



**MAHARAJA SRIRAM CHANDRA BHANJA  
DEO UNIVERSITY, BARIPADA**

**Skill Enhancement Courses  
under NEP, 2020  
(Credit-9)**

## ANNEXURE-II

(One SEC to be chosen for each semester i.e. Semester II, V and VI from the Group as per availability of faculties in the institution or on online mode)

### BASKET FOR SKILL ENHANCEMENT COURSES

<b>SEMESTER-II (Credit-3)</b>					
<b>Paper-I (Any one from the list)</b>	<b>Subject teachers to teach (preferably) or any other teacher competent to teach</b>	<b>Credit</b>	<b>Full Mark</b>	<b>End Sem</b>	<b>Mid Sem</b>
Personality Development	Pol. Sc./Psy./Edn./Sociology/English	3	100	60	40
<b>SEMESTER-V (Credit-3)</b>					
<b>Paper-II (Any one from the list)</b>	<b>Subject teachers to teach (preferably) or any other teacher competent to teach</b>	<b>Credit</b>	<b>Full Mark</b>	<b>End Sem</b>	<b>Mid Sem</b>
Electoral Studies and Public Opinion Poll	Political Science/Pub. Adm.	3	100	60	40
<b>SEMESTER- VI (Credit-3)</b>					
<b>Paper-III (One paper from the following list pertaining to their Major)</b>	<b>Subject teachers to teach (preferably) or any other teacher competent to teach</b>	<b>Credit</b>	<b>Full Mark</b>	<b>End Sem</b>	<b>Mid Sem</b>
Data Analytics-I	Economics	<b>3</b>	<b>100</b>	<b>60</b>	<b>40</b>
Plant Tissue Culture	Botany				
Psychological First Aid	English				
Ayurveda and Vrksayurveda	Sanskrit				
Fermentation Technology and Industrial Enzymes	Zoology				
Basics of Museum & Archives	History.				
Computer Application in Teaching Learning Process	Education				
Renewable energy and energy harvesting	Physics				
Political Journalism	Political Science				
Introduction to Python	Mathematics				
Cosmetic and Pharmacological Chemistry	Chemistry				
Anubada Sahitya	Odia				

## SEMESTER-II

### Personality Development

#### Course Objectives

- To help the learners understand the concept and significance of Life Skills To enhance one's ability to be fully self-aware by overcoming fears and insecurities for holistic personal growth.
- To develop interpersonal skills and adopt effective leadership behavior for self-empowerment and the empowerment of others
- To demonstrate effective communication skills for personal and professional growth

#### Learning Outcomes

- Define and identify different life skills required in personal and professional life.
- Develop self-awareness and apply techniques to cope with emotions and stress.
- Enhance interpersonal skills and demonstrate effective leadership qualities.
- To have developed good communication skills

#### Unit-I: Overview of Life Skills

Meaning and Significance of Life Skills; Social and Negotiation Skills; Thinking Skills and Coping Skills; Application of Life Skills

#### Unit-II: Life Skills Identified by WHO

Self-awareness; Empathy, Critical Thinking; Creative Thinking, Decision Making; Problem Solving, Effective Communication; Interpersonal Relationship, Coping with Stress; Coping with Emotions.

#### Unit-III: Leadership Skills

Meaning of Leadership; Leadership Styles; Leadership Functions; Qualities of a Good Leader.

#### Unit-IV: Communication Skills for Personal and Professional Growth

Importance of Effective Communication; Verbal and Non-Verbal Communication Skills; Active Listening Techniques

#### Reading List

- ✓ Education, P. (2011). *Teacher's Manual: Step by Step: Learning Language and Life Skills*. Pearson Education India.
- ✓ UNICEF. (2019) *Boys on the Move: A trainer's handbook for implementation of a Life Skills Programme for Unaccompanied Adolescents Boys and Young Men*.  
<https://www.unicef.org/eca/media/10271/file>
- ✓ UNODC Module 7: Life Skills.  
[https://www.unodc.org/pdf/youthnet/action/message/escap\\_peers\\_07.pdf](https://www.unodc.org/pdf/youthnet/action/message/escap_peers_07.pdf)
- ✓ American India Foundation. (2018) *Handbook of Activities on Life Skills*. New York.  
[https://aif.org/wp-content/uploads/2018/10/Lifeskills-2018a\\_MAT.pdf](https://aif.org/wp-content/uploads/2018/10/Lifeskills-2018a_MAT.pdf)
- ✓ Northouse, Peter G. (2009). *Leadership: Theory and Practice*, Sage Publications Pvt. Ltd.
- ✓ Plecas, Darryl, Squires. Colette and Garis. Len, (2018). *The Essentials of Leadership in Government: Understanding the basics*, University of Fraser Valley: US <https://cjr.ufv.ca/wp-content/uploads/2018/02/Essentials-of-Leadership-book-2nd-Ed- web.pdf>
- ✓ Singh. Sanjay Kumar and Lata. P. (2015 ) *Communication Skill*, Oxford University Press: India

## **SEMESTER-V**

### **Electoral Studies and Public Opinion Poll**

#### **Course Objectives**

Democracy will be truly functional when the citizens would be informed about the electoral politics and exercise their choice independently without being influenced by any vested interest. Thus, Media plays a crucial role in shaping the popular opinion and intern affects the electoral politics. The course thus attempts to make the learners understand the significance of public opinion in electoral politics. It also reflects on the role and function of the election commissioner in ensuring free and fair election. The political parties are also to be studied to have a comprehensive understanding of electoral dynamics of political parties, media and public opinion.

#### **Learning Outcome:**

After studying this course, learners would acquire practical skills in electoral studies. The unit wise learning outcomes are given below:

**Unit I:** Learners would be aware of the significance of public opinion in electoral politics.

**Unit II:** Learners would be aware of the Representation of People's Act, constituency and the dynamics of political parties in electoral politics.

**Unit III:** This unit would enable the students to be informed about the Election Commission, election code of conduct with respect to the electoral politics.

**Unit IV:** The learners would know opinion polls, exit polls, their impact on electoral result and analysis of electoral data which would infuse pragmatic understanding about the electoral behaviour in them.

#### **Course Content:**

**Unit I:** What is Public Opinion, Agents of formulating Public Opinion, Ways of developing healthy public opinion

**Unit II:** Meaning of Electoral Studies. Representation of People's Act 1951, What is a Constituency, National and Regional Political Parties

**Unit III:** Composition and Powers of Election Commission in India, State Election Commission, Media and Election Model Code of Conduct.

**Unit IV:** Different stages of Election analysis, Opinion Poll, Exit Poll, Methods of analysing electoral Data, Analysing Media Reports.

## Essential Readings:

- ✓ Verma, R., & Sardesai, S. (2014). Does media exposure affect voting behaviour and political preferences in India?. *Economic and political weekly*, 82-88.
- ✓ Kanungo, N. T. (2015). India's digital poll battle: Political parties and social media in the 16th Lok Sabha elections. *Studies in Indian Politics*, 3(2), 212-228.
- ✓ Rai, P. (2021). Psephological fallacies of public opinion polling. *Economic & Political Weekly*, 56(28), 51.
- ✓ Fisher, J., Fieldhouse, E., Franklin, M. N., Gibson, R. K., Cantijoch, M., & Wlezien, C. (Eds.). (2018). *The Routledge handbook of elections, voting behavior and public opinion* (pp. 280-292). London: Routledge.
- ✓ Morwitz, V. G., & Pluzinski, C. (1996). Do polls reflect opinions or do opinions reflect polls? The impact of political polling on voters' expectations, preferences, and behavior. *Journal of Consumer Research*, 23(1), 53-67.
- ✓ Traugott, M. W. (2014). Public opinion polls and election forecasting. *PS: Political Science & Politics*, 47(2), 342-344.

## Additional Readings:

- ✓ Rai, P. (2021). Demystifying the Bandwagon Effect of Election Opinion Polls in India. *Academia Letters*, 2.
- ✓ Lang, K., & Lang, G. E. (1984). The impact of polls on public opinion. *The Annals of the American Academy of Political and Social Science*, 472(1), 129-142.

## Internet Sources:

- ✓ Representative of People's Act, 1951 Available at:  
<https://ceodelhi.gov.in/WriteReadData/ManualElectionLaw/REPRESENTATION%20OF%20THE%20PEOPLE%20ACT,%201950.pdf>
- ✓ ADR Recommendations on Electoral reforms  
[https://adrindia.org/sites/default/files/ADR\\_and\\_NEWs\\_recommendations\\_for\\_electoral\\_and\\_political\\_reforms\\_Final\\_April\\_20\\_2011.pdf](https://adrindia.org/sites/default/files/ADR_and_NEWs_recommendations_for_electoral_and_political_reforms_Final_April_20_2011.pdf)
- ✓ Model Code of Conduct <https://www.eci.gov.in/mcc/>
- ✓ Model code of conduct  
[https://deo.dnh.gov.in/Download/OldUpdates/Model\\_Code\\_of\\_Conduct.pdf](https://deo.dnh.gov.in/Download/OldUpdates/Model_Code_of_Conduct.pdf)
- ✓ The Theodore H. White Lecture on Press and Politics: "The Press and the Polls"  
<https://youtu.be/rKQWvnUOGa4?si=H6jtDKGfFqlQ7mjU>

**Activities to do:**

1. Students are recommended to observe and note the difference in opinion poll and exit poll and study the factors behind this.
2. Students are encouraged to have a comparative assessment on exit poll conducted by different media houses and find out if it has been reflected in the election result.
3. Students can visit to the voters and conduct a study to find out if the opinion poll affect the public opinion and if it actually changes the vote preferences.

**Model Questions:**

1. When was People's Representative Act enacted?  
[1 Mark]
2. What is the difference between Opinion Poll and Exit poll? [2  
Marks]
3. What is the impact of opinion poll on vote preference in India? [5  
Marks]
4. Election commission is the watch dog of Indian Democracy. Comment. [8  
Marks]

# SEMESTER- VI

## Data Analytics-I

### Course Description:

This paper helps students to learn the fundamental elements of Data Analytics and to gain proficiency in working with SPSS. Upon Completing the Course, students will be able to identify advanced techniques of data analytics using Statistical Package for Social Sciences (SPSS), use Exploratory data analysis to visualize the data, analyses survey and other data sets using statistical methods

### Course Outcomes:

- This course is designed to help students learn fundamental elements of Data Analytics and to gain proficiency in working with SPSS.
- Upon Completing the Course, students will be able to identify advanced techniques of data analytics using Statistical Package for Social Sciences (SPSS) software.
- They will be exposed to exploratory data analysis techniques.
- This course shall enable them to use statistical tools to visualize and analyze surveys and other data sets.

### Unit I: Introduction to Data Analytics

Concept of data analytics; Role of data analyst; Classification of Data- Structured, Semi-Structured, Unstructured data; Scale of measurement of data; Various Data sources, Modern Data collection Methods

*LO: This module shall help the students to understand the basics of data analytics and identify, understand, and dealwith different types of data sets.*

### Unit II: Data Visualisation and Basic Statistics

Data presentation and visualization, Types of Diagrams; Descriptive statistics like measure of central tendency, Dispersion, Skewness, Correlation etc.; Univariate, Bivariate, Multivariate analysis

*LO: Students shall develop proficiency in data visualization to identify patterns, trends, and outliers in data sets; and be able to understand applied statistics to develop suitable concepts and methods that will help to analyse data and solve research problems in this module.*

### Unit III: Introduction to SPSS

Different Menu's in SPSS, creating a data file, opening excel files, variables and labels, selecting cases by filtering, recoding of data, merging of files, Sorting of Cases and Variable, SPSS Output and its transfer to excel and word.

*LO: This module shall enable the students to calculate/recode variables and prepare data for analysis using SPSS.*

### Unit IV: Exploratory Data Analysis using SPSS

Data visualization using frequency tables and charts, descriptive statistics, cross tabulations, Compare-Means, ANOVA, Independent Sample t-test, Paired Sample t-test, One-way ANOVA, chi square tests. Simple and Partial correlation; General Linear Model

*LO: Upon completion of this module, the learners shall be able to carry out exploratory data*

*analysis using SPSS that can test hypotheses.*

### **Text Books**

- ✓ *Brian C. Cronk (2018), How to use SPSS: A Step-By-Step Guide to Analysis and Interpretation, Tenth edition, Routledge.*
- ✓ *Nancy L. Leech et. al. (2005), SPSS for Intermediate Statistics: Use and Interpretation, Second edition, Lawrence Erlbaum Associates, Inc.*

### **Additional Reading**

- ✓ *William E. Wagner (2015), Using IBM SPSS statistics for research methods and social science statistics, Fifth edition, SAGE Publications, Inc.*
- ✓ *IBM 2016, IBM Knowledge Center: SPSS Statistics, IBM, viewed 18 May 2016, <https://www.ibm.com/support/knowledgecenter/SSLVMB/welcome/2>.*



# Plant Tissue Culture

## Course Outcomes

This course aims to understand the basic principles of plant tissue culture and its application biotechnology. Course provides insight knowledge of to enable the students to

- Understand the basic principles of plant tissue culture
- Understand the methods in biotechnology
- Get an insight into Recombinant DNA technology and Methods of gene transfer.
- Appreciate the applications of Biotechnology recombinant DNA technology and methods of gene transfer.

## Learning Outcome:

To enable the students to

- Understand the basic principles of plant tissue culture
- Understand the methods in biotechnology
- Get an insight into Recombinant DNA technology and Methods of gene transfer.
- Appreciate the applications of Biotechnology in plant tissue culture

## Unit I:

History of plant tissue culture research - basic principles of plant tissue callus culture, meristem culture, organ culture, Totipotency of cells, differentiation and dedifferentiation. Methodology - sterilization (physical and chemical methods), culture media, Murashige and Skoog's (MS medium), phytohormones, medium for micro-propagation/clonal propagation of ornamental and horticulturally important plants. 3. Callus subculture maintenance, growth measurements, morphogenesis in callus culture – organogenesis, somatic embryogenesis.

## Unit II:

Endosperm culture – Embryo culture -culture requirements – applications, embryo rescue technique. Production of secondary metabolites. Cryopreservation; Germ plasm conservation.

## Unit III:

Recombinant DNA technology 1. Restriction Endonucleases (history, types I-IV, biological role and application); concepts of restriction mapping. Cloning Vectors: Prokaryotic (pUC 18, pBR322, Ti plasmid and Lambda phage, Eukaryotic Vectors (YAC and briefly PAC). Gene cloning (Bacterial Transformation and selection of recombinant clones, PCR mediated gene cloning). Construction of genomic and cDNA libraries, screening DNA libraries to obtain gene of interest by complementation technique, colony hybridization.

## Unit IV:

Methods of gene transfer: Agrobacterium-mediated, direct gene transfer by Electroporation, Microinjection, Micro projectile bombardment. Selection of transgenics– selectable marker and reporter genes (Luciferase, GUS, GFP).

## Text Book:

- ✓ *Botany-Plant tissue culture and its Biotechnological applications, by B. R. C. Murthy & V. S.T. Sai, Venkateswara Publications, Guntur, 2017*

## Reference Books

- ✓ *Pullaiah. T. and M.V.Subba Rao. 2009. Plant Tissue culture. Scientific Publishers, New Delhi.*
- ✓ *Bhojwani, S.S. and Razdan, M.K., (1996). Plant Tissue Culture: Theory and Practice. Elsevier Science Amsterdam. The Netherlands*

# Psychological First Aid

## Course Outcomes:

- This course is aimed at increasing the learners' abilities in managing psychological crisis situations.

## Unit I:

- How do crisis events affect people, Introduction to Psychological First Aid (PFA), Concept and Development of PFA; PFA: Who, when and where; How to help responsibly (respect safety, dignity and rights of the people); Core Competencies of PFA

## Learning Outcomes:

- Increase their abilities to discuss key concepts related to PFA and Listen reflectively
- Manage psychological crisis reactions, learn and apply psychological first aid and Practice self-care

## Unit II:

- Psychological Consequences of Trauma (Posttraumatic Stress Disorder, Depression, Generalized Anxiety, Panic Disorder, Substance abuse)
- Psychological consequences of Disaster (Natural Disasters, Technological Disasters, Human-Made Disasters: riots, war; Accident)

## Learning Outcomes:

- Recognize the potential risk factors and warning signs for a range of mental health problems, including: depression, anxiety/trauma, substance use disorders, and self-injury.

## Unit III:

- Practicing the Art of PFA (RAPID Model): Rapport and Reflective Listening, Assessment of Needs, Prioritization, Intervention, Disposition

## Learning Outcomes

- Increase their abilities to discuss key concepts related to PFA and Listen reflectively
- Use a 5-step action plan to help an individual in crisis connect with appropriate professional help.

## Text Books:

- ✓ George, S. Everly, Jr. (2017). *The Johns Hopkins guide to psychological first aid*. Johns Hopkins University Press.
- ✓ National Disaster Management Training Module (1-4) Psychosocial First Aid. (2023). NIMHANS, Bengaluru; NDMA, New Delhi.

## Reference:

- ✓ World Health Organization, War Trauma Foundation and World Vision International (2011). *Psychological first aid: Guide for field workers*. WHO: Geneva.
- ✓ Baker, E. K. (2003). *Caring for ourselves as psychologists*. *The Register Report*, 28, 7–10. <http://www.nationalregister.org/trr.html>.
- ✓ Dieltjens, T., Moonens, I., Van Praet, K., De Buck, E., & Vandekerckhove, P. (2014). *A systematic literature search on psychological first aid: lack of evidence to develop guidelines*. *PloS one*, 9(12), e114714. <https://doi.org/10.1371/journal.pone.0114714>
- ✓ Everly, G. S., Jr. (1999). *Toward a model of psychological triage*. *International Journal of Emergency Mental Health*, 1, 151–154.
- ✓ Everly, G. S., Jr., & Lating, J. M. (2013). *A clinical guide to the treatment of the human stress response* (3rd ed.). New York, NY: Springer.

- ✓ *Weiten, W. (2013). Psychology: Themes and variations (9th ed.). Belmont, CA: Wadsworth Cengage Learning.*
- ✓ *Choudhary, V., Sharma, P., Dhingra, A. (2016). Be Equipped Psychologically: The Psychological First Aid. The International Journal of Indian Psychology, 4(1), 311-320.*

# Ayurveda and Vrksayurveda

**Unit I and II:** Ayurveda: Caraka Samhita (*Sutrasthana, Dirghamjivitiyaadhyaya- verses 41- 135. From the verse – hitahitamsukhamdukha- till the verse rogebhyo yah pramocayet*).

**Unit III and IV:** Vrksayurveda: Brhatsamhita – Adhyaya 54.

## Core Readings:

- ✓ *Carakasamhita, Purushottama Kar Sharma, Dharma Grantha Store, Cuttack, 2011*
- ✓ *Carakasamhita, Brahmananda Tripathy, Chawkhamba Surabharati Prakasan, Varanasi.*
- ✓ *Brhatsamhita of Barahmihira, Ed. Sudhakar Dwivedi, Sampurnanda Samskrita Viswavidyalaya, Varanasi*
- ✓ *Vrksayurveda, Ed. Dr. Narayana Prasad Dash, Vidyapuri, Cuttack.*

## Suggested Readings:

- ✓ *Sanskrita Vanmaya ka brhata itihās (Vol.17) Ayurved ka itihās Uttarpradesh Sanskrit Sansthan, Lukhnow, 2006*
- ✓ *Ayurved ka Brhat Itihās, Atridev Vidyānkar, Chawkhamba, Delhi*
- ✓ *Carakachintanam, Priyabrata Sharma, Chawkhamba, Delhi*

# **Fermentation Technology and Industrial Enzymes**

## **Unit I**

Introduction to fermentation: History and development of fermentation technology, basic requirements of fermentation, Types of fermentations: Aerobic and Anaerobic fermentation, Solid state and Submerged fermentation (Batch, Fed-Batch and continuous system), Upstream and Downstream processing.

## **Unit II**

Isolation and preservation of industrial microorganisms, Controlling mechanism and regulation of catabolic and anabolic processes/pathways in microbial induction, carbon catabolite repression, feedback inhibition. Types of culture medium; Selective media, differential media, industrial media, carbon and nitrogen sources, use of anti-foaming agents.

## **Unit III**

Basic function of fermenter for microbial and animal cell culture, fermenter design (Stirred tank, bubble columns, airlift) and body construction, various parts of fermenter. Biochemical process variables and their measurements; Measurement and control of pH, temperature, dissolved oxygen, aeration and agitation. Online analysis and control of process parameters and biosensors.

## **Unit IV**

Enzymes of industrial applications, enzyme classification and nomenclature, quantification of enzyme activity and specific activity. Kinetics of enzyme catalyzed reaction (steady state kinetics). Industrial production of enzymes; Amylase and Cellulase. Industrial application of Enzyme immobilization (Calcium alginate beads, polyacrylamide beads).

## **Practical**

1. Screening and Identification of industrially important microorganisms from natural habitats through microbial methods i.e. spread plate, streak plate, serial dilution, simple staining, differential staining, acid fast staining and spore staining.
2. Enumeration of starch hydrolyzing and cellulose decomposing bacteria through plate count methods.
3. Production of amylase and cellulase from steady state batch culture fermentation in Erlenmeyer flask.
4. Study on extraction and purification of enzymes (crude enzyme, partially purified enzyme) through ammonium sulphate precipitation, gel/size – exclusion chromatography (demonstration of procedures through photomicrographs/ slides/presentations).

# Basic of Museum and Archives

## Course Objectives:

- To introduce students to the institutions of Archives and Museums as a site of knowledge.
- To aid students to understand the making of the primary sources for the study of history.
- To help students understand and appreciate the different kinds of archives and museum and then new structuring in the digital era.

## Course Outcomes:

- Students would learn about the many uses of archives and museums as a site of historical and social knowledge.
- They would be trained to use archives and understand the process of classification and cataloguing of the records.

**Unit I: Definition of Archives and Museum:** types - digital, virtual, crafts, media; difference between archives, museum, and library

This unit defines Archives and Museum. It also elaborates on the types of archives and museums which includes digital, virtual, crafts, media. It also tells the difference between archives, museum, and library.

**Unit II: History of development of archives and museums in India with one case study each**

This unit examines the history of development of archives and museums in India with one case study each.

**Unit III: Collection, documentation, preservation**

This unit elaborates upon distinct characteristics of collection. It also examines the concerns which govern its documentation and preservation.

**Unit IV: Museum presentation and exhibition**

This unit familiarizes students with the way in which museums are organized and managed. It also examines the considerations which govern the way exhibitions in museums are managed.

**Unit I:** Students will learn about archives and museums; their types, and their advances.

**Unit II:** Students will grasp the historical development of archives and museums by collectively studying one case study each. They will understand and be able to discuss their significance.

**Unit III:** Students will understand and closely witness the processes of archiving and preservation in museums. How records and artifacts are collected, classified, and preserved. **Unit IV:** In the last unit students will be acquainted to the process of presentation and exhibition of artifacts.

## Suggested Readings

- ✓ Singh, Kavita. (2003). "Museum is National: The Nation as Narrated by the National Museum New Delhi". in Geeti Sen (Ed.). *India: A National Culture*. New Delhi: Sage.
- ✓ Bhattacharya, Sabyasachi. (2018). *Archiving the Raj: History of Archival Policy of the Govt. of India with Selected Documents 1858- 1947*. Delhi: Oxford University Press
- ✓ Agrawal, O. P. (2007). *Essentials of Conservation and Museology*. Delhi: Sundeep.
- ✓ Kathpalia, Y. P. (1973). *Conservation and Restoration of Archive Material*. Paris: UNESCO.
- ✓ Mathur, Saloni. (2000). "Living Ethnological Exhibits: The Case of 1886". *Cultural Anthropology* vol. 15 no.4, pp. 492-524.
- ✓ Breckenridge, Carol. (1989). "Aesthetics and Politics of Colonial Collecting: India at World Fairs." *Comparative Studies in Society and History* vol. 31 no.2, pp. 195-216

## Reference Readings

- ✓ Ambrose, Timothy & Crispin Paine. (1993). *Museum Basics*. London: Routledge.
- ✓ Choudhary, R. D. (1988). *Museums of India and their Maladies*. Calcutta: Agam Prakashan.
- ✓ Mathur, Saloni. *India by Design: Colonial History and Cultural Display*. Berkeley: University of California.
- ✓ Nair, S. N. (2011). *Bio-Deterioration of Museum Materials*. Calcutta: Agam Prakashan.
- ✓ Sengupta, S. (2004). *Experiencing History through Archives*. Delhi: MunshiramManoharlal.

## Internet Resources

1. Internet Archives <https://archive.org/>
2. Partition Archives <https://in.1947partitionarchive.org/>
3. National Museum <https://nationalmuseumindia.gov.in/en>

## Activities to Do

1. Students are expected to collect and catalogue some primary sources by downloading them from internet or getting them photocopied from a local archive or a library.
2. Students are expected to collect and record the details of various museums in their state and others

# Computer applications in teaching learning

## Course Outcomes (COs):

On completion of this course, the learners will be able to:

- Learn basis of Basics of MS Windows.
- Demonstrate basic understanding of computer applications with reference to MS Windows, MS excel and MS PowerPoint.
- Generate spread sheets, charts and presentations.
- Design personal, academic and business documents using MS Office.
- Model the modes of development of self-learning materials and prepare different types of instructional material.
- Explain different OERs, MOOCs available for effective learning.
- Develop learners' e-portfolios.
- Classify various e-resources for effective learning.
- Describe the concept of artificial intelligence and its applications in teaching learning.
- Determine similarity index of the various documents like dissertations, theses etc.

## Course Contents

### Unit I: Basics of Computer Applications

*LO: Able to use a computer.*

*LO: Operate MS Window System, MS Excel, PPT and Hyperlinking.*

- Basics of MS Windows: Desktop, Recycle bin, My Computer, Documents, Pictures, Music, Videos, Task Bar and Control Panel. MS-Word and its features: Creating, Editing, Formatting and Printing of Documents, Inserting, Word Art, Page Numbers, Mail Merge.
- MS-Excel and its features: Creating a new worksheet, selecting cells, Entering and editing Text, Numbers, Inserting Rows/Columns, changing widths and heights of row and columns, Formulae, referencing cells, changing of font sizes and colours.
- MS-PowerPoint and its features: Creating, Inserting and Deleting Slides of a Presentation. Adding Pictures, Inserting Objects, Audio, Video, Custom Animation and Hyperlinking of documents.

### Unit II: Introduction to E-learning

*LO: Understand and use E-learning facilities through computer and other digital instruments like mobile and tablets.*

- Concept of e-learning, benefits of E-learning, Introduction to LMS using E-learning
- Approaches to e-learning: Offline, Online, Synchronous, Asynchronous, Blended learning and Mobile Learning.
- Security concerns related to interactive contents: Viewing, disabling and managing interactive content; securing the computer from viruses and other internet attacks.



### **Unit III: Application of E-Learning**

**LO:** *Able to apply E- Learning tools.*

- Creating and Sharing: (i) G-Suite: Gmail, Drive, Calendar, Meet, Chat, Doc, Sheet, Slides (ii) Surveying: SurveyMonkey, Google Forms, online spreadsheets (iii) Google Classroom: conducting classes, assessment and evaluation.
- Development of Self-Learning Materials (SLM) and e-content: Concept and its purposes, Conventional Teaching versus SLMs & e-content, Types of SLMs and E-content,
- Process of Developing SLMs and e-content, Content Organization, Integrating video and audio into SLMs.

### **Unit IV: Trends in Teaching Learning Practices**

**LO:** *Understand contemporary utilisation of E-tools for teaching learning process.*

- Open Education Resources: Creative Common, Massive Open Online Courses; creating learners' E- portfolios; accessing Online Repositories, Online Libraries and E-Resources.
- Artificial Intelligence: Concept and its applications in teaching learning practices. Introduction to SPSS and R, Latex.
- Plagiarism: Regulations, similarity index of the various documents like dissertations, theses etc. through plagiarism testing software (Mendeley, Zotero).

### **Sample Question**

1. What is meant by computer? (1 Mark)
2. Mention any two benefits of mobile learning. (2 Mark, Within 50 words)
3. Discuss the benefits of e- learning and LMS in teaching learning process. (3 Mark, Within 300 words)
4. Give an account of Artificial Intelligence with reference to classroom management. (8 Mark, within 500-800 words)

### **Transaction Mode**

Workshop, ICT-Lab Learning, Lecture Method, Seminar, team teaching, tutoring, peer group discussion, mobile teaching, self-learning, Collaborative learning, Cooperative learning.

### **Practical/ Assignment/ Activities:**

Each student is required to submit Practical/Project

report/Assignments  
of the following:

selecting any one

1. Prepare Project Report on Role of Technology for Women Empowerment.
2. Overview of different Plagiarism detection tools and suggestive measures.
3. Prepare a Power Point Presentation of any content of your course and Presentation including Viva Voice.

\* It will be evaluated by External and Internal Examiners.

### **References Books:**

✓ *Creating learning materials for open and distance learning: A Handbook for*

*Authors and Instructional Designers (2005). Commonwealth of Learning.  
Vancouver: Canada*

- ✓ *Excel 2020 in easy steps-Michael Price – TMH publications*
- ✓ *Foundations of Self-Learning Materials. [http://wikieducator.org/Session\\_3](http://wikieducator.org/Session_3).*
- ✓ *Garrison, D.R. and Anderson, T. (2003). e-learning in the 21st century: a framework for research and practice. London: Routledge.*
- ✓ *Haas, K.B. and Packer, H.Q. (1990): Preparation and use of audio-visual aids, 3rd Edition, Prentice Hall, Inc.*
- ✓ *Jayaram, K and Dorababu, K.K. (2015). Self-learning materials in distance education system. International Journal of Current Research. Vol. 7, Issue, 10, pp.21929-21934.*
- ✓ *Minnick, D.R. (1989). A guide to creating Self Learning Materials. International Rice Research Institute Los Baños, Laguna, Philippines.*
- ✓ *MS Office 2007 in a Nutshell –Sanjay Saxena – Vikas Publishing House.*
- ✓ *Murthy, CRK and Santosh Panda (2002). Report of the workshop on strategies for revision of self- learning materials, IGNOU, New Delhi. (Unpublished).*
- ✓ *Oreyet.al. (2009). Educational media and technology. New York: Springer Science Business Media.*
- ✓ *Rana, S. (1994): Open Learning in India, Commonwealth Publishers, New Delhi.*
- ✓ *Roblyer, M.D. (2008). Integrating educational technology into teaching. New Delhi: Pearson.*
- ✓ *Rowntree, Derek (1986). Teaching through self-instruction, Kogan Page, London/Nichola Pub. Comp. New York.*
- ✓ *Senapaty, H.K. (2009). ICT integrated learning materials on basic school subjects from constructivist perspectives. Bhubaneswar: Regional Institute of Education, NCERT.*
- ✓ *UNESCO (2005). How ICT can create new, open learning environments: Information and communication technologies in schools: A handbook for teachers. Paris: UNESCO.*
- ✓ *UNESCO (2008). Capacity building for ICT integration in education. Retrieved from <http://portal.unesco>.*
- ✓ *UNESCO (2008). ICT Competency standards for teachers: Policy Framework. Retrieved from <http://portal.unesco>.*
- ✓ *Working in Microsoft Office – Ron Mansfield - TMH.*

# **Renewable Energy and Energy Harvesting**

## **Course Outcomes**

- Basic understanding of alternative sources of energy.
  - Conceptual understanding and importance of solar cell , characterization
  - Understating the energy harvesting and its applications using wind and piezoelectric material
- CO-4: Understating the electromagnetic energy harvesting and its applications

## **Unit I**

### **Fossil fuels and Alternate Sources of energy:**

Fossil fuels and Nuclear Energy, their limitation, need of renewable energy, non-conventional energy sources. An overview of developments in Offshore Wind Energy, Tidal Energy, Wave energy systems, Ocean Thermal Energy Conversion, solar energy, biomass, biochemical conversion, biogas generation, geothermal energy tidal energy, Hydroelectricity.

## **Unit II**

### **Solar energy:**

Solar energy, its importance, storage of solar energy, solar pond, non-convective solar pond, applications of solar pond and solar energy, solar water heater, flat plate collector, solar distillation, solar cooker, solar green houses, solar cell, absorption air conditioning. Need and characteristics of photovoltaic (PV) systems, PV models and equivalent circuits, and sun tracking systems.

## **Unit III**

### **Wind Energy harvesting:**

Fundamentals of Wind energy, Wind Turbines and different electrical machines in wind turbines, Power electronic interfaces, and grid interconnection topologies.

**Piezoelectric Energy harvesting:** Introduction, Physics and characteristics of piezoelectric effect, materials and mathematical description of piezoelectricity, Piezoelectric parameters and modeling piezoelectric generators, Piezoelectric energy harvesting applications, Human power.

## **Unit IV**

### **Electromagnetic Energy Harvesting:**

Linear generators, physics mathematical models, recent applications 42 Carbon captured technologies, cell, batteries, power consumption Environmental issues and Renewable

sources of energy, sustainability.

**Reference Books:**

- ✓ *Non-conventional energy sources - G.D Rai - Khanna Publishers, New Delhi*
- ✓ *Solar energy - M P Agarwal - S Chand and Co. Ltd.*
- ✓ *Solar energy - Suhas P Sukhative Tata McGraw - Hill Publishing Company Ltd.*
- ✓ *Godfrey Boyle, "Renewable Energy, Power for a sustainable future", 2004, OxfordUniversity Press, in association with The Open University.*
- ✓ *Dr. P Jayakumar, Solar Energy: Resource Assesment Handbook, 2009*
- ✓ *J.Balfour, M.Shaw and S. Jarosek, Photovoltaics, Lawrence J Goodrich (USA).*
- ✓ [http://en.wikipedia.org/wiki/Renewable\\_energy](http://en.wikipedia.org/wiki/Renewable_energy)

## **Political Journalism**

### **Course Objective:**

Media being the 4<sup>th</sup> pillar of democracy has vital role to make people vigilant. The strength of democracy to a great extent depends upon the impartiality and autonomy of the media. With the growing commercialization of the media houses, it actually emerges to be a grave concern across the globe. Media ought to be the watch dog in a democracy making people vigilant and make them informed about the governance. The course attempts to study journalism, the principles underlying reporting. It then reflects on the vested interest and political propaganda which attempts to influence the journalism of the day. It intends to train the learners to develop writing skills in featured articles on political subjects as well as enhance their analytical skills to analyse the prevailing political events.

### **Learning Outcome:**

The course would make the learners informed about the basics of journalising and reporting and its dynamics with respect to politics. The unit wise outcomes are given below:

**Unit I:** It would introduce the students with the basics of journalism and reporting.

**Unit II:** The students would be aware of the vested interest and propaganda in influencing the media reports and the funding of media houses.

**Unit III:** The unit would enhance writing skills of the learners to write feature articles on political issues.

**Unit IV:** This would enhance the analytical skills of the learners and train them to analyse the political events.

### **Course Content:**

**Unit 1:** Meaning of Journalism, Ideal principles of Reporting,

**Unit 2:** Political propaganda and vested interest in Journalism: Yellow journalism and TRP; Funding of media houses, Paid news. Types of Reporting Political issues, Making Posters on Political Issue.

**Unit 3:** Writing skills for Features articles on political issues.

**Unit 4:** Analytical skills to analyze the political events.

### **Essential Readings**

1. Maheshwari, S., & Sparks, C. (2021). Political elites and journalistic practices in India: A case of institutionalized heteronomy. *Journalism*, 22(1), 231-247.  
<https://doi.org/10.1177/1464884918761630>
2. McNair, B. (2009). Journalism and democracy. In *The handbook of journalism studies* (pp. 257-269). Routledge.

3. Paul, S. (2018). Between participation and autonomy: Understanding Indian citizen journalists. *Journalism Practice*, 12(5), 526-542.
4. Udupa, S. (2015). *News, Publics and Politics in Globalising India: Media, Publics, Politics*. Cambridge University Press.

### **Additional Reading List:**

- ✓ Bennett, W. L., & Livingston, S. (2018). *The disinformation age: Politics, technology, and disruptive communication*. Cambridge University Press.
- ✓ Curran, J., & Seaton, J. (2018). *Power without responsibility: Press, broadcasting and the internet in Britain (9th ed.)*. Routledge.
- ✓ Harrower, T. (2012). *Inside reporting: A practical guide to the craft of journalism (3rd ed.)*. McGraw-Hill.
- ✓ Herman, E. S., & Chomsky, N. (2010). *Manufacturing consent: The political economy of the mass media*. Random House.
- ✓ Kovach, B., & Rosenstiel, T. (2014). *The elements of journalism: What newspeople should know and the public should expect (3rd ed.)*. Three Rivers Press.
- ✓ Mencher, M. (2011). *News reporting and writing (12th ed.)*. McGraw-Hill.
- ✓ Schudson, M. (2011). *The sociology of news (2nd ed.)*. W. W. Norton & Company.
- ✓ Sedorkin, G., & McGregor, J. (2002). *Interviewing: A guide for journalists and writers*. Allen & Unwin.
- ✓ Tuchman, G. (1978). *Making news: A study in the construction of reality*. Free Press.

### **Internet Sources:**

1. Writers Life Lecture  
Series: Political  
Journalism  
<https://www.youtube.com/watch?v=StHbMlCucHo>
2. Journalism and Politics Lecture | The Evolution of TV News <https://www.youtube.com/live/-LaiZLigO9M?si=BXBYPhZTSwudGbmw>

### **Activities to Do:**

1. Students will be provided with a selection of news reports or articles related to political issues. They will analyze these reports based on the ideal principles of reporting, identifying any instances of yellow journalism, political propaganda, or vested interests. Students will present their findings and engage in a class discussion on the importance of ethical and unbiased journalism.
2. Students will work in groups to create posters on a political issue of their choice. The posters should effectively communicate the

issue, raise awareness, and potentially influence public opinion. This activity will encourage critical thinking, creativity, and the ability to convey complex political topics through visual communication.

3. Students will select a political subject of their interest and write a feature article on that topic. The article should be well-researched, informative, and engage the reader while adhering to journalistic writing standards. This activity will develop research skills, writing abilities, and the ability to present complex political issues in an accessible and compelling manner.
4. Students will choose a significant political event (past or present) and conduct an in-depth analysis of the event. They will present their findings to the class, discussing the key players, factors, and implications of the event. This activity will enhance critical thinking, research skills, and the ability to analyze and communicate complex political events effectively.

### **Model Questions**

1. Which is considered the first newspaper published in India? [1]
2. Briefly explain the term 'yellow journalism'.  
[2]
3. Critically analyse the TRP Funding of Media Houses and its impact on journalism.  
[5]
4. Distinguish between 'paid news' and legitimate funding sources for media houses, highlighting the ethical concerns associated with paid news.  
[8]

# Introduction to Python

## Course Objective:

The objective of this course is to aware the students for Python language and the programing as well as to create a learning platform to apply for slicing to access data and mathematical problems.

## Learning Outcomes:

After completion of this course, students will be able to:

- Understand why Python is a useful scripting language for applications.
- Learn how to use lists, tuples, and dictionaries in Python programs, learn how to write loops and decision statements in Python, learn how to use indexing and slicing to access data in Python programs.
- Learn how to use python for solving mathematical problems.

## UNIT-I

Introduction to Python programming, installation of Python, application of Python, writing Python code, running Python programs, variables, basic input-output operations, operators.

## UNIT-II

Number, string, list, tuple, set, dictionary, arrays and vectors, conditional statements (if, if-else, if- elif- else), loops (for loop, while loop). writing and calling functions, function inputs and outputs, local and global scope of variable, Lamda function , types of errors.

## UNIT-III

Library for mathematics (sympy and numpy), problems on algebraic expression, ordinary and partial derivatives, integral, limit, ordinary differential equations, algebra of matrices, plotting of functions.

## Books Recommended:

- ✓ Harsh Bhasin, *Python for Beginners*. New Age International; 1st Edition, 2018.
- ✓ Tim Hall and J-P Stacey, *Python 3 for Absolute Beginners*. Apress, 2009.
- ✓ Suggestive digital platforms web links: NPTEL/SWAYAM/MOOCs.
- ✓ e-Learning Source <http://ndl.iitkgp.ac.in> ; <http://ocw.mit.edu> ; <http://mathforum.org>



# **Cosmetic and Pharmacological Chemistry**

## **Course Objectives:**

The objectives of a course aim at introducing the fundamental principles in pharmaceuticals and cosmetics alongside analytical techniques and basics in biological systems, cell biology, microbiology and physiology. This course will focus on design, formulation, manufacture and evaluation of pharmaceutical and cosmetic products. The final year will delve deeper into more advanced and niche topics including drug design, personalised medicines, responsible innovation and sustainability.

## **Course outcomes:**

Students after successful completion of the course will be able to:

- Explain the principles of formulation and application of Cosmetics & perfumes.
- Acquire a critical knowledge on synthetic techniques of drugs.
- Demonstrate the skills in various aspects of the fermentation technology and apply for production.
- Comprehend the applications offer mentation.

## **Unit-I**

### **Chemistry of Cosmetics**

A general study including preparation and uses of the following: Hair dye, hair spray, shampoo, suntan lotions, face powder, lipsticks, talcum powder, nail enamel, creams (cold, vanishing and shaving creams), antiperspirants and artificial flavours.

## **Unit- II**

### **Chemistry of Perfumes**

Essential oils and their importance in cosmetic industries with reference to Eugenol, Geranial, sandalwood oil, eucalyptus, rose oil, 2-phenyl ethyl alcohol, Jasmine, Civet one, Mascon.

## **Unit-III**

### **Drugs & Pharmaceuticals – I**

Drug discovery, design and development; Basic Retrosynthetic approach. Synthesis of the representative drugs of the following classes: analgesics agents, antipyretic agents, anti-inflammatory agents (Aspirin, paracetamol, ibuprofen)

## Unit-IV

### Drugs & Pharmaceuticals - II

Synthesis of the representative drugs of the following classes: Antibiotics (Chloramphenicol); antibacterial and antifungal agents (Sulphonamides; Sulphacetamide, Trimethoprim); antiviral agents (Acyclovir), Central Nervous System agents (Phenobarbital, Diazepam), Cardiovascular (Glycerol triturate), antilaprosy (Daps one), HIV-AIDS related drugs (AZT- Zidovudine).

Aerobic and anaerobic fermentation. Production of (i) Ethyl alcohol and citric acid, (ii) Antibiotics; Penicillin, Cephalosporin, Chloromycetin and Streptomycin, (iii) Lysine, Glutamic acid, Vitamin B2, Vitamin B12 and Vitamin C.

### Text Books

- ✓ *A handbook of Industrial Organic Chemistry by Samuel P Sadtler, JB Lippincott company.*
- ✓ *Handbook Industrial Chemistry by Mohammad Farhat Ali Khan, First edition*
- ✓ *Industrial Chemistry, E. Stocchi: Vol -I, Ellis Horwood Ltd. UK.*

### Reference Books:

- ✓ *Engineering Chemistry P.C. Jain, M. Jain: Dhanpat Rai & Sons, Delhi.*
- ✓ *Industrial Chemistry, Sharma, B.K. & Gaur, Goel Publishing House, Meerut (1996)*
- ✓ *Introduction to Medicinal Chemistry, G.L. Patrick: Oxford University Press, UK.*
- ✓ *Medicinal and Pharmaceutical Chemistry, Hakishan, V.K. Kapoor: Vallabh Prakashan, Pitampura, New Delhi.*
- ✓ *Principles of Medicinal Chemistry, William O. Foye, Thomas L., Lemke, David A. William: B.I. Waverly Pvt. Ltd. New Delhi.*
- ✓ *Industrial Microbiology, 3rd Edition, JR Casida L.E. (2015) New Age International (P) Limited Publishers, New Delhi, India.*
- ✓ *Industrial Microbiology: An Introduction. 1st Edition, Waites M.J., Morgan N.L., Rockey J.S. and Higton G. (2001) Blackwell Science, London, UK.*
- ✓ *Microbiology. 5th Edition, Pelczar M.J., Chan E.C.S. and Krieg N.R. (2003) Tata McGraw- Hill Publishing Company Limited, New Delhi*

**ଦକ୍ଷତା ବିକାଶମୂଳକ ପାଠ୍ୟକ୍ରମ**  
**Skill Enhancement Course (SEC)**

**ପ୍ରଥମ ପତ୍ର**

**ଅନୁବାଦ ସାହିତ୍ୟ**

**Course Outcome (ପାଠ୍ୟପତ୍ର ପଳ ଶୁଦ୍ଧି) :**

ଛାତ୍ରଛାତ୍ରୀଙ୍କ ଦକ୍ଷତା ବୃଦ୍ଧି ପାଇଁ ଅନୁବାଦ ସାହିତ୍ୟ ବିଶେଷ ସହାୟକ ହେବ । ଅନୁବାଦର ତାତ୍ତ୍ୱିକ ଦିଗ ସହିତ ଓଡ଼ିଆ ଅନୁବାଦ ସାହିତ୍ୟର ରୂପରେଖ ଏବଂ ଅନ୍ୟ ଭାଷାର ସାହିତ୍ୟକୁ ଓଡ଼ିଆରେ ଅନୁବାଦ କରିବା ତଥା ବିଶିଷ୍ଟ ଓଡ଼ିଆ ରଚନାକୁ ଅନ୍ୟ ଭାଷାରେ ଅନୁବାଦ କରିବା ବିଷୟରେ ଏହି ପାଠ୍ୟପତ୍ରରୁ ବିଦ୍ୟାର୍ଥୀମାନେ ଜ୍ଞାନ ଆହରଣ କରିପାରିବେ ।

**Unit wise Learning Outcome (ପ୍ରତି ଏକକର ଅଧ୍ୟୟନ ପଳଶୁଦ୍ଧି) :**

- ୧ମ ଏକକ : ଅନୁବାଦ କଣ? ତାହାର ସ୍ୱରୂପ କିପରି ? ଅନୁବାଦ କ୍ଷେତ୍ରରେ କେଉଁକେଉଁ ଦିଗପ୍ରତି ସଚେତନ ହେବା ଆବଶ୍ୟକ, ସେହି ଜିଜ୍ଞାସାକୁ ଚରିତାର୍ଥ କରିବ ଶୀଘ୍ର ଏକକଟି ।
- ୨ୟ ଏକକ : ପ୍ରାଚୀନକାଳଠାରୁ ଆଧୁନିକକାଳ ପର୍ଯ୍ୟନ୍ତ ଓଡ଼ିଆ ଅନୁବାଦ ସାହିତ୍ୟର ଗତିକ୍ରମ ଓ ତାର ବିଶେଷତ୍ୱକୁ ଏଠି ଛାତ୍ରଛାତ୍ରୀ ଅବଗତ ହେବେ ।
- ୩ୟ ଏକକ : ଓଡ଼ିଶାର ଅନୁବାଦକମାନେ ବିବିଧ ଭାରତୀୟ ଭାଷାର ସାହିତ୍ୟକୁ ଓଡ଼ିଆ ଭାଷାରେ ଅନୁବାଦ କରିଥିବା ଦୃଷ୍ଟିଗୋଚର ହୁଏ । ଏହି ଏକକରେ ବିଦ୍ୟାର୍ଥୀମାନେ ହିନ୍ଦୀ କିମ୍ବା ବଙ୍ଗଳା ଭାଷାର ସ୍ମରଣୀୟ ରଚନାକୁ ଓଡ଼ିଆ ଭାଷାରେ ଅନୁବାଦ କରିବାର ସୁଯୋଗ ପାଇବେ ।

- ୪ର୍ଥ ଏକକ : ଓଡ଼ିଆ ଭାଷାରେ ରଚିତ ସାହିତ୍ୟକୃତିର ଅନୁବାଦ କାର୍ଯ୍ୟ ଅନ୍ୟଭାଷାକୁ ଆଶାନ୍ୱରୂପ ହୋଇନାହିଁ । ଏହି ଏକକରେ ହିନ୍ଦୀ କିମ୍ବା ଇଂରାଜୀ ଭାଷାରେ ଓଡ଼ିଆ ସାହିତ୍ୟର ଏକ ଉଲ୍ଲେଖଯୋଗ୍ୟ ରଚନାର କିୟଦଂଶ ଅନୁବାଦ କରିବାର ପ୍ରାବଧାନ ରହିବ ।

**ପାଠ୍ୟ ବିଷୟ**

- ୧ମ ଏକକ : ଅନୁବାଦର ସଂଜ୍ଞା ସ୍ୱରୂପ
- ୨ୟ ଏକକ : ଓଡ଼ିଆ ଅନୁବାଦ ସାହିତ୍ୟ
- ୩ୟ ଏକକ : ଅନ୍ୟଭାଷାର ସାହିତ୍ୟ : ଓଡ଼ିଆ ଅନୁବାଦ  
(ହିନ୍ଦୀ କିମ୍ବା ବଙ୍ଗଳା)
- ୪ର୍ଥ ଏକକ : ଅନ୍ୟ ଭାଷାର ଅନୁବାଦ (ହିନ୍ଦୀ କିମ୍ବା ଇଂରାଜୀ)

**ସହାୟକ ଗ୍ରନ୍ଥସୂଚୀ (Book of references):**

୧. ଅନୁବାଦ ତତ୍ତ୍ୱ ଓ ପ୍ରୟୋଗ – ସଂ. ମନୋରଞ୍ଜନ ପ୍ରଧାନ, ଓଡ଼ିଶା ବୁକ୍ ଷୋର, କଟକ
୨. ସାହିତ୍ୟ ତତ୍ତ୍ୱ : ପ୍ରାଚ୍ୟ ପାଶ୍ଚାତ୍ୟ – ଜ୍ୟୋତ୍ସ୍ନାମୟୀ ପ୍ରଧାନ, ଫେଣ୍ଟସ୍ ପବ୍ଲିଶର୍ସ, କଟକ
୩. ଗବେଷଣା ଅନୁବାଦ ସମ୍ପାଦନାକଳା – ନାରାୟଣ ସାହୁ, ସତ୍ୟ ନାରାୟଣ ବୁକ୍ ଷୋର
୪. ଅନୁବାଦ କଳା : ପରିସୀମା ଓ ପୁରୋଦୃଷ୍ଟି – ସଂ ସଂପାଦିତ୍ରା ମିଶ୍ର, ପଣ୍ଡିତ ଶ୍ରୀଧର ଦାସ ମେମୋରିଆଲ ଟ୍ରଷ୍ଟ, ଭୁବନେଶ୍ୱର

**ନମୁନା ପ୍ରଶ୍ନ (Sample Questions):**

୧. ରତ୍ନାକର ଗର୍ଗବତ୍ କେଉଁ ବିଷୟାତ ଗ୍ରନ୍ଥର ଓଡ଼ିଆ ଅନୁବାଦକ ? (୧ ମାର୍କ)
୨. ନୀଳକଣ୍ଠଙ୍କ ‘ପ୍ରଣୟିନୀ’ କେଉଁ କବିଙ୍କ କେଉଁ ଇଂରାଜୀ ରଚନାର ଅନୁଦିତ ରୂପ । (୨ ମାର୍କ)
୩. ହିନ୍ଦୀ ଭାଷାର ରଚନାକୁ ଓଡ଼ିଆ ଭାଷାରେ ଅନୁବାଦ କରିଥିବା ଜଣେ ବିଶିଷ୍ଟ ଅନୁବାଦକଙ୍କ ବିଷୟରେ ଲେଖ । (୫ ମାର୍କ)
୪. ଓଡ଼ିଆ ଭାଷାର କେଉଁକେଉଁ ରଚନା ହିନ୍ଦୀ ବା ଇଂରାଜୀ ଭାଷାରେ ଅନୁଦିତ ତାହାର ବିବରଣୀ ପ୍ରଦାନ କର । (୮ ମାର୍କ)