learning and their relevance in teaching and learning process.
- Study about the concept of Sports Sociology.

## Unit-I

Meaning and Definition of Psychology and sports Psychology–Development of sports Psychology in India – Need and importance of sports Psychology in the field Physical Education and sports.

# **Unit-II**

Definition Motor Learning – Physical and Motor considerations – Body Build, Height and Weight, Strength, Muscular, Endurance, Flexibility, Balance Co-Ordination, Reaction time, Movement time and Reflex time Cognitive—Affective—Psychomotor

## **Unit-III**

Definition of Perception – Theory of Perception Gestult Theory, Palror Theory and witkin's Theory emotional effects tension, anxiety and stress–its role in Physical education and sports.

## **Unit-IV**

Personality traits of sports person–composition of personality–Aggression–theories of Aggression–Psycho-regulative procedures. Autogenic training, yoga and Music's.

# Unit-V

Meaning, Nature and Scope of Sociology in Physical education and sports –social factors in sports–Leadership in sports spectators and fans group cohesion social Integration.

#### **Book for References:**

- 1. Alderman A.B. Psychology Behavior in sports W.B. Saundar company Saundar 1974. PuniA.T. Sports Psychology Chanduga NIS.
- 2. Alderman Psychology Behavior
- 3. CrattyB.J. Psychology and Physical acivity. Singer R.N. Coaching, Athletics and Physiology.



# SPORTS BIOMECHANICS & KINESIOLOGY

# **Learning outcomes:**

- The student would be Oriented with the skeletal structure of human body by identifying the origin and insertion of various muscles.
- Orient the students in basic structure and functions of primary joints of the body.
- Relate and interpret the role of various mechanical principles in human movement.

## Unit-I

Meaning and Definition—aim, Need and Importance of Bio-Mechanics in the field of Physical education and sports—Types of motion-linear and angular motion—Function—air and Water resistance.

# **Unit-II**

Linear Kinematics – Distance and Displacement, Speed, Velocity and Acceleration and Projectile–Angular Kinematics–Angular distance and Displacement, Angular speed, Velocity and acceleration.

#### **Unit-III**

Center of Gravity Equilibrium – Stages of equilibrium – Factors affecting – equilibrium. Centrifugal and Centripetal, Force-Direction-angle, Point of application – Lever–Principles and its types-Mechanical Advantage–Application of Levers in Physical Education & Sports.

## **Unit-IV**

Inertia-Mass and Weight-Force-Factors affecting force-Types of force- Work, Power and Energy-Impact and Elasticity-Newton's Law of motion.

## Unit-V

Use of the above scientific principles in: Track& Field events–Running, throwing, Jumping–Basketball, football, Volleyball.

# **Book for References:**

- 1. Greiremillor, Paul & smith, Techniques for the analysis of Human movement lapse books London 1975.
- 2. Bunn John W "Scientific Principles of coaching".
- 3. Charles "Fundamental of Sports Bio-Mechanics Techniques. Hay, James G" The Biomechanics of Sports".
- 4. T.Mc Clurg Anderson Bio Mechanics of Human Motion.



# PRACTICAL- VI: TEACHING PRACTICE

# **Learning outcomes:**

- To help the understand varied responsibilities of a teacher.
- To understand the concept of teaching styles, methods,& approaches and to blend them judiciously in the teaching.
- To help the understand methods of communication &its effective use in the teaching process.
- To help the understand the importance & steps of planning. General lesson Plan and Particular Lesson Plan.

## Unit-I

# Assembly and roll call

Class handling

Assembly and disposal

Marchpast

# **Unit-II**

# Callisthenic Exercises (Free arm Exercises)

Standing exercises

Bending exercises

Stepping exercises

Moving exercises

Lunging exercises

Clapping exercises

## **Unit-III**

# **Exercise with Equipment's**

Dumb bells

Indian clups

Vands

Scoop

Ploe drill

## **Unit-IV**

# **Exercise without Equipment's**

Baithaks

Dhands

Minor game

#### Unit-V

# Teaching skills on major games and athletic events

Demonstration

Teaching

Correcting the mistakes

Leadup activities



## **Book for References:**

- 1. Athicha, P., (2007). Methods in Physical Education. Chennai: South Indian Publication.
- 2. Verma ,H., (2012). Methods and Management of Physical Education (1st Ed.,). Chennai: Sports Publications.
- 3. Perinbaraj, B., (2013). Methods in Physical Education. Karaikudi: Vinci Agencies.
- 4. Mojumdar, & Mohum, R., (2009). Methods in Physical Education. New Delhi: Sports Publications.
- 5. Gopalakrishnan, R. W., (2012). Teaching Methods of Physical Education. New Delhi: Sports Publications.
- 6. Arumugam, S., (2018). Physical Education: Organization and Administration Methods. Madurai: Shanlax Publications.
- 7. Karikalan, I., & Alex, T. A., (2014). Fixtures for Tournaments. Tuticorin: Shree Publications
- 8. Karikalan, I., (2017). Organization, Administration and Methods in Physical Education. Tuticorin: Shree Publications

# APPLIED SPORTS PSYCHOLOGY AND SOCIOLOGY

## Unit-I

Mindfulness, Stress & Anxiety Relaxation Methods Relaxation Technique: Autogenic training, Meditation, Self Bio-feedback, Deep Breathing Technique: Sitali Pranayama, Nadi Shadhana Pranayama, Surya Bhedana Pranayama, Chndara Bhedana Pranayama, Media Techniques: Visualization, Music Play

#### **Unit-II**

Motor – Learning Object Memory Test (COMT), Motor Learning Height Assessment, Weight Assessment, Reaction time: Yard stick catch test & Respond Sound reaction test, Balance: Single leg Standing test,

## **Unit-III**

Anxiety: Sports Competition anxiety test (SCAT), Sports Anxiety Scale test (SAS Smith et.al2006), Likert Scale 5 point test, Perceived Stress Questionnaire (PSQ), Perceived Stress Scale (PSS-10), Stress & Anxiety Telaxation Technique: Shavasana, Minor games, Breathing exercise, Inter – Sports game activates

# **Unit-IV**

Meditation: Yoga, Concentration Exercise Aggression: Buss-Perry Aggression Questionnaire (BPAQ), Body Classification Assessment - BMI Technique, Observation Technique: Mesomorph, Ectomorph & Endomorph



## Unit -V

Specimen Identification:

Motivation: Rewards, Sports Awards: Major Dhyan Chand Khel Ratna Award, Arjuna Award, Dronacharya Award, Gold Medal, Silver Medal, Bronze Medal, Major Dhyan Chand Award, Rashtriya Khel Protsahan Puraskar, Apparatus: Electronic Depth Perception Apparatus, Bassin Anticipation Timer, GSR Biofeedback Biotrainer, Pulse Biofeedback Biotrainer,

# **Books for References:**

- 1. Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), The social psychology of health: Claremont Symposium on applied social psychology. Newbury Park, CA: Sage.
- 2. Van Reeth, O., Weibel, L., Spiegel, K., Leproult, R., Dugovic, C., & Maccari, S. (2000). Interactions between stress and sleep: from basic research to clinical situations. Sleep Medicine Reviews, 4 (2), 201–219
- 3. Levenstein, S., Prantera, C., Varvo, V., Scribano, M. L., Berto, E., Luzi, C., & Andreoli, A. (1993). Development of the perceived stress questionnaire: a new tool for psychosomatic research. Journal of Psychosomatic Research, 37 (1), 19–32.
- 4. Öhman, L., Bergdahl, J., Nyberg, L., & Nilsson, L. G. (2007). Longitudinal analysis of the relation between moderate long-term stress and health. Stress and Health, 23 (2), 131–138.
- 5. https://www.topendsports.com/health/tests/stress.htm
- 6. Alderman Psychology Behavior
- 7. Cratty B.J. Psychology and Physical acivity.

# NAAN MUDHALVAN/ FITNESS AND WELLNESS

# **Learning outcomes:**

- Understand the essentials of life long wellness
- Understand the essentials of Physical fitness
- Overcome fitness barriers and involve in physical activity
- Know the procedure to assess the fitness

# Unit-I

Definition, Meaning, Concept of Fitness and Wellness–Need for and importance of Fitness and Wellness.

### Unit-II

Aging–Factors influence Aging–Healthy aging–Wellness–Sports as a hobby and Stress management through exercise.



## **Unit-III**

Physical fitness-Physiological fitness-Functional fitness-Mental fitness-Social Fitness

#### **Unit-IV**

Obesity-Causes of Obesity-Weight Management-Diabetes-causes of diabetes

#### Unit-V

Teaching skills on major games and athletic events Test for Endurance, Strength, Flexibility and Speed (Only one test from each category)

## Book for References:

- 1. Hoeger, Werner, W.K., & Hoeger, Sharon, A. (1990). Fitness and Wellness. Englewood: Morton publishing Company.
- 2. Hazedine, (1985). Fitness for Sports. Ramsburg: The Crowood Ress Ltd.
- 3. James&Hart,L.,(1983).100% Fitness, New Delhi: Goodwill Publishing House.
- 4. Anspaugh, D.J., Hamrick, M.H., & Rosato, F.D. (1991). Wellness: Concepts and applications. New York: McGraw-Hill.
- 5. Arumugam,S.,&Sivagnanam,P.(2019).FitnessandWellness.Madurai:ShanlaxPu blications.

# **ENVIRONMENTAL STUDIES**

# **Course Objectives:**

The main objectives of this course are:

• Enable the students to be aware of our natural resources, ecosystems and their linkages to society, livelihood, environment and conservation.

## Unit I

# Multidisciplinary Nature of Environmental Studies and Natural Resources:

Concept of Renewable and non-renewable resource, Natural resources and associated problems: Forest resources: Deforestation, Timber extraction, mining, dams and their effects. Water resources: Over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources. Land resources: Land degradation, man induced landslides, soil erosion and desertification.

## **UNIT II**

**Ecosystem:** Concept of an Ecosystem, Structure and Functions of Ecosystem, Energy flow in the Ecosystem; Ecological Succession, Food Chains, Food webs and Ecological Pyramids, Characteristic Features of the following Ecosystem: Forest Ecosystem, Grassland Ecosystem and Desert Ecosystem, Aquatic Ecosystem (Ponds, Streams, Lakes, Rivers and Ocean Estuaries)



## **UNIT III**

**Biodiversity and its Conservation**: Definition, levels and values of biodiversity; Threats to biodiversity- habitat loss, poaching of wildlife, man-wildlife conflicts, IUCN categories of threat; Terrestrial and marine hotspots of biodiversity in India; Conservation of Biodiversity - In-situ and Ex-situ conservation; Conservation schemes: Gir lion sanctuary project, Project tiger, Project elephant, Conservation of sea turtles in India. Ecotourism

#### **UNIT IV**

**Environment Pollution**: Types, causes, effects, and control - Air, Water, Soil and Noise pollution. Nuclear hazards and human health risks. Solid waste management: Control measure of urban and industrial waste. Climate change global warming, ozone layer depletion, acid rain, and impacts on human communities and agriculture

#### **UNIT V**

**Social Issues and the Environment:** Sustainable Development, Water Conservation, Resettlement and rehabilitation of people. Disaster Management: Floods, earthquake, cyclone and landslides. Consumerism and waste products; Environment Protection Act; Air and water (Prevention and control of Pollution) Act; Wild life protection Act; Forest conservation Act; Environmental movements (Chipko, Silent valley, Bishnois of Rajasthan). Environmental ethics. Environmental communication and public awareness.

# **Reading list**

- 1. Erach Bharucha, 2021, Textbook of Environmental Studies for Undergraduate Courses, Third Edition, Orient blackswan Pvt. Ltd., Hyderabad.
- 2. V.K. Ahluwalia, Environmental Studies (Second Edition), Ane books India, T-Nagar, Chennai.
- 3. Y.K. Singh, 2006, Environmental science, New Age International (P) Ltd., Publishers, New Delhi.
- 4. S. P. Misra, 2023, Essential Environmental Studies, 4th Edn, Ane Books Pvt. Ltd., New Delhi.
- 5. G.S. Vijayalakshmi, A.G.Murugesan and N.Sukumaran, 2006, Basics of Environmental Science, Manonmaniam Sundaranar University Publications, Tirunelveli.

# **Recommended texts**

- 1. N.Arumugam and V. Kumaresan, 2014, Environmental studies, 4th edition, Saras Publication, Nagercoil, TamilNadu.
- 2. M.Basu, and S. Xavier, 2016, Fundamentals of Environmental Studies, Cambridge University Press.
- 3. A.K. Mitra and R. Chakraborty, 2016, Introduction to Environmental Studies, Book Syndicate.
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