PROJECT REPORT

ON

"EARTHWORM PROJECT FOR SUSTAINAABLE AGRICULTURE"

2021-22

PREPARED BY
DEPARTMENT OF BOTANY
PATTAMUNDAI COLLEGE

PATTAMUNDAI

KENDRAPARA

754215

REPORT

A project was undertaken by +3 3rd year students of Department of Botany on "Earthworm project for sustainable Agriculture" under the guidance of Dr. Anjali Kumari Dash, HOD Botany for the academic year 2021-22. 15 numbers of students have been participated in this project work. They have worked for 3 months to complete this project. They prepared vermicompost by using cow dung, decomposing vegetables, food waste and bedding materials with the help of earthworm in a tank by maintaining the temperature of the tank 22^0C to 25^0C with 82-85% moisture content. They have taken two same sized healthy plants of Kalanchoe pinnata, Tagetes patula and Andrographis paniculata for their experiment and applied vermicompost to one plant of each species and kept for observation for about 15 days. After 15 days it was observed that the plants with vermicompost had better growth than the plants without vermicompost.

Signature of Supervisor   Signature of HOD   Principal,

H.O.D. Botany

Pattamundai college

pattamundai   pattamundai college

02.05.2022

Abstract

Vermicompost restores microbial population which includes nitrogen fixers, phosphorous solubilizer etc. It provides major and micronutrients to the plants. It also improves soil texture and water holding capacity of the soil.

We 15 students of our botany department started preparing vermicompost by using cow dung, decomposing vegetables, food waste and bedding materials with the help earthworm, in a tank. Temperature of the tank was 22^C-25^C with 82-85% of moisture content. It took 3 months to convert it in a usable form. Then we took two same sized healthy plant of *Kalanchoe Pinnata, Tagetes patula, Andrographis paniculata* and then the prepared vermicompost was applied to one plant of each species. Each plant was left for 15 days. Then it was observed that the plants in which the vermicompost was applied had a noticeable growth in shoot and root as well.

INTRODUCTION

The study area is located near the Pattamundai town. Pattamundai is located at 20.57°N 86.57°E & 22 km from the Bay of Bengal in the Utkal Plains, at an elevation of 6 m from sea level. Pattamundai is a flat, low-lying delta region in the Lower Mahanadi River basin. The Brahmani river divides it from the Aul block. The Pattamundai Canal running from Cuttack to Alva Lock (80.5 km) constructed by the East India Company during the mid 19th century,is a major irrigation canal passing through the city. The river Brahmani is passing by the side of this municipality. The soil with high organic matter 5-15 % formed in temperate and cool humid region and low (1-3 %) in soil arid and semi-arid zones. The average rain-fall in the year was recorded 100-170 cm. while temperature between 20°C-38 °C. During winter, temperature was 10°C-25°C

The college was established in the year 1970 at by the collective efforts of the people of the locality who wanted higher education to come to their door steps.

This college is the 2nd largest college of the district upholds the purpose for which it was founded away back in the late sixties. This college is affiliated to Utkal university which is the premier university of Odisha provides the scope to the students to

pursue their dreams and become successful in life .This college offers higher secondary and undergraduate course in Science, Commerce and Arts. As per the National assessment and accreditation council it holds 'B' grade.

This college has excellent infrastructure, security and facilities. College provide us sports , cultural activities and everything .This college is known for its educational facilities like smart class rooms ,seminar hall ,advance lab , library etc.

In this local area, farmers are using chemical Fertilizer which is affecting useful organism and decreasing soil texture and overall soil quality of field. So we 15 students of our department decide to make a project on vermicompost under the guidance of Dr. Anjali Kumari Dash (HOD of Botany department) and to promote bio fertilizer in local areas for both commercial and environmental benefits. Apart from this in our college canteen and hostel vegetable and food wastes are available. Cow dung is easily available in local areas and all other requirements are easily available so it brings our attraction towards this project.

The vermicompost is a word which is used for the final product (humus-like material) of composting procedure of organic waste materials by earthworms. Many organic wastes have been converted into worm manure (vermicompost) by different

species of earthworms which include cow manure, leaves, paper waste, sheep-goat manure, rice waste, vegetable waste.Vermicomposting process employing earthworms is increasingly being used for conversion of both municipal and industrial wastes to vermicast with reduced metals content. Vermicompost is described as a perfect soil amendment and more eco-friendly as compared to chemical fertilizers.

Compositing is one of the feasible means for converting bio-degradable solid wastes into beneficial organic soil amendments for supporting environment friendly agricultural production system. Many beneficial organisms and microorganisms act as chemical decomposer in the process of formation of stable organic end product during compositing. Among them, decomposers like earthworm play significant role in stimulating the process of compositing. It enhances the nutrient value while fastening the process of stable organic end-product formation .This process of involvement of earthworms in preparing enriched compost is called vermicomposting .It is one of the simplest methods to recycle agricultural wastes and to produce quality compost .Earthworm acts physically an aerator, crusher, and mixer, chemically a degrader and a biological stimulator in the process of decomposition .Earthworms consume biomass and excrete it in

4

a digest form called as worms cast or worm manure .worm casts are popularly called as black gold .They are rich in essential plant nutrients ,plant growth promoting substances ,beneficial soil micro flora and having properties of inhibiting pathogenic microbes . As a results , the organic end products produced by the use of earthworms i.e vermicompost also inherits most of the beneficial properties of black gold .Vermicompost acts as an organic soil amendment improves three dimensional soil health i.e physical ,chemical and biological properties. The earthworm's underground burrows modify soil hydro-thermal and aeration regimes by making the soil more porous thus allowing free movement of air infiltration of water into deeper soil layers for better profile moisture recharge and root water uptake processes .Vermicompost is becoming popular as one the major component of the organic farming system because of its high nutritive value in addition to an important organic soil amendment.

Vermicompost contains earthworm cocoons and increases the population and activity of earthworm in the soil .It is free form pathogens, toxic element, weed seed etc. It minimizes the incidence of pests and diseases .It enhances the decomposition of organic matter in the soil. It contains valuable

vitamins, enzymes, and hormones like auxin, gibberellins, etc. It does not have foul odour unlike manures and decaying organic wastes.

General waste management strategies for organic residues ,such as composting and vermicomposting have been implemented in some developed and developing countries to solve the problem of organic wastes .

Vermicomposting can produce high quality fertilizers which are better as compared to other commercial fertilizers in the market so every farmers need to use vermicompost instead of other chemical fertilizer.

It can be made into a livelihood program and become a source of extra income through selling the vermicompost and also the vermi worms. its use can reduce the economic cost and leads to organic products which fetches higher price in the market .

6

REVIEW OF LITERRATURE

1. Michigan biology teacher Mary Arlene Appelhof arrived at idea of home vermicomposting .In 1972 she realized she wanted to continue composting in winter month despite living in a Northern climate. Her book 'Worms Eat My Garbage' is still held as seminal reading in the field of vermicomposting.

2. Sultan Ahmed Ismail (born on 9 Oct 1951) is an Indian soil biologist and ecologist .His work has centered on technique for regulating biodegradable wastes into fertilizer using local varieties of earthworm and soil bioremediation.

3. Choudhary and Suresh Kumar (2013)showed that application of vermicompost can increase the production of potential of cow pea (Vigna unguiculata)in acid soil by improving water retention at field capacity ,permanent wilting point ,bulk density ,and availability of nitrogen ,phosphorous, and potassium there by increasing growth and yield attributes of cow pea.

4. Rekha et al. (2018)recorded that C. annum treated with 50% vermicompost showed significant growth than the plant growth enhances viz. Gibberllic acid and indole

7

acetic acid treated plants. Significant improvement in all the parameters like length of shoots,length of internodes ,number of leaves and number of branches was observed in plants at the end of 3rd,4th,and 5th weeks of treatment.The findings clearly indicate that vermicompost can be exploited as a potential biofertilizer.

5. Manivannan et al .(2009) found that application of vermicompost @5 tonnes/ha gave significantly higher result than the application of inorganic fertilizers @20:80:40 kg ha-1 in French bean (Phaseolus vulgaris) in terms of growth,yield (1.6 times) and quality (protein,1.05 times) and sugar (1.01 times) content in seed of bean.Vermicompost application also improve the physical,chemical and biological properties of clay loam and sandy loam soils of Sivapuri, Chidambaram, Tamilnadu .

6. Rajkhowa and his coworker (2017) reported that integrated use 50% RDF+ VC 2.5 ha-1 ,+lime 4 q ha-1 ,under the hilly ecosystem of NE India ,resulted in significantly higher yield of green gram (10 q ha-1) and improved the soil organic carbon (2.5%), bacteria and fungi population and available N, P_2O_5 and K_2O compared to the sole application of recommended dose of fertilizer.

8

Materials and Methodology

Materials:

- Water
- Cow dung
- Soil or sand
- Earth worm
- Kitchen wastages(college hostel)
- Dry leaves from field
- A large concrete bin
- Gunny bags
- Dry straw from paddy fields

Methodology:

1. To prepared compost a concrete tank was used.
2. The size of tank depends upon the availability of raw materials.
3. The collected biomass was placed under concrete tank. Under the sunlight for about 8-12 days.
4. Then cow dung was prepared for quick decomposition.
5. 2-3 inch layer soil or sand was added at the bottom of concrete tank.

6. Then fine bedding was prepared by adding decomposed cow dung and leaves the wastes collected from the hostel kitchen. They are distributed on the sand layer.

7. These materials were added in to the tank up to a depth 0.5-1.0 fit.

8. After adding the all bio wastage earthworm species were released over the mixture and the compost was covered with dry straw and gunny bags.

9. Water was sprinkled to maintain moisture.

The tank to prevent the entry of ants, lizards, mouse, snakes etc.

10. The compost was protected from rainwater and direct sunlight.

11. The compost was checked frequently to avoid from over heating and   proper moisture and temperature was maintained.

12.We taken the 3 species of plant *Kalanchoe Pinnata,Tagetes patula and Andrographis paniculata*

13. Two plants from each three species was planted,one is with vermicompost and another was without vermicompost.

14. The growth of plants was checked frequently.

Five phages of vermicomposting

1. Collection of waste material.
2. Pre – digestion.
3. Earth worm pit preparation and compositing
4. Harvesting of vermicompost and Earthworm.
5. Packing and storing of vermicompost.

We used some precautions in the process of making vermicompost .

1. The collected waste materials was processed for shredding, mechanical separation, of the metal, glass, and ceramics and it should be stored in proper places.
2. Pre-digestion of organic waste was done at least 20-25 days by heaping the material along with cow dung slurry and regular watering. This process partially digests the material and fit for earthworm consumption. Addition of higher quantities of acid rich substances such as citrus wastes was avoided.

11

3. The vermicompost heap was not overloaded, in order to avoid high temperature that adversely affects earthworm's population.

4. Organic materials free from stones, glass pipes, plastics, ceramic tube etc. was used.

5. Temperature was maintained at 30^C by upturning and staking and regular sprinkling of water.

6. Moisture was maintained at about 60% by proper drainage and aeration and by sprinkling of water.

7. The pit should be a bit inclined towards the hole at the bottom of the pit or tube to drain out the excess water. Make sure to have a drainage channel around the heap to avoid stagnation of water.

8. The compost material was turned upside down giving some days gap without disturbing the basal layer.

9. The organic materials were protected from pests and diseases.

10. The earthworms were protected from predators like ants, birds and lizards.

11. A thatched roof was provided to protect the vermicomposting unit from direct sunlight and rain.

RESULT and DISCUSSION:

1. After the 24 days, around 4000-5000 new worms were generated and the entire raw materials was turned into the vermicompost.

2. When this vermicompost was applied to plants, it promoted the growth of stem and root .

3. The plant to which vermicompost was applied was healthier than the other one.

4. It helps to increase the soil texture and overall soil quality.

5. When vermicompost was applied to one plant of each species, then the growth in stem length was observed.

6. The observation is shown below in the table:

SL NO.	Name of the plants	Without vermicompost	With vermicompost
1	Kalanchoe pinnata	16 cm.	19.5 cm.
2	Tagetes patula	18 cm.	24.2 cm.
3	Andrographis paniculata	11 cm.	14 cm.

On the basis of experiment , We concluded that vermicomost increases the fertility and water holding capacity of the soil.

which helps in better plant growth , germination and crop yield.
It is an environment friendly way of reducing wastes ,
producing fertilizers and maintaining the balance of ecological
environment .Farmers can take up vermicompost production
which is a good source of macro and micro nutrients ,also
several enzymes and growth regulators ,above all it will also
maintain soil organic matter .

RECOMMENDATION

Vermiculture is a way of composting using earthworms to
speed up the process. We in the group have engaged
ourselves in our unique way of innovative vermiculture and
vermicomposting activity for almost 3 months .From that span
of time , we recommend that , vermicomposting can produce
high quality fertilizers which are better compared to other
commercial fertilizers in the market so every farmers need to
use vermicompost instead of harmful chemical fertilizers . It can
be made into a livelihood program and become a source of
extra income through selling the vermicast and also the
vermiworms . It's use can reduce the economic cost and leads
to organic products which fetches higher price in the market.

PROJECT ON "EARTHWORM PROJECT FOR SUSTAINABLE AGRICULTURE"

DEPARTMENT OF BOTANY

PATTAMUNDAI COLLEGE, PATTAMUNDAI, KENDRAPARA

SL. No	Name of Student	Roll No	Signature
1	Dibyanshu Das	BS(B)-19-022	D.H
2	Bikash Narod cu Swami	BS(B) 19-023	B. Sawns
3	Manisha Routray.	BS(B)19-028	M. Routray,
4	Rashmita Panida	BS(B)19-029	R. Panida
5	Monaj Kumar Swain	BS(B)19-046	Monaj Ku. Swain
6	Satyaban Routl	BS(B)19-049	S. Routl
7	Priyanka Priyadarshini Swain	Bx(B)19-057	P. Swain
8	Aswarya Nandini Pradhan	BS(B)-19-085	A·N Pradhan
9	Biptimayee Malik	BS(B)19-071	D· Malik.
10	Bhagyasmita Behera	BS(B)19-098	L. Behera
11	Sonali deepa Nayak	BS(B)19-106	S. Nayak,
12	Gayatri Jena	BS(B)-19-091	G. Jena
13	Prabir Das	BS(B)19-040	P. Das
14	Sonali Priyadarshani Paida	BS(B)-19-122	Sonai
15	Sushree Suchitra Dos	BS(B)-19-112	S Das

Anjali Kumari Dash
Signature of Supervisor

PROJECT REPORT ON

SOCIO-ECONOMIC CONDITION OF WOMEN CONSTRUCTION WORKERS IN KENDRAPARA DISTRICT, ODISHA

PREPARED BY

DEPARTMENT OF ECONOMICS

PATTAMUNDAI COLLEGE

PATTAMUNDAI, KENDRAPARA

ODISHA– 754215

SESSION-2021-22

REPORT

A project on **"Socio-economic condition of women construction workers in Kendrapara district, Odisha"** was undertaken by student of Economics department during the month of March in 2022. 12 no of students participated in the project work. The study has relied upon both primary and secondary data. Primary data were collected randomly from 50 women workers in Kendrapara District. To collect information about the socio-economic condition, problems at workplace and health hazards of the workers, a well-structured schedule was used. The workers are directly met from their workplace mostly during lunch break and observed their working condition. Secondary data were obtained from various sources such as ILO, Economic Review, government reports, journals, and books. Simple percentage analysis was used to interpret the data. The project work was supervised by Mr. Pradyumna Pradhan, Lecturer in Economics. After completion of the project students presented their report before the external and internal examiner.
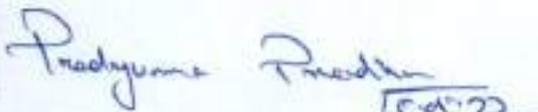
Signature of Supervisor
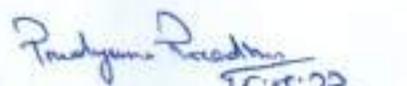
Signature of HOD
H O D ECONOMICS
PATTAMUNDAI COLLEGE
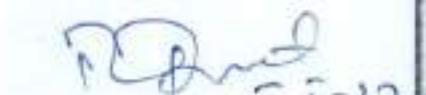
Principal
Pattamundai college
Principal
Pattamundai College

CONTENTS

Socio-economic condition of women construction workers in Kendrapara district, Odisha

Abstract

Today, economic independence is the prime basis for improving the status of women in India. It is highly emphasized that women work participation is crucial in enhancing social and economic status as well as improving their assertive roles in the household decision making. In construction activities, health is the important determinant of employment, and it is the deteriorating factors consider to workers especially the women, they are simultaneously engaging in economic and non-economic activities. This study is an attempt to understand the socio-economic condition of women construction workers and a special emphasis has given to identify the work related problems of women in Kendrapara district.

The study largely relays on field data which were collected from 50 respondents in Kendrapara district. A sample size of 50 women respondents were selected from the district by employing simple random sampling method. The respondents were interviewed with a well-structured schedule. Simple percentage and regression analysis was used to interpret the data.

As far as the problems faced by the workers are concerned, 100 percent of the workers are dealing with health problems and 82 percent of the workers faces financial problem. About 30 percent of the workers are facing other problems such as sanitary facility, drinking water facility, wage problems etc. The main health problems faced by the workers are muscle pain, allergy, cough, asthma problem, etc. About 8 percent of the workers are suffering from all of these problems. The nature of hospital preferred by the construction workers is mainly government hospitals. About 86 percent of the women workers opined that their status in the society has been improved by doing construction work.

Introduction

India is the second largest populated country in the world where the construction labour force is estimated at 30 million people; about half are women . The employment of women in the construction work falls under the service sector which is of unorganized category. In this field, both male and female workers are engaged. Women account for half of the total construction labour workforce. Women workers are most exclusively unskilled, casual and of manual labourers. They are mainly engaged in carrying bricks, cement, sand and water and also for digging earth, mixing cement and breaking stones. The construction sector is providing employment to 7% of total world employment .

According to the government of India report, the construction industry employs about 31 million people and creates assets worth over ₹. 200,000 million in every year . In India, it is the largest employer of unorganized labour next to agricultural sector. About 16% of the India's working population largely relays on construction industry for earning livelihood and the Indian construction industry providing employment to about 31 million people and creates assets worth over ₹ 200,000 million in every year . Nowadays the construction industry in India is facing the problem of shortage of labour. The number of skilled labourers in the construction sector has gradually declined from 15.34% in 1995 to 10.57% in 2005 at the same time the proportions of unskilled workers have gone up from 73.08% in 1995 to 82.45% in 2005. The construction labourers are seems most vulnerable segments of the unorganized sector as there is no adequate job opportunity and income for them .In Odisha, the structural transformation of women's activity has indeed taken place in the state with primary sector losing its importance and tertiary sector taking up its place . The peculiarity of women employment in Odisha is their high proportion in the service sector.

Statement of the problem

Odisha has made exemplary progress on labour welfare front but the occupational statuses of the women working in the unorganized sector are very weak. The women construction worker faces different socio- economic problems and also many work-related health problems. Women workers are mostly unskilled casual manual labourer. They are employed in construction sites

2

for carrying bricks, cement, sand, water, digging earth, mixing cement and breaking stone. The women are given common chores including transporting of materials around the site. They are rarely found in male-dominated skill trades like carpentry, masonry, plumbing, electrical wiring. There is wage disparity between the male and female workers. Women labourers are paid fewer wages. The risk involved in construction work is very high particularly for women workers who have to climb great heights with the load on their heads. Accidents involving simple injury occur almost every day, while fatal accidents occur occasionally. The major cause of accidents is falling from great heights, falling of heavy objects or collapsing of ladders. Long working hours, lack of proper nourishment, lack of safe drinking water are some of the occupational hazards due to which women are not being able to work for longer periods. Safety risks, health hazards, low wages, poor working conditions are some of the problems faced by the women labourers. They are not aware of their legal rights ensured by the Government. The study intends to analyze the socio-economic condition of women construction workers in Kendrapara district and a special emphasis was given on investigating health hazards and other work related problems.

Objectives of the study

The specific objectives of the study are:

1. To examine the socio – economic profile of the women workers in Kendrapara district.
2. To examine the working condition and occupational health hazards of the women workers.
3. To list out the problems faced by the women workers in the family and society.

Methodology

The study has relied upon both primary and secondary data. Primary data were collected randomly from 50 women workers in Kendrapara District. To collect information about the socio-economic condition, problems at workplace and health hazards of the workers, a well-structured schedule was used. The workers are directly met from their workplace mostly during lunch break and observed their working condition. Secondary data were obtained from various sources such as ILO, Economic Review, government reports, journals, and books. Simple percentage analysis was used to interpret the data.

Results and discussions

Age composition

Workers are classified into five age groups which are depicted in Table 1. Out of 50 samples, the majority workers belong to 45-50 followed by 26 percent are in the 50-55 age group. It is inferred from the table that 11 percent of workers are included in the age group of 40-45. Only 8 percent of workers are belonging to the age group of 50-55 and 4 percent of workers are in the age group of 35-30. From the total sample, none of them belongs to the age group of below 30. It could be clear that the new generation is not interested in working in the construction field. As far as the marital status is concerned, it is revealed that among the 50 samples, 72 percent workers are married and they are living with their husband. 14 percent are the widow and 12 percent are unmarried. Only 2 percent workers are divorced.

Table 1. Distribution of the respondents by age

Age	No of female workers	Percentage
30-35	0	0
35-40	4	8
40-45	11	22
45-50	14	28
50-55	8	16
55-60	13	26
Total	50	100

Educational status

Education is an important factor that is capable of determining the economic as well as social status in everyone's life. In this case, we are looking whether the workers are educated or not. Table 2 shows the education status of the women workers. About 50 percent of the workers having primary education whereas 46 percent are secondary educated and 4 percent of workers are illiterate. The majority of the workers are primary educated. Poor educational status coupled with the absence of bargaining power has resulted in the problem of low levels of wages and income accruing to workers. Lack of education has also meant very poor levels of awareness of rights among the workers.

Table 2. Educational status of the respondents

Education	No of female workers	Percentage
Illiterate	2	4
Primary	25	50
Secondary	23	46
Graduate	0	0
Total	50	100

Monthly income

Construction workers are wage earners and their wage is fixed in nature. The daily wage is given eitherevery Saturday or when the work is completed. Mostly in Kendrapara areas, the wage has been given on Saturdays. Table 3 shows that 48 percent of the respondents have earned an income of 4000-6000 and 24 percent of the workers come under the category of 2000-4000. Only 12 percent of the workers' income is above 10000.

Table 3. Classification of the respondents on the basis of monthly income

Monthly Income	No of female workers	Percentage
2000-4000	12	24
4000-6000	24	48
6000-8000	5	10
8000-10000	3	6
Above 10000	6	12
Total	50	100

Expenditure pattern

The expenditure pattern of the workers and their family is represented in the Table 4.It is inferred from the table that only small percent of workers spent amount between Rs 1000-1500 per month. About 24 percent of the workers spend ₹. 1500-2000 and 26 percent of workers belonging to ₹. 2000-2500. About 40 percent of the workers have come under the category of

above 2500. It is revealed that the propensity to consume is very high.

Table 4. Monthly expenditure of the family

Monthly expenditure	No of female workers	Percentage
1000-1500	5	10
1500-2000	12	24
2000-2500	13	26
2500 and above	20	40
Total	50	100

Membership in SHG

Nowadays, SHG has got more importance, and also many women are joining and actively participate to various activities of SHGs. Table 5 shows the number of workers are engaged SHGs activities. It is found that 52 percent of the workers have membership in the SHG while 48 percent are not a member of SHGs.

Table 5. Classification on the basis of membership in SHG

SHG	No of female workers	Percentage
Yes	26	52
No	24	48
Total	50	100

Seasonal employment

There are many jobs which are seasonal. In this case, availability of construction work construction work seems to be limited in monsoon whereas continues job availability in the summer and winter seasons. Table 6 exhibits the seasonality of construction work. 60 percent of the workers opined that the employment is not seasonal while 40 percent of the workers opined that work is seasonal in nature. It is noted that they are ready to go for other works such as beedi work, stitching, NREGP etc. during the off-season.

6

Table 6. Seasonality of the work

Employment seasonal	No of female workers	Percentage
Yes	20	40
No	30	60
Total	50	100

Time of work

Table 7. Classification of workers according to their working hours

Time of work	No of female workers	Percentage
Below 8 hours	4	8
8 hours	36	72
Above 8 hours	10	20
Total	50	100

Each work is having a time schedule. Normally, maximum hours of time are regarded as eight hours but in the unorganised sector it has not prevailed. It is possible to categorize the hours of work into three- below eight hours, eight hours and above eight hours. The classification of workers as per their daily hours of work is exhibited in the Table 7. The statutory laws in the organized set up expect the workers to work for 8 hours per day. Construction workers asked to work more than 8 hours. From the Table 7, it clear that 72 percent of the workers are work for 8 hours while 20 percent of the workers belong to the category of overtime (above 8 hours). There are some workers working below 8 hours.

Occupational status

The construction sector consists of a series of work which are collectively called construction work. The works such as carpentry, stone work, roof work, electrical work, tile/bricks/block works and concrete works, etc. Women are employed in construction sites for carrying bricks, cement, sand, water, digging earth, mixing cement and breaking stones. From these categories, the sample respondents are classified into four on the basis of their work.

Table 8. Classification of construction workers by occupation

Type of work	No of female workers	Percentage
Sand	2	4
Stone	9	18
Concrete	20	40
All of the above	19	38
Total	50	100

It is shown in the Table 8 that about 40 percent of the workers are engaged in concrete work, 38 percent of the workers are in carrying stone and 38 percent of the workers do all the work. Lowest percent of workers are engaged in sand work (4 percent). The workers carry 40-80 stone in a day and also the weight of the cement slack is about 50kg. One of the main hindrances for the workers is the distance to the workplace. When the distance of the workplace becomes too far the effort taken by the workers should also become very high. It is implied that the distance between workplace is categorized into four and most of the workers are coming from above 11 kilometres. While the distance between works place of some others is in the category of 1-4 kilometer. 32 percent of the workers are having a distance of 4-8 (16 percent) and 8-11 (16 percent) kilometer. Women workers find it very difficult to travel a long distance and then get into work. Also, it makes very difficult to manage their household activities. To achieve in their targeted place there is a need of the mode of conveyance. About 42 percent of the workers use bus as their conveyance and some prefer both bus and walking (40 percent). Only 18 percent of the workers walk to their construction site. No accommodation facility is given to the workers.

8

Saving habit

Saving habit is very essential in the life of each person which allocated from income with an expectation to meet future benefit and needs. Here, we look the saving habit of the women workers in a month which is shown in Table 9. That out of 50 samples, 42 percent of the workers have the saving in between the ₹. 500- 1000 whereas 36 percent of the workers save the amount of 0-500 rupees/month. Only 6 percent of the workers save more than 1500. Most of the workers use their salary for family expenditure. So their marginal propensity to consume is very high and marginal propensity to save almost zero.

Table 9. Monthly saving habits of the respondents

Saving	No of female workers	Percentage
Nothing	2	4
0-500	18	36
500-1000	21	42
1000-1500	6	12
Above 1500	3	6
Total	50	100

Debt of the respondents

Each person takes loan for many purposes due to low income and the workers are not able to meet their needs with their limited income. The debt status of women construction workers is shown in Table 11. The debt burden of construction workers shows that about 82 percent of the workers are in debt trap whereas 18 percent of workers have not taken any loan from bank or other financial institutions. The debts are taken for different purposes including buying vehicle, for construction of house, marriage, education, etc. Table 12 shows that about 38 percent of workers have taken loan for constructing house. 10 percent of the workers have taken loan to meet health care expenditure and 10 percent for the education of the children. 8 percent of workers have taken loan for marriage purposes of their children. The main reason for their debt is inadequacy of income and growing expenditure.

Table 11. Distribution of workers by debt

Debt	No of female workers	Percentage
Yes	41	82
No	9	18
Total	50	100

Table 12. Purpose of debt

Purpose	No of female workers	Percentage
Health care	5	10
Construction	19	38
Education	5	10
Marriage	4	8
Others	8	16

Problems of the construction workers

Construction workers stick to their profession, even though construction activity forms part of the unorganized sector. Among the sample workers, 50 percent of the workers are having experience of 10-20 years and 26 percent of them having only below 10 years experience and 16 percent are having 20-30 years work experience and 8 percent of them are having experience of more than 30 years. There are so many problems which are faced by the workers in the construction sector. These problems are categorised under two heads-health problems and financial problems which is shown in the Table 13.Almost all the workers are suffering from health problems while 82 percent among them faces financial problem. 30 percent of the workers face other problems such as shortage drinking water facility and sanitary facility, poor living condition, long hours of work, gender discrimination and low wage.

Table 13. Distribution on the basis of problems faced by Construction workers

Problem	No of female workers	Percentage
Health Problem	50	100
Financial Problem	41	82
Others	15	30

Health problems

For women, the work in the construction sector is too risky and also there are so many problems faced by them at work place. Health problems related constitute the major problem for women workers because they are physically poor. The main health problems faced by them are given in Table 14. It is depicted in the table that out of the 50 samples, all are suffering from anyone of the health problems. About 60 percent of the workers having muscle pain and 12 percent of the workers are suffering from allergy. Workers who face the problem of coughed are 10 percent and asthma and breathing problem are found among 10 percent of workers. It could be noted that 8 percent of the workers are suffering from all these problems. If all workforces are suffering from health related problem, there will be a significant impact on productivity.

Table 14. Distribution of workers according to reported health complaints

Health Problem	No of female workers	Percentage
Muscle pain	28	60
Allergy	6	12
Asthma and breathing	5	10
Cough	5	10
All of the above	4	8
Total	50	100

Nature of hospital

There are many hospitals available in the district such as private hospitals, government hospitals

etc. The preference of the hospital by the worker is shown in the Table 15. Majority of the workers have preferred government hospital due to the availability of free medicine and free checkups. And also their financial status makes them incapable to afford costly treatment from private hospital. 8 percent prefer primary health centre and 4 percent prefer both private and government hospitals.

Table 15. Nature of hospital, construction workers preferred

Hospital	No of female workers	Percentage
Government	42	84
Private	2	4
Primary health centers	4	8
Both Government and Private	2	4
Total	50	100

Medical insurance

Provision of adequate social protection of workers engaged in informal sector is emerging as an important policy consideration throughout the world. Healthy and unhygienic work sites were major contributory factors towards health insecurity. Absence of adequate protection mechanism evolved either by the state or by the employers compounded the risk bearing confronted by the workers. As we know that the work is so risky in the construction industry there should be a need of taking a medical insurance. Table 16 reveals that about 72 percent of the workers in the sample are deprived of health security. Only 28 percent of workers are belonging to the group of having insurance. The construction work is highly risky, even though health is the important determinant of their jobs but most of them are not taking any health insurance policies. it is because of they are not aware of the health insurance.

Table 16. Distribution of workers on the basis of medical Insurance

Medical insurance	No of female workers	Percentage
Yes	14	28
No	36	72
Total	50	100

Wage of the respondents

The wages given to the workers per day varies place to place and work site to work site. Table 17 shows that out of 50 samples, 38 percent of the workers have received the wages of ₹. 450 per day. 24 percent of the workers have only ₹. 400 wages per day. 22 percent of the respondents have got a wage of ₹. 500 per day while only 12 percent of the workers have got a wage of ₹. 600. And also 2 percent of workers have wage more than ₹. 600 per day. Table 18 shows the distribution of the respondents on the basis of gender discrimination in wage. It is clear from the table that 50 workers argued that there exists wage difference between men and women.

Table 17. Distribution on the basis of wage

Wage Class (in Rs.)	No of female workers	Percentage
400/day	12	24
450/day	19	38
500/day	11	22
550/day	1	2
600/day	6	12
650/day	1	2
Total	50	100

Table 18. Discrimination in wage

Wage difference	No of female workers	Percentage
Wage Discrimination Exist	50	100
No Wage Discrimination	0	0
Total	50	100

There are no much differences in the working hours of both men and women but they are not getting equal wages. On the other hand, wage satisfaction is considered, only 18 percent of the workers are satisfied with their wage whereas 82 percent of the workers are not satisfied. They have to work 8 hours and some are working for more than 8 hours. Least percentage of workers satisfied with the wage. They complain that they are not getting a wage for their effort. The membership of the women workers in the welfare board shows that almost 70 percent of the

workers have membership and about 30 percent of the workers not having a member in the welfare board. About 45.71 percent of the workers benefited from the board, some of the benefits are cash award, financial assistance for the marriage of their children, educational aid for SSLC students, etc. On the other hand, 54.2 percent of the workers are not benefited. It is found that out of total respondents, 52 percent of the workers are aware of the welfare programs given by the construction welfare board whereas 48 percent workers are not aware of it.

Suggestions

- Provide awareness about different welfare scheme to workers and need to have an adequate intervention from the government authorities required ensuring the health, safety and welfare of the construction workers.
- Encourage the construction workers saving habit through initiating banking awareness and ensure adequate insurance facilities for the construction workers.
- Ensure equal wage for the work in the unorganised sector and renew the wages yearly.
- Give proper guidelines and awareness about medical insurance, various schemes and financial support, programme offered through welfare board and initiative workers to take membership in the welfareboard.
- To create regulatory body or a grievance redressal to handle various issues, problems and complaints of women workers in the construction field.
- Lack of skill and higher education are the matters to prefer this risky job by women workers. Providingtraining and skill development will helps them to choose better jobs.

Conclusion

The construction industry in India stands as an important contributor of the development as it creates investment opportunities across the various related sectors. Construction industry has been providing seven percent of total world employment. Literacy rate, life expectancy and many other indicators show that Odisha women are far ahead of their counter parts in the rest of India. Female employment has been regarded as a central vehicle related to improvement in women status. According to Census 2011, there were 14 districts, 63 TALUKS, 520 towns and 1018 villages in the State of Odisha. The total population of Odisha is 3,34,06,061 with 1,60,27,412 males and 1,73,78,649 females and the total number of households in Odisha is 78,53,754. The females work participation rate is 18.23 percent. On the other hand, census data on Kendrapara district has shown that the district has a population of 2,525,637 and 31 percent (about 5 lakh) population engaged in either main or marginal works. It could be emphasised that about 50 percent male and 14 percent female population are working population. The provision of adequate social protection for workers engaged in informal sector is emerging important policy considerations throughout the world especially for women; it is in this context that an attempt whose made in this study to examine the question of social protection for informal sector through an analysis of factors like working conditions, security of employment etc. The study was based on empirical information generated through a primary survey in Kendrapara district. It should be recognized that the workers need to have a good working condition, receive a minimum wage and access to a minimum amount of social security.

The main problems faced by them are the lack of security, there is no security for their life in the workingsite. Some other problems faced by them are the health and financial problems. There is a working of a welfare board for the construction workers while many are not aware of this scheme and also the members in this board are unaware of the benefits. The $\chi 2$ test result shows that the wage is not paid based on the age or the years of experience of the workers. The workers need the safeguard for their life and also getting a maximum benefit from their work this is because to support their family and children. There is a scope to conduct an in depth study in future to know the working condition of the women construction workers.

References

1. Alluri Balaji. (2015). A Study on Perception of Construction Labor with Reference To Social Security Schemes. International Journals

2. of Business Quantitative Economics and Applied Mangement Research, 2(2), 16.

3. Chandan Mehr, C. (2016). Importance of safety in indian construction. Trades Engineering Science and Mangement, 2(3), 8.

4. Chauhan. (2017). Socio-Economic Status and Class Consciousness among Construction Site Workers in Agra City. University.

5. Retrieved from http://shodhganga.inflibnet.ac.in:8080/jspui/handle/10603/227399

6. Dr Guddi Tiwary. (2012). Socio-economic status of workers of building.pdf. Article in Indian Journal of Occupational and

7. Environmental Medicine · May 201, 2(3), 2. Retrieved from http://www.ijoem.com

8. K.Ponnaian. (2016). Problems Of Building Construction Workers In Kanyakumari District Of Tamil Nadu. International Journal Of

9. Management And Economics Invention. https://doi.org/10.18535/ijmei/v2i11.04

10. P.Prasanna. (2016). Socio-Economic Conditions Of Building. VOLUME-3,ISSUE-4(4).

PROJECT REPORT ON " SOCIO-ECONOMIC CONDITION OF WOMEN CONSTRUCTION WORKERS IN KENDRAPARA DISTRICT, ODISHA"

DEPARTMENT OF ECONOMICS

PATTAMUNDAI COLLEGE, PATTAMUNDAI

SESSION 2021-22

ATTENDANCE SHEET OF STUDENTS

SL. NO.	NAME OF THE STUDENT	ROLL NO.	SIGNATURE
1	Purnima Swain	BA-19-180	Purnima Swain
2	Samir malik	BA-19-224	Samin malik
3	Sangita Behera	BA-19-153	Sangita Behera
4	Sasmita Roul	BA-19-055	Sasmita Roul
5	Sasmita Senapati	BA-19-025	Sasmita Senapati
6	Satyaranjan Dimola	BA19-03	Satyaranjan Dimola
7	Smrutiranjan Parida	BA19-020	Smrutin. Parida
8	Soumyaranjan Biswal	BA19-029	Soumyaranjan Biswal
9	Srikanta Das	BA19-116	Srikanta Das
10	Subhasmita Sahoo	BA19-063	Subhasmita Sahoo
11	Sresree Rajasree. Bank	BA19-246	Sresree.Rajasree Bank
12	Bavasmingswasmita Das	BA19-194	Bivasmini scwasmita Das

Pradyumna Pradhan

15/05/22

DEPARTMENT OF ODIA
PATTAMUNDAI COLLEGE, PATTAMUNDAI
DIST-KENDRAPARA,ODISHA ,PIN-754215.

PROJECT

ACADEMIC SESSION -2021-2022

TOPIC: - "SRI JAGANNATHA IN UTKALIYA CULTURE
(UTKALIYE SANSKRUTIRE SRI JAGANNATHA)

GUIDE: - MR. PRAMOD KUMAR SWAIN, READER IN ODIA

DEPARTMENT OF ODIA

PATTAMUNDAI COLLEGE, PATTAMUNDAI DIST-KENDRAPARA-754215.

<div style="text-align:center">

PROJECT REPORT

</div>

The Project Report is submitted as the evidence of tasks that are undertaken and accomplished by the 6th Semester Students of Odia Department while perusing their Projects Work on the Topic " SRI JAGANNATH IN UTKALIYA CULTURE (Utkaliye Sanskrutire Sri Jagannatha) during the academic session 2021-2022 in the month of May-2022.The Students of this Department visited Jagannatha Temple, Bagabat Tungi (Where Srimad Bhagabat is recited in regular way) of three Villages of the Locality & interacted with the elderly persons of the Villages, how they realise the existence and importance of Lord Jagannath in Village Cultures . The Project was guided by **Mr. Pramoad Kumar Swain, Reader in Odia** and the students presented their Project Report before the External Examiner & other faculty members for final evaluation.

Signature of the Guide
3.7.2022

Signature of the External Examiner
03/07/2022

ରାଜ୍ୟ ପରୀକ୍ଷକ

Principal

Principal
Pattamundai College

ସୂଚୀପତ୍ର

ମୟଂଖ୍ୟା	ବିଷୟ
୧	ପ୍ରକୃତିର ସଂଜ୍ଞା / ପରିଭାଷା ।
୨	ଶ୍ରୀ ଜଗନ୍ନାଥ ପ୍ରକୃତି ।
୩	ନ୍ୟାୟଶୁକିର ସିଦ୍ଧି ବେଶ ।
୪	ନ୍ୟାୟଶୁକିର ସିଦ୍ଧି ଲୀଳା ।
୫	ଶୟ୍ୟା ।

ସଂସ୍କୃତି ପ୍ରଥା / ପରିଭାଷା

ସମ୍ମୁଖରେ ଦେଖୁ ପ୍ରକାରରେ ବିଦ୍ୟମାନ ଏଠା ସାଦ୍ୟ ଇଲିଥିନ ପ୍ରକାରନ୍ତି ନାହିଁ : କିନ୍ତୁ ପ୍ରସ୍ତୁତ ...

ସମାଜରେ ବାଜିନ ସାଥ୍ରା ...

(ବାକି ଲେଖା ହସ୍ତଲିଖିତ ଓଡ଼ିଆରେ ସ୍ପଷ୍ଟ ପଢ଼ିବା ସମ୍ଭବ ନୁହେଁ)

ସଂଜ୍ଞାରେ —

...

ସଂସ୍କୃତିର ବୈଶିଷ୍ଟିକ ବରିବାଦା -

(୧) ଜ୍ଞାନଗତ ରୂପର ।

(୨) ଶିକ୍ଷାଦ୍ୱାରା ବା ଶୌରଦ୍ୱାରା ରୂପିଳ ବିଦ୍ୟାବୁଦ୍ଧି ।

(୩) ନିର୍ମ୍ମକଳା ରୂପର ।

(୪) ତୃତି ଓ ମାର୍ଜିତାତିର ରୂପର ।

(୫) ବ୍ୟକ୍ତିତ୍ୱର ରୂପ୍ତ୍ୱ ।

(୬) ମାର୍ଜିତାତର ରୁଚି ଓ ବ୍ୟାକରଣ୍ୟ ।

(୭) ପଥ୍ୟ, ଲଜ୍ଜି, ଦଯ୍ୟା, ଲମା, ଶୃଙ୍ଖଲୁକ୍ତ ।

(୮) ବିଦ୍ୟାବୁଦ୍ଧି ଦ୍ୱାରା ଭ୍ରାତିମିଳ ।

(୯) ସାମ୍ପୃତିକ ପ୍ରଥଜ କଲନ୍ ।

(୧୦) ଲାଭତେନ୍ ଦୁର୍ବଳିତା ବିଦ୍ୟାଧିରେ ଏକ୍ଲାମତେ ମୁକାବିଲା କରିବାର ପ୍ରଦ୍ୟ ।

(୧୧) ପଥ୍ୟଦା ଦେରୁ୍ଟ୍ଟ ବ୍ଦ୍ର୍ରଣ୍ଣ; କିଣ୍ତୁ ସଂସ୍କୃତି ଦେରୁ୍ଟ୍ଟ ଏନ୍ଦିଶାଦ୍ଦା ।

(୧୨) ସଂସ୍କୃତି ହେଜ ଭ୍ରବାଦ୍ରୁମାନ ପାଠ୍ୟ ।

(୧୩) ସଂସ୍କୃତି ସମାଜ ଜୀବନିକୁ ସର୍ବତୋଭାବେ ଏନୁୟ୍ପ୍ରାଦିତ କରେ ।

(୧୪) ସଂସ୍କୃତି ଜାତୀୟ୍ ଜୀବନର ଭ୍ରଜତି ବଳ୍ଦରେ ଲାରୋଜନିର୍ଣ୍ଣକା ।

(୧୫) ସଂସ୍କୃତି ହେଜ ବିନ୍ଦ୍ରିମ ଭ୍ରବାଦ୍ ।

(୧୬) ସାହିତ୍ୟ ଦେରୁ୍ଟ୍ଟ ସଂସ୍କୃତିର ସ୍ପୃତି ପଡ଼େ ,

ସ୍ୟାସ ଗ୍ରାହୋ. ଟ୍ୟାସୟେ ପ୍ରାରୁତ୍ୟ । ପ୍ରାରୁତ୍ୟ ଦେବରୁ ପ୍ରମ୍ୟୁକ୍ତିର ଜନ୍ମହିଲ ପରା । ପ୍ରାରୁତ୍ୟ
ଦେବରୁ ପ୍ରମ୍ୟୁକ୍ତିର ପ୍ରକୃତ ଓ ବର୍ତ୍ତମାନ । ପ୍ରମ୍ୟୁକ୍ତି ପ୍ରାରୁତ୍ୟକୁ ଭଲ ମଣିଲ ଆଲୋକ ଓ ସୁଗନ୍ଧ
ଦିଅ, ପ୍ରାରୁତ୍ୟ ପ୍ରମ୍ୟୁତ୍ତିରାଣି ଭଲ ବର୍ଷନ କାର୍ଯ୍ୟ କରେ ପ୍ରାରୁତ୍ୟ ଲେ ସୌନ୍ଦର୍ଯ୍ୟ ପ୍ରମ୍ୟୁତ୍ତି
-କୁ ଭଲ ଆଦର୍ଶନିଏ ସାଧକଲ ପ୍ରାଣି ନୌଗାରେ ଦେଖ୍ୟାଥି, ପ୍ରମ୍ୟୁତ୍ତି ପ୍ରାରୁତ୍ୟୟ ବଳେ
ବଳେ ଥାଅ, ଗୁଣ୍ଡ ସୁନ୍ଦୋରାବରେ ଏ ୟଦ୍ୱାଥି । ପ୍ରମ୍ୟୁତ୍ତି ପ୍ରାରୁତ୍ୟୟକୁ ଗୁଣ୍ଡିବନ୍ତ ଲ୍ୟୁଥାଥି
ପ୍ରମ୍ୟୁତ୍ତି ଦେବରୁ ଭଲ ଉଠ୍ୟାଣ୍ଠା । ବ୍ୟକ୍ତିଗତ ଭଲ ପ୍ରାସୁତ୍ତିକ ପ୍ରାନ୍ତ ସ୍ୱାର୍ଥ୍ୟାରୁଣ ଉଠ୍ୟାଣ୍ଠା ।
ପ୍ରମ୍ୟୁତ୍ତି ଦେବରୁ ଭଲ ଗୁଣାତ୍ମକ ସ୍ୱାସ୍ଥ୍ୟା : ବ୍ୟକ୍ତିଗତ ଗୀବନରେ ଟାଗ୍ୟା, ମୁନିଷ୍ୟ ପଣ୍ୟ ପ୍ରତୁ
ମାନିଠନ ପ୍ରଣ ଭଲ ସ୍ୱନ୍ତୃୟ ତ୍ୟାନ୍ତେ ସୁଣରେ ପ୍ରମୁନିଟ ଦୋଠ ୟଦ୍କାନ ଭଲ ଲ୍ୟାୟୁଗ୍ୟକୁ
ପ୍ରମୁତ୍ତିମନ୍ତୁ କରୁଥାଣ ସ୍ୱାକାଙ୍କ୍ଷା ଭଲ ପ୍ରାସୁତ୍ତିକ ଜୀବନରେ ଟାଗ୍ୟା ନେହ୍ତୁ ଗୁଣିକ୍ୟ ସାଧାରଣ
ସ୍ୟାବକକୁ ସ୍ୱାଣିୟ୍ୟକୁ କରୁ ସ୍ୱାର୍ଣିବାନ ଗାଣ୍ଠା ଦ୍ୟୁୟା, ଟାଦ୍ୟା ଗୁଟେୟକ ଲୁଣ୍ୟୟକୁ
ପ୍ରମ୍ୟା ଭଲ ଗୁଣିବୁନ ଗ୍ରାବରେ ଗୁଟିଲନ୍ତ ଦୋଠ ସ୍ୱାୟିବାନ ବର୍ତ୍ତିବୋଣନିଙ୍କୁ ନୌଗାବଣ
ଦେଟ୍ୟାଥିୟୁଥା । ପ୍ରମ୍ୟୁତ୍ତି ଭଲ ସ୍ୱଭୂୟତନ, 'ଭଲ ପ୍ରତ ୟୁଦୟନ, ୟତ ସ୍ୱାଧ୍ୟାନି ଗୁଟିକୁ
ୟ୍ୟମୁୟୟକ ଦେବାଣ ଭଲ ୟୁଦୟନ । ପ୍ରମ୍ୟୁତ୍ତି ଭଲ ସ୍ୱଭୂୟତନ, 'ଭଲ ପ୍ରମ୍ୟୁତ୍ତି ଗୀବନରେ
ୟ୍ୟତ୍ୟଗୁଟିକୁ ଦ୍ୟୁ ସ୍ୱାୟିଗ୍ୟାୟ କରୁ ପ୍ରେୟୁତ୍ତିକୁ ଗୀବନ ସମ୍ୟାବରେ ଗୁଗୁଠବଣ ଦେଖ୍ୟାଥିୟ୍ୟା
ଗ୍ୟାଣି ସୁଦ୍ଧା ୟଦ୍ୟାଥି । ପ୍ରମ୍ୟୁତ୍ତି ଭଲ ପ୍ରସ୍ୟୁ ନୁଦେ, ଟାଦ୍ୟା ଭଲ ଗୀବକ, ପ୍ରମ୍ୟୁତ୍ତି ମେଠେ
ଗୀବନରେ ଭଲ ଭଗୁଲୋରୟ ୟ୍ୟାବକା ନୁଦେ ଗୀବନରେ ନାବବେୟୁ ପ୍ରୟ୍ୟାୟ ଭଲ ଗ୍ୱେୟଣା
ମଧରେ ୟକୀୟୁଣ ଏ ଦୋଠ ୟଦ୍ୟାଥି । ପ୍ରମ୍ୟୁତ୍ତି ମୁନିଷ୍ୟ ଭଲ ପ୍ରତ ଗୀୟଣା ଦୃମି ।
ପ୍ରମ୍ୟୁତ୍ତିର ବୁଟିଦ୍ୟାୟ ଦେବରୁ ୟତ ୟ୍ୟୟର୍ଗର୍ୟ ବୁଟିଦ୍ୟାୟ, ସ୍ୱାଧ୍ୟାନି ଗୁଣ୍ଡି ସ୍ୱାଧ୍ୟାବରୁ
ବବାବ ଦେବାଣ ବୁଟିଦ୍ୟାୟ, ସୌବକ ଗତରେ ସୌଗାନ ପାଣ୍ଡିୟନ କରୁଇବାନ ବୁଟିଦ୍ୟାୟ ।
ସ୍ୟାଧକ ଦୂର୍ତ୍ତିକୋବରୁ ଗୀବାନ କରେ ପ୍ରାମ୍ୟୁତ୍ତିକ ଗ୍ୱାବେ ପ୍ରାରୁତ୍ୟ ମଣିଗ ସମାବରେ ପ୍ରମ୍ୟୁତ୍ତିର
ଭଲ ୟ୍ୟାନିଗୁ ସ୍ୱାଗଣ । ପ୍ରମ୍ୟୁତ୍ତି ମେଠେ ଗୀବନରେ ଭଲ ଭଗୁଲୋରୟ ୟ୍ୟାବକା ନୁଦେ ଗୀବନରେ
ନାବବେୟୁ ପ୍ରୟ୍ୟାୟ ଭଲ ଗ୍ୱେୟଣା ନୌଗାରୟ ପାଥ । ପ୍ରମ୍ୟୁତ୍ତି ଗୀବନରେ ୟ୍ୟବକୁ ସ୍ୱାୟିଗ୍ୟାୟ
କରେ । ପ୍ରମ୍ୟୁତ୍ତି ୟ୍ୟାବକୋୟୁ ବର୍ତ୍ତମାନ ବର୍ୟୟକୁ ଗୁଗୁଟିଟ ମଣିଗକୁ ଗଡ଼ିଚ୍ ।

ଶ୍ରୀ ଜଗନ୍ନାଥ ସଂସ୍କୃତି

ଜଗତ ସ୍ୱାମୀ-

ଶ୍ରୀ ଜଗନ୍ନାଥ ସଂସ୍କୃତି ମୂଳ ସଂସ୍କୃତି । ସର୍ବଧର୍ମ ସମନ୍ୱୟର ଠାରେ ଦେଖୁ ଶ୍ରୀ ଜଗନ୍ନାଥ ଠାରେ । ୱଦି ଶ୍ରୀ ବୁନ୍ଦୋତ୍ତମ ଠାରେ ସାବଣ୍ଟେ ବାରିବେ । ୱଦି ଠାରେକୁ ଶ୍ରୀଠାରେ ଓ ଜଗନ୍ନାଥ ଠାରେ । ୱଦି ଶ୍ରୀ ବୁନ୍ଦୋତ୍ତମ ଠାରେ ସାବଣ୍ଟେ ବାରିବେ । ୱଦି ଠାରେରେ 'ଶ୍ରୀ' ସାର୍ଥାଦ ସଦାସୁଖ୍ୟ ଯୋଗୀମୋତ ବୁନ୍ଦୋତ୍ତମ ଠାରେ ନାମରେ ବୁଝାୟ । ୱଦି ଠାରେରେ 'ଶ୍ରୀ' ସାର୍ଥାଦ ସଦାସୁଖ୍ୟ ଶ୍ରୀଠାରେ । ବୁଳକୁ ଶ୍ରୀ ଜଗନ୍ନାଥ ବୁନ୍ଦୋ ଜାଧ୍ୱାଯୁ ୱଦି ଠାରେର ନାମ 'ବୁନ୍ଦୋତ୍ତମ' ଠାରେ 'ଶ୍ରୀଠାରେ' । ବୁଳକୁ ଶ୍ରୀ ଜଗନ୍ନାଥ ବୁନ୍ଦୋ ଜାଧ୍ୱାଯୁ ୱଦି ଠାରେର ନାମ 'ବୁନ୍ଦୋତ୍ତମ' ଠାରେ । ୱଦି ଠାରେର ନାମ ଦ୍ୱାଦଶାର ଠାରେ, ଶୌମ ଠାରେ, ସିଦ୍ଧ ଠାରେ, ମଙ୍ଗଳ ଠାରେ, ଶ୍ରୀଠାରେ ଓ ବୁନ୍ଦୋତ୍ତମ ଠାରେ ବୋଳି ସିଦ୍ଧ ସୁରାର ବର୍ଣ୍ଣିବାଯୁ ଜୋଗାବ । ଦୁଳଲୋକନ ସିଦ୍ଧମନ୍ତୁ ୱଦି ଠାରେକୁ ଦିଶି ଦିନ୍ 'କାଳି ସୁପାତ ଦିନ', 'ସର୍ବୋଦୟ ଦିନ', ସଙ୍ଗଳା ଦିନ ଓ ଅନ୍ୟ ୱଦି ଦିନ୍ ମହୋ-ହିକ ଦିନ୍ 'କାଳି ସୁପାତ ଦିନ', 'ସର୍ବୋଦୟ ଦିନ', ସଙ୍ଗଳା ଦିନ ଓ ଅନ୍ୟ ୱଦି ଦିନ୍ ମହୋ- ଧିଳା ଠାରେ ଉଦ୍ଧବାଯୁ ୱଦି ସାଜାରେରେ ମଙ୍ଗଳ ସକ୍ଷଣ ଦେଖୁ ସୁରାଗମାନଙ୍କରେ ୱଦି ଠାରେ ୱଳ ଠାରେ ଉଦ୍ଧବାଯୁ ୱଦି ସାଜାରେରେ ମଙ୍ଗଳ ସକ୍ଷଣ ଦେଖୁ ସୁରାଗମାନଙ୍କରେ ୱଦି ଠାରେ । ଶ୍ରୀ 'ମଙ୍ଗଳ ଠାରେ' ନାମରେ ଖ୍ୟାତ । ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କ ଠାରେ ସର୍ବଧର୍ମ ସମନ୍ୱୟର ଠାରେ । ଶ୍ରୀ ବୁନ୍ଦୋତ୍ତମ ଠାରେ ୱଦି ସଂସ୍କୃତି, ମଦେବୀ ୱୋ ସଙ୍ଗଦାନ୍ଦୁର ଜୀବଧାରା । ସ୍ୟାଇଦୁ ଗବି ନାମକି ମାଧବେଯୁ କଳିଙ୍ଗ ଠାରେ ଜିନାଧି ଠାରେ ମଧ୍ୟାନରେ ସ୍ୱାଦିକ ଜୋଧିବେ । ନାମକି ମାଧବେଯୁ କଳିଙ୍ଗ ଠାରେ ଜିନାଧି ଠାରେ ମଧ୍ୟାନରେ ସ୍ୱାଦିକ ଜୋଧିବେ । ସମ୍ୱଦ୍ୟ ଠାରେ ଜିନାଧି ସିଦ୍ଧିରେ ଶ୍ରୀ ଜଗନ୍ନାଥ । ଜାଦାଲ୍ ଗୌରରେ ଭୂତାଳ ଠାରେ ସ୍ୱୁଦ୍ଧତ ଠାରେ ଜିନାଧି ସିଦ୍ଧିରେ ଶ୍ରୀ ଜଗନ୍ନାଥ । ଜାଦାଲ୍ ଗୌରରେ ଭୂତାଳ ଠାରେ । ୱେଦୁ ଜିନାଧିକୁ କଳିଙ୍ଗର ସ୍ୱାସସିଦ୍ଧି ସ୍ୟାଇନ୍ ଜୋଦୋ‍ଦେ ଦୋଦୋଖ ସ୍ୱାଦିଥ‍ରେ । ୱେଦୁ ଜିନାଧି ବା ଜିଳାଧ ଜାଦାଲ୍ ସିଦ୍ଧ ରୂପେ ସମ୍ୱସିତ । ସେ ଧର୍ମ ମଦାନୁସାରେ ଶ୍ରୀ ଜା ଜିନାଧ ବା ଜିଳାଧ ଜାଦାଲ୍ ସିଦ୍ଧ ରୂପେ ସମ୍ୱସିତ । ସେ ଧର୍ମ ମଦାନୁସାରେ ଶ୍ରୀ ଜା -ନାଥ ଦେଉଛନ୍ତି ସୁଖ । ଶ୍ରୀ ଠାରେରେ ଅଧିସ୍ଥିତ ଜୋଜନାଥ, କାଜନ ଜୋଜନ, ସାର୍କଣ୍ଡେଯୁ -ନାଥ ଦେଉଛନ୍ତି ସୁଖ । ଶ୍ରୀ ଠାରେରେ ଅଧିସ୍ଥିତ ଜୋଜନାଥ, କାଜନ ଜୋଜନ, ସାର୍କଣ୍ଡେଯୁ ଜାଦାଜନ୍ଦୁର ଓ ଭ୍ରୁଣାଜନ୍ଦୁର ଭୂର୍ତିକ ସ୍ୱସ୍ଥିତିରେ ୱଦି ସୁଖ ଭୁଦ୍ୱେଲ୍ ମାନ ଦୁଳ ଜୋ ଜାଦାଜନ୍ଦୁର ଓ ଭ୍ରୁଣାଜନ୍ଦୁର ଭୂର୍ତିକ ସ୍ୱସ୍ଥିତିରେ ୱଦି ସୁଖ ଭୁଦ୍ୱେଲ୍ ମାନ ଦୁଳ ଜୋ ଜୌଦିଜାଟାର୍ଯ୍ୟମାଳିକ ଦ୍ୱାରା ୨୦ାଦେ ଜୌଦ ଠାରେ ଭୂର୍ତିତ ଦୋଧ୍ୱଳା । ଅସ୍ଟଦର୍ଶ‍ାଜଳି ଜୌଦିଜାଟାର୍ଯ୍ୟମାଳିକ ଦ୍ୱାରା ୨୦ାଦେ ଜୌଦ ଠାରେ ଭୂର୍ତିତ ଦୋଧ୍ୱଳା । ଅସ୍ଟଦର୍ଶ‍ାଜଳି -ଦେ କାଦ୍ୟାଳୁନ ଓ ରଙ୍ଗେମ ଜାନ୍ନାଧ 'ଜୌଦ' ୧ଗୋ ସଙ୍ଗାଦର୍ଯ୍ୟମାଳିକ ଦ୍ୱାରା -ଦେ କାଦ୍ୟାଳୁନ ଓ ରଙ୍ଗେମ ଜାନ୍ନାଧ 'ଜୌଦ' ୧ଗୋ ସଙ୍ଗାଦର୍ଯ୍ୟମାଳିକ ଦ୍ୱାରା ସୁଦ୍ୱାଦ ଦୋଧ୍ୱଳା । ୱଜାଦଲ ମସୋଦେଜଳକୁ ଓଦିନାର ଜୌଦ, ମାଳ ଓ ଜୌଧ‍ଧର୍ମ ସୁଦ୍ୱାଦ ଦୋଧ୍ୱଳା । ୱଜାଦଲ ମସୋଦେଜଳକୁ ଓଦିନାର ଜୌଦ, ମାଳ ଓ ଜୌଧ‍ଧର୍ମ ସ୍ୟୁଦୁ ଭୁଜଳାନର ଭୂଭାବ ଅୟୁସିଦ ଦୋଦୋଖନ୍ଦୁର । ୨ଦୁ୦ ୱଦି ଠାରେ ସିଦ୍ୱଠାରେ ସ୍ୟୁଦୁ ଭୁଜଳାନର ଭୂଭାବ ଅୟୁସିଦ ଦୋଦୋଖନ୍ଦୁର । ୨ଦୁ୦ ୱଦି ଠାରେ ସିଦ୍ୱଠାରେ ରୁଦେ ଭ୍ରୁଦ୍ୱାଦ ସାର୍କନ କରିଥୁଲା । 'ତ୍ରିଳୋକାଦନ' ସ୍ଦିଠୁ ଜୋଜନାଦ ଜୋ, ରୁଦ୍ରେ ରୁଦେ ଭ୍ରୁଦ୍ୱାଦ ସାର୍କନ କରିଥୁଲା । 'ତ୍ରିଳୋକାଦନ' ସ୍ଦିଠୁ ଜୋଜନାଦ ଜୋ, ରୁଦ୍ରେ

ଜ୍ୟୁର୍ଣ ବୁନ୍ଦୋତ୍ତମରେ ଦାୟୁ ରୁଜୋ ଜଗନ୍ନାଥ ବଜିଦ ।

ଶ୍ରୀ ଗୁରୁଗୋବିନ୍ଦ ଜୋଡ଼ ମହୋଦ୍ୟୁର୍ତ୍ତିରେ ଲକ୍ଷ୍ମୀଦେବୀ ଓ ମହାଦେବୀ ମୂର୍ତ୍ତ ଖ୍ୟାତ ।
ସ୍ଥଳ ଦ୍ୱାରା, ଦକ୍ଷିଣାମୁଖି, ରାମାବ୍ରତ ଓ ମହାଭାବତ ଯାତ୍ରିରେ ଭାରି ଉତ୍ସାହ
ଭ୍ରମାଣ ଦ୍ୱିଛ । ଗୁରୁଗୋବିନ୍ଦରେ ଶ୍ରୀ ଗୁରୁଗୋବିନ୍ଦଙ୍କ ଅଧ୍ୟାନ ଦେଇ ୨ଟ
ଜୋଡ଼ର ନାମ 'ଗୁରୁଗୋବିନ୍ଦ ଜୋଡ଼' । ଖ୍ରୀ ମୁରାରି ମିଶ୍ର ୧୭ରେ ଯାବର୍ଯ୍ୟ ଯାର୍ଯ୍ୟ
ନାଗରୀ ବ୍ରାବ୍ୟ ଓ କୁଣ୍ଡ ମିଶ୍ରଙ୍କ 'ସୁବୋଧ ବୋଧୋଦୟ' ମଧ୍ୟରେ ଗୋଚାର । ଧାରଣଟୀରେ
ଗୁରୁଗୋବିନ୍ଦ ସ୍ୱାଦ୍ୟାୟରୀ ୨କ ଦେବାଦ୍ୟର ମଧ୍ୟ ବୋଲି ବର୍ଲେନ ଦ୍ୱିଛ । ୨ଦା ବ୍ୟବିତ
'ଗ୍ରିକାବ୍ୟ ଜୋଡ଼' ରେ ମଧ୍ୟ ଦ୍ୟୁର୍ତି ଦ୍ୱିଛ । ୨ଦା ଜେ ଗୁରୁଗୋବିନ୍ଦ ଜୋଡ଼ ଜନ୍ଲୋଥ, ତାହା
ନିୟମାଚ୍ଛୁରେ ଜ୍ଞାନାନ୍ଦଭାବରେ ।

ଜୋଡ଼ୀଯାତ୍ରୀ ଶ୍ରୀକ୍ଷେତ୍ରାଥ :-

ଶ୍ରୀ ଜଗନ୍ନାଥ ଜନ୍ଲେ ନାଥ । ସେ ବ୍ରହ୍ମବ୍ୟାପ୍ୟ ଦେବତା । ସେ ୧ବ୍ରହ୍ମମୟ ।
ସ୍ରାହ୍ମଣ୍ୟ ସଂସ୍କୃତିରେ ସେ ୧ବ୍ରହ୍ମମୟ ଦାରୁଦେବତା । ଓଡ଼ିଶାରେ ସେ ଜନ୍ଲୁଦେବତା ।
ଭୁଦ୍ଦେବକ ବୁଦ୍ଧୁ ବ୍ରୀ ନୟମୟ ମାନବନିକ କାର୍ଯ୍ୟରେ ଶ୍ରୀ ଜନ୍ନାଥଙ୍କ ନାମ ଦ୍ୱାର୍ତ କରି
କାର୍ଯ୍ୟ ଯାର୍ଯ୍ୟ କରେ । ସେ ସବୁ ସମ୍ପ୍ରଦାୟର ସମ୍ଲନ୍ ଦେବତା । ସେ ଜୈବିକ ନ୍ୟାୟ
ଦେବତା । ଜୋଡ଼ି ମୟ ଏକେକ ନଣ୍ଡିଯନ୍ତୀ । ବୁଣି ବ୍ରାକଜୈବିକ ବୋଲି ମଟ ଭୂକାବ
ବାହୁଛି । ସ୍ରାଦୁଲ୍ୟ ସଂସ୍କୃତ ବ୍ରହ୍ମବ୍ୟାପ୍ୟ ଜନ୍ଲାଥ ଶିକ୍ଷ୍ୟମୟ ନବର ଦ୍ୱାରା ବୃଦ୍ଧି ଦେଇଥିଲେ
ଜୋଡ଼ି ସ୍ଥଳି ବୁରାଟୁ ହୋ ମିଲେ । ନ୍ୟୟାବ ୧୧ଟି ଓ ନିଜଜାନ ଦୃଷ୍ଟିରୁ ଶ୍ରୀ ଜନ୍ଲାଥ ବ୍ରାକ
ଜୈବିକ ଓ ଭ୍ରାବିତ ଉଭୟ ମୟ ପରେ ଦ୍ୱ । ପକ୍ଷ ଦୁ୍ଷ ଦେବାଲେନ୍ଦା ବାଧ୍ୟରେ ନର୍ନିତ
ଜୈବିକ ଓ ଭ୍ରାବିତ ଶ୍ରୀ ଜନ୍ଲାଥ ଜାତ୍ୟୁ ନର୍ନିତ । ବୁରାଟର ନର୍ଯ୍ୟନ ଯର୍ଣ୍ୟାଦ୍ୟରେ ଶ୍ରୀବ୍ୟୁକ୍ତ
ଦେବଧାୱା ଜେନେ ଶ୍ରୀ ଜନ୍ଲାଥ ଜାତ୍ୟୁ ନର୍ନିତ ।
ଦେଦ୍ ଦ୍ୟୁ ନ ଦେବାଟୁ ଟାର୍କ୍ ସମ୍ପ୍ର ଜଲେ ବ୍ୟାଟୁ ଦେନା ବାଞ୍ଚ୍ ଜ୍ଞାନିଜାଣ ବାୟୁବ
ମାନକ୍ଷୁ ଦେଶାବୁ ଧାୟୁବମାନକ ଟାର୍କ୍ ସମ୍ପୁଦ୍ରେ ଉଭୟଟ ଦେନେ । ଜେଦ୍ ଦେଦ୍ ବାଟୁ
ସୁକାରେ ସମ୍ପ୍ର ଜନ୍ଲେ ଯାଗି ସୁଟାନ୍ରେ ବ୍ୟାଗ ବାରିଲା । ବର୍କ୍ସ୍ୱୟମ୍ ମହାରାଜା ଜେଦ୍
ମହାଦ୍ୟୁ କୁ ନର୍ଯ୍ୟାନନୋଦ୍ଦରେ ଯାଗି ଲକ୍ଷବେଦୀରେ ଦ୍ୱାଦଗରେ । ନ୍ୟାବ୍ରୁ ନିଜ
ବର୍ଲ୍ଲାବନ ୨ଦରି ବର୍ସ୍ଷୁ ମୂର୍ତ୍ତ ଦେରେ । ଶ୍ରୀ ଜନ୍ଲାଥ ନଦିୱର ଜେନେକ ଜେନୋ ଯର୍ଣ୍ୟାଦ୍ୟରେ
ଶ୍ରୀଜନ୍ଲାଥ ୨କ୍ଟା ନବର ଯୋନ୍ଷି ଜେନା ଧନ୍ଲେ ୨କଥା ନର୍ନୁନିତ ଦୁ୍ଷ । ସ୍ୱାନଜାଭ୍ରା ୦୧ଗୁ
ଜୀଦ୍ଲା ନାଭ୍ରା ନର୍ଯ୍ୟନ୍ତୁ ଶ୍ରୀଜନ୍ଲାଥ ନାଭ୍ରାରେ ଉଦ୍ଧାନାନକରେ ଜନ୍ଲାଭ୍ରା । ବୁରାଟନି ଜିନ୍ଦୁ
ଜେଣ୍ଟାନକିର ମୁନିବ୍ରାଣ୍ୟ ଦେନା ଜେଧାନରେ ଶ୍ରୀ ଜନ୍ଲାଥ ନ୍ୟାର୍ଯ୍ୟ ଦେଦେଟା
ନ୍ଦୋୱ ଯର୍ଣ୍ୟାବରେ ଉଦ୍ଧାନାନକିର ମୁନିଗ୍ରାଣ୍ୟ ଦେନା ଜେଧାନରେ ଶ୍ରୀ ଜନ୍ଲାଥ ନ୍ୟାର୍ଯ୍ୟ ଦେଦେଟା
ନ୍ଦୋୱ ନ୍ୟାନାର୍ଯ୍ୟ ବା ବ୍ରାକି-ନ୍ୟାର୍ଯ୍ୟାନାନକ ଦ୍ୱାରା ବୃଦ୍ଧି ୨ଥ୍ଦରେ ସ୍ୱବଦେଦ୍ ନ୍ୟବକାନ ନର୍ଦ୍ଦି
ମାକ୍ଟ ମୁର୍ତ୍ତ ଟାନ ଦୃଷ୍ଟି୨ଜ୍ଞାନରେ ବ୍ରାକ ଜୈବିକ କାଲିରେ ନର୍ବିଗ୍ରାନ ବ୍ୟାଗି ନ୍ୟୁବରେ ମୟ ।

ବାୟୁଦେବତା ଶ୍ରୀଜଗନ୍ନାଥ :-

ବାୟୁଦେବ କିଭଳି କେଉଠାରେ ସ୍ଥିତ । ଦେଶୁ ଭୁଲ ଦୃଶ୍ୟକାର ଗ୍ରାମରେ
ଗୋଠରେ ସମ୍ପୂର୍ଣ ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କ ସ୍ଥିତିରେ ଉତ୍ତିଣ ଦେଉଛି । ଭୁଲ ରୂପାକାର ନିର୍ମାଣ
ସ୍ଥାନ ଥାଇ ଗୋଟିକ ଦ୍ୱାରା ରଚ୍ଛର୍ତ୍ତୁ ଗୋଠେଇଥା ବାଷ୍ପବୁମ୍ଫା ମିଳାଲେଇରେ ଦେଖିବାକୁ ମିଳେ
ବଦୁ ମିଳାଲେ ଏତ୍ତୁ ଡେ ସ୍ଥାନ ଥାଇଦେଇକ ଥାଇଦ୍ର ଏୟ୍ୟା ଖଗିରେ ଦୃଷ୍ଟ, ଗଜ, ନିଳ,
ୟ୍ଥ ଭେଟ୍ଟି ବାଲୁକଥାର କଲ୍ୟୁଭଣ ସ୍ଥିତ କଳିଭକୁ ଦେଖ୍ପାଇଥିଲେ । ବଦୁ କିଳ୍ଭି
ଭୁଲ ଗୋଠିଗାଲିରେ ବ୍ୟାପ୍ୟ ବସ୍ୟୁ ଦ୍ୱା ଗଥା ଗେଗେଗ ଗୋଣ୍ଟୁଦ୍ର କଥାଗାବ । ଗେଗଗ
ମେଣ୍ଟିକ ବୁଦେ୍ୟାବେ ମଧ୍ୟ ଭୁଣ୍ୟ ଗିଲ୍ୟାର ବ୍ୟକ୍ଟିଉୁର ନିଗଳବ୍ଦା ଏବୁଣିଣୀ ଓ ବଭଲ୍ଗିର୍ଣୀ
ଭୁଣୀରେ ବାଲ୍ବିଲ କଲ୍ୟୁତ୍ତୁଣ ଏଜଣ ବିଶୁଖାକୁ ମିଳେ । ବଦ୍ରା ଥିଲ୍ୟୁ ଗୋଳିଚଷ୍ର୍ତୁ
ଭୁଲ ଦୈତ୍ୟ ରୂପାକାର ନିର୍ମାଣ । ଗୋଗିଚଷ୍ର୍ଣରେ ମଧ୍ୟ ଭୁଲ ରୂପାକାରେ ନିର୍ମାଣ
ଦେଖିବାକୁ ମିଳେ । କାରଣ ଭୁଗ ଗେଗକ ଗଗିତାତୁ ବ୍ୟାଟ୍ୟ କଟି କାଳ୍ଗାନ୍ତ୍ତୀ ଓ ନିଗ୍ର୍ଥାତ
ତାର୍ଯ୍ୟନ୍ତୁ ଏୟଥା ଭୁଜ୍ୟଦୁଲିରେ ଦେଇଦ୍ରୁତ୍ତୁ ଗୋଗିଚର୍ୟାଗିଗଲ୍ୟୁଘାଗକ ବଦ୍ରାକୁ ଗେଦ୍ଦୁମ
ରୁଗେ ରୂପାଗା କଗୁନ୍ତ୍ତୁ । ଗିନ୍ତ୍ତୁ ବାର୍ଗି କାଗକ୍ଗେ 'ଭୁଗଗେଗତା'ଙ୍କ ନାମୋଗ୍ଲେଖ ହୁନେ
ମଧ୍ୟ ତାଗା ଦୁର୍ଥ ଗେଗଗ ଭୁଲ ଗେଗତା ଗୋଲି ଗର୍ଣ୍ଣନ ଏତୁ । ଦ୍ୱିଗ୍ୟ ଚର୍ଥରେ ମଧ୍ୟ ଭୁଗ
ରୂପାକା ପଦ୍ଧ୍ୟିରେ ନିର୍ମାଣ କଗିଗୁତ୍ତୁ ଦୁତ । ଦ୍ୱିଗୁ ଚର୍ଥ ୟାଦେଗାନ ଗ୍ରୁଗ୍ର ରୁଥଗେଗରେ
ଭୁଲ ରୂପାଗା ପଦ୍ଧତିରେ ୟୟୁୟୁ ୟ୍ୟାଗାସ ମିଳିଗେ ମଧ୍ୟ ବଲ୍ଲେଖ ଏତୁ କାଗୁ ବ୍ଦଗି
ବଗି ବସ୍ୟୁ , ବାଦ୍ରାର ପଦାର୍ଥରେ ଗିଗୁଗର୍ଣା ଥ୍ୟଗେ ବଦୁ ସ୍ଥିଗିକୁ ନିର୍ଘାତ କଗିଗୁଲେ ।
ବଦୁ ଗୋଗିକ ୟାଗେୟ୍ୟ ମ୍ୟାୟୁ ୟ୍ୟାର୍ଥିଗ ଗେଗ , କ୍ଲାମୋଗ୍ୟ ରୁଗ୍ଗିଗିଗ, ଗଦଗ୍ୟ ଗ୍ରାଗୁଗା
ଗେ ମଧ୍ୟ ଭୁଲ ରୂପାକାର ଫ୍ୟକ୍ଟିଗ୍ୟୁ ଚୁଗଗ ମିଳେ । ଗୁଗ୍ୟାଗ ଗୁଗରେ ଲେଗୟ ଫ୍ୟଗ୍ୟୁ
ଗୁର୍ୟାଗ ଏଗିଗ ଦେଉଛୁ ଜେଗ୍ୟ୍ୟରେ ୟ୍ୟାଗ୍ୟାଗେ , ସ୍ଗୁଗୁର୍ୟାଗ , ମ୍ୟ୍ୟ ଗୁର୍ୟାଗ , ବିଗ୍ଗୁୟୁ
ଗୁର୍ୟାଗ , ଗୁଗୁଗୁର୍ୟାଗ , ସ୍କିଗୁର୍ୟାଗ ୟ୍ୟାଗିରେ ଭୁଲ ରୂପାଗା ଦେଖ୍ୟବାକୁ ମିଳେ ।
ଗହ୍ୟାଗାଗଗ ପଗ୍ୟାର୍ଗ୍ୟେ ବଗ୍ଣିଗ୍ୟ୍ୟୁ , ୟ୍ୟାୟୁ ବଗ୍ଗଗି ୟ୍ୟ ଗାଗକଗେ ଗାଗୟ୍ୟଗ ଗଗ୍ୟଗ
ଦୁତ । ସ୍ଗ୍ୟୁ ଗ୍ୟୁର୍ୟାଗରେ ୟୁଗୁଗୋୟ୍ୟଗ 'ଗାଗାନି ଏତ୍ତୁଗ' ରୁଗେ ଦୁଜା ବାର୍ୟ୍ୟକ କଥା
ଗର୍ଣ୍ଣିତ । ଗୁର୍ୟାଗ ୟାଗିତ୍ୟରେ ଭୁଲ ରୂପାଗା ପଗ୍ଗଗ୍ୟେ ବଗୀଦ୍ଗ ବର୍ଣ୍ଣନ ଦ୍ରେଗ ମଧ୍ୟ
ଗାଗଗିଗେ ବଦ୍ରା ରଗ୍ଗିଗ୍ୟା ୟୟ୍ଯୁଗିକୁ ଗ୍ଗଗ୍ଗିତ କଗ୍ଗି ।

ରାମ ଚନ୍ଦ୍ରଙ୍କ କେତେମାନ ଦେଶ :- ସୂର୍ଯ୍ୟାବିଶେଖ ରାଜଦେଶ (ରାମ ରାଜ ଦେଶ) ,
ରାମ ରାଜ ଦେଶ (ରାମ ନଦେଶ) , ଶ୍ୟାମଦେଶ (ମାର୍ଗୀୀର ଶୁକ୍ଳ ଚଚୁର୍ଦ୍ଦଶୀ) , ଜନ୍ମରାମ
ଦେଶ (କାର୍ତ୍ତିକ ଦେଶ) ।

କୁମ୍ଭିନ୍ଦୁ କେତେମାନ ଦେଶ :- ଯାଚକିଆ ଦେଶ ।

ଏକାଦୀ ଚାଉମାଲେ ଦେଶ :- ଯକୁ ଭୁନଦରେ ମହାଗୁରୁ ମୟ ବିଭିନ୍ନ ଦେଶରେ ଗ୍ରହଣ
ଦେଲି ଯମଲୁରେ ଳଦକ ଦେଶ , ସୁନୁଦେଶ ଗାରେ ଦେଖୌବନ ଦେଶ , ନାଟ ଯମଲୁରେ
ଯୋଡଲାଗି ଦେଶ , ଚାକ୍ ନାଟ ଯମଦୁରେ କାମାରାନି ଦେଶ କ୍ରଲାବ ।

ଯୁନାଦେଶ :-

ଶ୍ରୀ ଜଗନ୍ନାଥ ଚଜ୍ତକୁ ୫ ଥାରୁ ରାଜଦେଶ ହୁଅନ୍ତି । ୧ମ ଭରଦେ ଯୁନାଦେଶ
ଯୋତାଚ ଶୁକ୍ଳ ୧ଦିଦିୟ) ଯର ତୃଷୀ ଓ ପର୍ବନିବିଦେ । ୧ଦ୍ ଦିନ ଯୁନାଦେଶରେ ମହାଗୁରୁ
ଯୁର୍ଣ୍ଣ ନୀର୍ଣ୍ଣ ଦୃନ୍ତବାଦ ନାଦେ ଦେଲ୍ୟ ୧ଫ ବର୍ଷ ନୋରାର ଜଯରା କନିଲାବ୍ୟାନ୍ତି ।
ଦେଖ ରାର୍ଣ୍ଣିୟା ଦିନ ଭୁତ୍ୟାରିଶେଖ ବାଲ୍ୟ ରାଜ ରାମ ଥାବରେ ମହାଗୁରୁ ଯୁର୍ଣ୍ଣ ଦେଶ
ହୁଅନ୍ତି । ଦେଲ ରାର୍ଣ୍ଣିୟା ଦିନ ମହାଗୁରୁ ଯୁର୍ଣ୍ଣ ଦେଶ ହୁଅନ୍ତି ।

ଶ୍ୟାଧ ଦେଶ :-

ମହାଗୁରୁ ଲୋକମାନିଙ୍କୁ ନିଲାଦେବା ବାଲ୍ୟ ନିଜର ବିଭୁ ସୁତ୍ରକ ଶ୍ୟାଧ
ଦେବା ନିମନ୍ତେ ଶ୍ୟାଧଦେଶ ହୁଅନ୍ତି । ମହାଗୁରୁ ଡିନ ଦିନ ଶ୍ୟାଧ ଦେଶ ହୁଅନ୍ତି ।
୧ଦ୍ ଶ୍ୟାଧ ମାର୍ଗୀୀର ଶୁକ୍ଳ ଚଚୁର୍ଦ୍ଦଶୀ ଦିନ ବ୍ୟାର୍ମୁ ଦୋଷ ୟମାକାଯ୍ୟା ଓ ଭୁଦିବାରେ
ଥାରେ । ମାର୍ଗୀୀର ଶୁକ୍ଳ ଚଚୁର୍ଦ୍ଦଶୀରେ କନ୍ୟକ ଓ ଯ୍ୟଦିକିଙ୍କୁ , ୟମାକାଯ୍ୟାରେ
ଯମୁନ୍ୟ ଗୋବଳ୍ୟାଙ୍କୁ (ରାମାଧରେ ରାମ ଥାବରେ) ଓ ଭୁଦିବାରେ ଦେବକୀ
ଏଯୁଦେବ ଓ ନନ୍ଦ ଯଶୋଦାଙ୍କୁ ଶ୍ୟାଧ ଦିଅନ୍ତି ଶୁକ୍ଳ ଥାବରେ ।

ଭୁଦିବାରେ ମହାଗୁରୁ ମାଧୱାରବ ଦେଖ ଯ୍ୟନଦେଶ , ଯୁନଦେଶ ପାଧାଦେଶ , ଯଧ୍ୟାଦେ
ଦେକରାନି ଦେଶ ଓ ରାନ୍ଦରେ ଦଦିବ୍ୟାର ଦେଶ ହୁଅନ୍ତି । ଶାନ୍ତିଦେ ଗୋବ୍ୟୁଦାଙ୍କୁ ଦଲୀ
ଦେକରାନି ଦେଶ ନାଟ ଗୋଳ୍ପୁ ଧଦଦଲୀ ପ୍ରାଦ ବାଲ ମଦ୍ଯ୍ୟା ବିନି ଶୁଅନ୍ତି । ନାଟନି କାଳିବରେ
ଦେଶେ ନାଟ ଗୋଳ୍ପୁ ଧଦଦଲୀ ପ୍ରାଦ ବାଲ ମଦ୍ଯ୍ୟା ବିନି ଶୁଅନ୍ତି । ୧ଦ୍ ଦେଶକୁ ବଦ ନିଦ୍ୟାର ଦେଶ ନୁଦ୍ୟାବ ।

ମହାପ୍ରଭୁଙ୍କର ବିଭିନ୍ନ ବେଶ :-

ଚଣ୍ଡିଦାସ :- ଚୈତ୍ର ରାତିରେ ମହାପ୍ରଭୁ ଚଣ୍ଡିଦାର ବେଶ ହୁଅନ୍ତି ।

ଦୋଳୀବାଉ :- ଦୋଳ ବେଶ ଫାଗୁନ ଚତୁର୍ଦ୍ଦୀରୁ ୧୫ ଦିନ ପର୍ଯ୍ୟନ୍ତ ମହାପ୍ରଭୁ ଦୋଳଯାନ୍ତି ।

ବୈଶାଖ :- ଶୁକ୍ଲ ପୂର୍ଣ୍ଣିମାରେ ମହାପ୍ରଭୁ ଶ୍ରୀ ନୃସିଂହ ଦୀୀବେଶ ହୁଅନ୍ତି ।

ଆଷାଢ :- ନବଯୌବନ ବେଶ ପରିବହାର ହୁଅନ୍ତି । ସୁନାବେଶ ଯୋଗାଦ ଶୁକ୍ଲ - ଦ୍ୱାଦଶୀ, ଦକ୍ଷିଣା, କାର୍ତ୍ତିକ ପୂର୍ଣ୍ଣିମା, ପାଉଷ ପୂର୍ଣ୍ଣିମାରେ ମହାପ୍ରଭୁ ଚିନା ବେଶ ହୁଅନ୍ତି ଓ ଚୈତ୍ର ପୂର୍ଣ୍ଣିମାରେ ରାଜାଧିରାଜ ବେଶ ସୁନାବେଶ ହୁଅନ୍ତି ।

ଶ୍ରାବଣ :- ଚିତାଲାଗି ବେଶ ମହାପ୍ରଭୁ ଶ୍ରାବଣ ଅମାବାସ୍ୟାରେ ଦେଖିଯାନ୍ତି ।

ଭାଦ୍ର :- ରାଧାଦେଶୀ ବେଶ (ଶୁକ୍ଲାଷ୍ଟମୀ), ବଟବୋଦ୍ଧି ବେଶ (କୃଷ୍ଣ ଦଶମୀ), କାଳୀୟଦଳନ ବେଶ (କୃଷ୍ଣ ଏକାଦଶୀ), ପ୍ରଲ୍ୟାପ୍ତ ବଳ ବେଶ (କୃଷ୍ଣ ଦ୍ୱାଦଶୀ), ରାମବଳରାମ ବେଶ (କୃଷ୍ଣ ତ୍ରୟୋଦଶୀ), ନୀକୀୟାନ ବେଶ (କୃଷ୍ଣ ଚତୁର୍ଦ୍ଦଶୀ)

ଆଶ୍ୱିନ :- ଦୁର୍ଗା ଦଶମୀ ରାଜବେଶ ଶ୍ରୀ ଜଗନ୍ନାଥ ଧାରଣ କରିଥାନ୍ତି ।

କାର୍ତ୍ତିକ :- ରାଧାଦାମୋଦର ବେଶ (ଆଶ୍ୱିନ ଶୁକ୍ଲ ଏକାଦଶୀଠାରୁ କାର୍ତ୍ତିକ ଶୁକ୍ଲ ଦଶମୀ ପର୍ଯ୍ୟନ୍ତ), ଲକ୍ଷ୍ମୀ ନାରାୟଣ ବେଶ, ଦଶମୀ, ଲକ୍ଷ୍ମୀ ନୃସିଂହ ବେଶ, (ଶୁକ୍ଲ ଚତୁର୍ଦ୍ଦଶୀ), ବାଙ୍କ ଚୂଡ ବେଶ (ଶୁକ୍ଲ ଦ୍ୱାଦଶୀ), ବଳିରାମ ବେଶ ବା ନାଗାର୍ଜୁନ ବେଶ (କାର୍ତ୍ତିକ ପଞ୍ଚମୀ ୬ଦିନ), ରାଜାରାଜେଶ୍ୱର ବେଶ (କାର୍ତ୍ତିକ ପୂର୍ଣ୍ଣିମା)

ମାର୍ଗଶୀର :- ଘୋଡବେଶ (ମାର୍ଗଶୀର କୃଷ୍ଣ ଚତୁର୍ଦ୍ଦଶୀ, ଅମାବାସ୍ୟା ଓ ଶୁକ୍ଲ ତୃତୀୟା) ଘୋଡଲାଗି ବେଶ (ମାର୍ଗଶୀର ଶୁକ୍ଲ ଷଷ୍ଠୀଠାରୁ ଦଶମୀ ପର୍ଯ୍ୟନ୍ତ) ମହାପ୍ରଭୁ ଜଗନ୍ନାଥ ୬ଟି ବେଶରେ ସଜ୍ଜିତ ଦେଖିଥାନ୍ତି ।

ଚୈତ୍ର :- ବ୍ରାହ୍ମଣିକେ କେଶ ସବ୍ୟୁରୁ ଚୈତ ପୂର୍ଣ୍ଣିମାରେ ଦେଖିଥାନ୍ତି ।

ମାଘ :- ରଥିକେଶ (ଶୁକ୍ଲ ଦ୍ୱିତୀୟା), ଜଳଧାରଣ କେଶ (ମାଘ ପୂର୍ଣ୍ଣିମା),
ନବାଙ୍କ କେଶ (ମକର ସଂକ୍ରାନ୍ତି ପୂର୍ବଦିନ), ମକର କେଶ (ମକର ପଞ୍ଚମୀ),
ବେଦୟାଦି କେଶ ମାନି ଚାଲନ କରିଥାନ୍ତି ।

ଫାଲ୍ଗୁନ :- ଡୋଳଯାତ୍ରା କେଶ (ଶୁକ୍ଲ କେୟୋ଼ଦଶରୁ ପୂର୍ଣ୍ଣିମା ଧାର୍ଯ୍ୟକୁ) ।
ଘୁଲବେଶ (ଫାଲ୍ଗୁନ ପୂର୍ଣ୍ଣିମା) ,
ସବ୍ୟୁରୁ ୧ୟ କେଶ ମାନି ଚାଲନ କରିଥାନ୍ତି ।

ଚୈତ୍ର :- ରାମଗାଲ କେଶ (ରାମନବମୀ) ରେ ଶ୍ରୀ ଜଗନ୍ନାଥ ଚାଲନ କରିଥାନ୍ତି ।

ଠାକୁର ମାଲିକିର ନିୟୁ :-

(୧) ନାଚ ଗୋଷୀ ଘୟ୍ତ୍ରୀ :- ୧ଟ ହାତ ରିନ୍ ନାନ୍ଲି ଧିନ୍କ ରୁଣାରେ ନୀବ
ଗୋଷୀ ଘୁଣାଲାକ ଧାବ । ୬ଟା, ଗେନିନ୍ଦାର କେଶରେ ର୍ୟାନେ ।

(ଆ) ମଧ୍ୟମାଲ :- ଚାନୀ ଧିନ୍କ ରୁଣା ବଢ଼ଡ ପମ୍ନ୍ରେ ମଧ୍ୟଗୁର୍କ୍ତ ର୍ୟାନେ ।

(ଲ) ତବଡ :- ଶ୍ରୀ ଜଗନ୍ନାଥ ସ୍ଥାନ ପମ୍ନ୍ରେ ଦେକାର ଦୁଇ । ୬ଦାର ରିନ୍ ୧୦କୁନ
ଓ ପାର ୫ ବୁର୍ତ । ୧୬୍ ରୁଣା ସ୍ଗାଲୁଗା , କାମଲା ଓ ଚାନୀମିନା ର୍ୟୋର ।

(ଈ) ରବ୍ଯୀ :- ମଧ୍ୟୁବୁକ ରବ୍ଯୀ ୨୫ବୁର୍ତ ରଧ୍ର ଧିନ୍କ ରୁଣା ଚାଦର
ରନ୍ଲି ୟ୍ୟବ୍ଦାର ଦୁଇ ।

(ଉ) ଘୁବ୍ର୍ୟ୍ଯୀ ନୋଚ :- ୧୨ବୁର୍ତ ରିନ୍ ଓ ୩ବୁର୍ତ ଓପାର୍ର ଧିନ୍କ ରୁଣା
ମଧ୍ୟୁବୁ ରନ୍ନି ନାଭାରେ ରିନିନ୍ତ୍ୟ ।

① <u>ଦେଶାନାଟୀ</u>:- କର୍କଟ ଦାରାଜନୀପାରୁ ସୂର୍ଯ୍ୟ ପୂର୍ବୀୟ ପାର୍ଶ୍ୱରୁ ୮ଡ଼ଗୁଣ କ୍ରମ ଓ ୪ଗୁଣ ପୋଦ୍ର ଲୁଣା ବିଜାନାୟ । ପାନ ଲୁଣାରେ ଦୂଲଦ୍ୟା ଚାରି ଧରା ଲୁଣା କନ୍ୟାଧନୁ, ନାଲି ପର୍ଦ୍ଦିରେ ସୁପ୍ରସାତ୍ତ ଓ କଳା ପର୍ଦ୍ଦି କଳଦ୍ରଙ୍କୁ ବିଜାନାୟ ।

② <u>ସେମେଡି</u>:- ମହାଭୁ୍ୟକ ମହାଜନି ସୋନିଡ଼ି ପକ୍ଷ୍ୟରେ ଧୀନ୍ଦୂ୍ ଦୁ୍ ।

③ <u>ଗାର୍ବଜେନୀ</u>:- ଶ୍ରୀ କନ୍ୟାଧୀକ ମୁଖ୍ୟ ଲୁଣା ପାର୍ବଜେନୀ ଦେଶ୍ୟାୟ । ୨ଦ୍ରା ନିଲୁକନେ ଦିଜ୍ୟାରି ୮୨ ମିନ୍ଦୂ୍ କ୍ରମ ।

④ <u>ଏତୁନି ଗୀନ୍ଦ</u>:- ୮ଦ୍ ଲୁଣା କନ୍ୟାଧୀକୁ ସୁଷ୍ଟିଗା ଶିଦୀଦ୍ ପମକ୍ରୀରେ ବିଜାନାୟ ।

⑤ <u>କେଦ୍ରୁଣ୍ଣ</u>:- ୮ଦ୍ ଲୁଣା ୨୨ଗୁଣ କ୍ରମ ଓ ୪ଗୁଣ ପୋଦ୍ର ଲୁଣା । ୮ଦ୍ ଲୁଣା ମହାଭୁଦ୍ୟକ ବଦୁଷ୍ଟିକେନେ ପକ୍ଷ୍ୟ ଦୁ୍ ।

<u>ଗୋଦ ଲାଗି</u>:-
ମହାଭୁୟୁ ପଜ୍ୟାଦ୍ୟ ୫ଷିଦ୍ନ ଗୀନ୍ଦୀରେ ୫ଷିଦ୍ନ ୨ଗଣୀ ଗୋଦ ବିଜ୍ୱିଧାନ୍ଦୀ ।

ୟଦିବାର୍ ଦିନ — ରାନ୍ଦ ୨ଗଣୀ ଗୋଦ ଶ୍ରୀ କନ୍ୟାଧୀକୁ ବିଜାନାୟ୍ୱଧାନ୍ଦୀ ।

ସୋମବାର୍ ଦିନ — କନ୍ଦା ଦୁନ୍ୟ ମୀଗା ଶୁକ୍ଲ ଗୋଦ ବିଜ୍ୱିଧାନ୍ଦୀ ।

ମଙ୍ଗଳବାର୍ ଦିନ — ସର୍ଷ୍ୟଦ୍କ ଗୋଦ ମହାଭୁୟୁ ବିଜ୍ୱିଧାନ୍ଦୀ ।

ବୁଧବାର୍ ଦିନ — ନୀନ୍ଦ ୨ଗଣୀ ଗୋଦ ବିଜାନାୟ ।

ଗୁରୁବାର୍ ଦିନ — ସଦ୍ନି ୨ଗଣୀ ଗୋଦ ବିଜ୍ୱିଧାନ୍ଦୀ ।

ଶୁକ୍ରବାର୍ ଦିନ — ଶୁକ୍ଲି ୨ଗଣୀ ଗୋଦ ମହାଭୁୟୁ ବିଜ୍ୱିଧାନ୍ଦୀ ।

ଶନିବାର୍ ଦିନ — କନ୍ଦା ୨ଗଣୀ ଗୋଦ ଶ୍ରୀ କନ୍ୟାଧୀକୁବିଜାନାୟ ।

ମହାପ୍ରଭୁଙ୍କ ବିଭିନ୍ନ ଲୀଳା ।

ଶ୍ରୀଜୋଡ଼ରେ ବାର ମାସରେ ତେର ଯାତ୍ର ଅନୁଷ୍ଠିତ ହୋଇଥାଏ । ଶ୍ରୀ ଜଗନ୍ନାଥ ଜଗତର ନାଥ । ସେ ଜଗତସାରାଘ ଦେବତା । ସ୍ୱାମୀ ଙ୍କ ନିକଟ ଲୋକଙ୍କ ପ୍ରତିରେ ମୋରିଙ୍କ ଚାକ୍ଷ ଯେଉଁ ଦୁନି ତୁଲରେ ତାଙ୍କର ଦର୍ଶନ ରାଭ ଯାଉଛି । ଜେଉଁଜେଉଁକି ଭକ୍ତ ଚାକ୍ଷ ଚାକ୍ଷ ଦେଖ ଦୁନି ତୁଲରେ ତାଙ୍କର ଦର୍ଶନ ଲାଭ ପାଉଛି । ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କ ର ରାମ ତୁଲରେ ବାଦିଙ୍କ ଯେଉଁଜେଉଁକି ଗୁମ ତୁଲୋ ହୋଉଛି । ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କ ଦିବ୍ୟ ଲାଭ ଦେଖବାର ଗୁଣ୍ତି ଲାଭ ପୁଣ୍ୟଲାଭ । ଶ୍ରୀ ଜଗନ୍ନାଥ ବିଭିନ୍ନ ଜୋଡ଼ଙ୍କ ଅନେକ ନାମକରଣ କରାଯାଇଛି । ନିଳଧାଭ ଶ୍ରୀଜୋଡ଼ରେ । ଶ୍ରୀ ଜଗନ୍ନାଥ ଜୋଡ଼ଙ୍କୁ ଅନେକ କାମକରଣ କରାଯାଇଛି । ଯେନ୍ତିକି ଦେଲା – ଗୁଣ୍ଡିଚାମ ଜୋଡ଼, ଦୋଲାଯାତ୍ର ଜୋଡ଼, ଭୋଜଜୋଡ଼, ଦିବ୍ୟଜୋଡ଼, ନଳଜୋଡ଼, ଶ୍ରୀଜୋଡ଼ ଓ ଗୁଣ୍ଡିଚାମ ଜୋଡ଼ ନାମରେ ବର୍ଣ୍ଣିତ ହୋଇଥାଏ ।

ବଡ଼ ଜୋଡ଼ଙ୍କୁ ଚିନିବିଭୁ ସେହି ବୃଦ୍ଧଙ୍କୁ ଖୁଆ ପାଲଙ୍କରେ ଶୟନ ଯଥାବ ବୃଦ୍ଧ ଭକ୍ତ ବଡ଼ ଜୋଡ଼ଙ୍କୁ ବଜାଲ ଜୋଡ଼ ଉଦ୍ଧାନାଇ । ସେଇ ମ୍ୟଧରେ ମ୍ୟ ମହାପ୍ରଭୁଙ୍କ ଜଗବିନ୍ଦୀର ଜୋଜଣ ଇଚ୍ଚେନ ଭୁଲଜୋଣ, ମହାପ୍ରଭୁ ବିଭିନ୍ନ ଭୁକାର ଓ ସୁଣ୍ଡ ଗୁରୁର ଉନ୍ଦକ ନାକଣ୍ଡୋ ବୁନ୍ଦୟାଦି ରୂଲଜୋଣ, ମହାପ୍ରଭୁ ବିଭିନ୍ନ ଭୁକାର ଜୋଣ୍ତି ହୁଅନ୍ତି । ଶ୍ରୀ ମନ୍ଦିରେ ନିଜ ବିବାହ ଓ ଶୟଜନ ଇଚ୍ଚଣ ମ୍ୟ ଶ୍ରୀ ମନ୍ଦିରେ ବାଲକି କର୍ୟାନାଇ । ଶ୍ରୀ ଜଗନ୍ନାଥ ଜନଜେ ନାଥ ମହାପ୍ରଭୁ ପ୍ରମ୍ୟ ଭକ୍ତଙ୍କ ମନ ଜାଣି ରାଜ ଦେଖ୍ୟାନ୍ତି । ଜେଉଁଜେଉଁକି ଦାସ୍ୟ ଭାବରେ ନଟିୟା ଧାଚ ବିଭେଜ ଜେଉଁନାଉଯୁଜେ । ଇଚ୍ଚ ବଳିରାମ ଦାୟକ ଯାବରେ ବିଭୁନି ଦୋରେ ଜଜଜୁର ନିଜ ଜୋଜ ଛାଡି ବାନ୍ଲିଲାଉଛନ୍ତି ତାଙ୍କୀ ସୁବାବର ବାଲ ଦୁଣ୍ଡ ଶ୍ରୀ ଜଗନ୍ନାଥ ସ୍ୟାନ ଲାଭ ଯାଜେ ଚିଜ ଓଜ୍ୟୁଜଙ୍କୁ ଦୁର ଦୋରୟାଇ । ଜେସ୍ୟାନକ ସ୍ୟା -ଜୀର ଜାରେ ରହିୟାନ୍ତି । ବିଜେନାଇନିମାନି ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କୁ ନିଜର ସ୍ୟାନ୍ତିଲ ଉନି ଜେସ୍ୟା କଭିବା ବୁ ସ୍ୟାରମ କୀ ଇଜେନନଜେ ଜେନନ ମହାପ୍ରଭୁକ ବାର ବନିର୍ବର୍ବରେ ଶୁଭି ଉଲ୍ୟା ଜଣ୍ଡକ୍ତ ପ୍ରମ୍ୟ କର୍ୟ କରନ୍ତି । ମହାପ୍ରଭୁକ ଇୟାଲୀଲା ପମ୍ୟରେ ଜକବାଦି ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କ ଜେସ୍ୟୀକ ଜୋଲୀ ମନେ କରି ଇୟରେ ଜୋରାଗର୍ଦ୍ଧା କରନ୍ତି । ଶ୍ରୀ ଜଗନ୍ନା ଇଚ୍ଚ ବଜଲି ଦୋରୟାନ୍ତି । ଶ୍ରୀ ଜଗନ୍ନାଥକ ଇୟାଲୀଲା ଦେଣୁଣ୍ଡ ସର୍ବଶ୍ରେୟ ଲୀଲା ।

ମହାପ୍ରଭୁଙ୍କ ଦ୍ଵାଦଶ ଯାତ୍ରା :-

ଶ୍ରୀ ଜଗନ୍ନାଥ ଲୋକଙ୍କ କଲ୍ୟାଣରେ ଟେର ଯାତ୍ରା ଦେଖନ୍ତାଡି।

ସେଗୁଡିକ ଦେଲା -

(୧) ସ୍ନାନଯାତ୍ରା - ଜ୍ୟେଷ୍ଠ ପୂର୍ଣ୍ଣିମା।

(୨) ଶ୍ରୀଗୁଣ୍ଡିଚା - ଆଷାଢ ଶୁକ୍ଳ ଦ୍ଵିତୀୟା।

(୩) ଦେବସ୍ନାନ ଯାତ୍ରା - ଆଷାଢ ଶୁକ୍ଳ ଏକାଦଶୀ।

(୪) ଦକ୍ଷିଣାୟନ ଯାତ୍ରା - ଦକ୍ଷିଣାୟନ ସଂକ୍ରାନ୍ତି।

(୫) ଝୁଲଣ ପରିବର୍ତ୍ତନ - ଶ୍ରାବଣ ଶୁକ୍ଳ ଏକାଦଶୀ।

(୬) ଦେବୋତ୍ଥାପିନି - କାର୍ତ୍ତିକ ଶୁକ୍ଳ ଏକାଦଶୀ।

(୭) ପ୍ରାବରଣ ଯାତ୍ରା (ଓଡ଼େଣି) - ମାର୍ଗଶିର ଶୁକ୍ଳ ଷଷ୍ଠୀ।

(୮) ପୁଷ୍ୟାଭିଷେକ - ପୌଷ ପୂର୍ଣ୍ଣିମା।

(୯) ଉତ୍ତରାୟଣ - ମକର ସଂକ୍ରାନ୍ତି।

(୧୦) ଦୋଳଯାତ୍ରା - ଦୋଳ ପୂର୍ଣ୍ଣିମା।

(୧୧) ଦମନ ଚୋରି ଯାତ୍ରା - ଚୈତ୍ର ଶୁକ୍ଳ ଚତୁର୍ଦ୍ଦଶୀ।

(୧୨) ମେଳି - ବୈଶାଖ ଶୁକ୍ଳ ତୃତୀୟା ୨୧ଦିନ ଏ୍ୟାରି କାହାର ମେଳଡ ଥ୍ାବରେ ୨୧ ଦିନ ଭିତରେ ମେଳି।

(୧୩) ନୃସିଂହ ମହୋତ୍ସବ - ବୈଶାଖ ଶୁକ୍ଳ ଏୟୁମୀ।

ଜ୍ଯେଷ୍ଠାଧିକ ରଥଯାତ୍ରା ଦେଢ଼ିଣ୍ଠୁ ସୁର୍ଯ୍ଯେଶ୍ଵର ଯାତ୍ରା ।

ସ୍ନାନଯାତ୍ରା :-

        ଜେ୍ଯେଷ୍ଠ ମାସ ଫୁର୍ଣ୍ଣିମାଦିନ ମହାପ୍ରଭୁଙ୍କ ସ୍ନାନଯାତ୍ରା । ଯାହାକିଟ ଦୁ୭ । ୮ଟ ଦିନ ମହାପ୍ରଭୁ ରତ୍ନସିଂହାସନିଟ ଚାଳି ଜଟଭୁ ଦୋଳ ଶ୍ରୀ ମନ୍ଦିରଟ ଯାହଯ ଜୋଟ ମ୍ଯ ୬ଟ ଥବା ସ୍ନାନ ମଣ୍ଡଟବେ ବିଜେକରନ୍ତି । ସ୍ନାନଯାଇ ନିମନ୍ତେ ମନ୍ଦିରଟ ଦକ୍ଷ ଦ୍ଵାଟ ନିକଟସ୍ତ ସ୍ଥାନ ମଣ୍ଡଟବେ ଧୟା ସ୍ନାନକୁଣ୍ଡଟ ୧୦୮ କଳସ ଜଳବେ ଶ୍ରୀ ଜଗନ୍ନାଥ, ମାହଳକ ଠାକ୍ଟଟାମାନଙ୍କ ସମୁଦବେ ଧୟା ସ୍ନାନକୁଣ୍ଡଟ ୧୦୮ କଳସ ଜଳବେ ଶ୍ରୀ ଜଗନ୍ନାଥ, ବଳଟ୍ଟ, ସୁଭଟ୍ରା ଓ ସୁଦର୍ଶନ ସ୍ନାନ କଟିଥାନ୍ତି । ସ୍ନାନ ବିଧାନ ଜଟବେ ଗୋଟାଳି ଟ୍ଵେଷ ମତଟ ବଳଭଦ୍ରଙ୍କଟ ଓ ଟାଦବଦାସ ମତଟ ଶ୍ରୀ ଜଗନ୍ନାଥ ଓ ସୁଦର୍ଶନଙ୍କ ନିମନ୍ତେ ଦାଟିକେଶଟ ବ୍ଯବହାଟ ଦଧାଳାଳକ ମହାପ୍ରଭୁଙ୍କୁ ଦାଟିକେଶ କଟିଥାଇ । ୮ଟ ଦେଶକୁ ଗଣାକେଶ ଜୋଟି ମୟ କଟନ୍ତି ।

ଣାହ୍ଣଵଟ :-

        ଣାହ୍ଣବଟ ନାହି ଜେ୍ଯଷ୍ଠ ଫୁର୍ଣ୍ଣିମା ବହ୍ଲାଟୁ ଟ୍ଯାଶାଡ଼ ମାସ ଣାମାବାସ୍ଯା ଜର୍ଲ୍ଯନ୍ତ ଦୁ୭ । ୮ଟ ଦ୍ଵାଳଟବେ ଠାକ୍ଟଟମାନଙ୍କୁ କେହି ଦର୍ଶନ କଟିଥାଟନ୍ତି ନଧି । ଠାକ୍ଟଟମାନେ ଦୁ୭ । ୮ଟ ଶ୍ଵାଳଟବେ ଠାକ୍ଟଟମାନଙ୍କୁ କେହି ଦର୍ଶନ କଟିଥାଟନ୍ତି ନଧି । ଠାକ୍ଟଟମାନେ ୮ଟ ସମଯଟବେ ୮ଟ ଶ୍ଵାଳଟବେ ଠାକ୍ଟଟମାନଙ୍କୁ କେହି ଦର୍ଶନ କଟିଥାଟନ୍ତି ନଧି । ମନ୍ଦିରଟ ଦକ୍ଷ ଦ୍ଵାଟ୍ଯା ନିକଟସ୍ତ ମାଣୀକା ଠାକ୍ଟଟାଣକ ସମୁଦବେ ଧୟା ଣାହ୍ଣବଟ ୧୫ ଦିନ ମଧାଟବେ ଜେ୍ଯଷ୍ଠ ଟୁଷ୍ଟ , ଷିଟ୍ଯାବେ ସୁଦଟଟ ବାଣି , ଦାମୀବେ ଚୋଳିକେ , ୮ଜବାଣ୍ୟ ଜେନବାଣୀ , ଦ୍ଵାଦଟବେ ଟାଜ ଭ୍ଵାଦ ବାଣୀ , ଣାମାବାସ୍ଯାବେ ଜେଜ୍ଜୋସୁବ ଓ ନବଜୌବନ ଦର୍ଶନ ବାଜନ କଟ୍ଯାଇ । ୮ଟ ସ୍ମାନ ଯାଶାଢ଼ ସୁକ୍ଲ ବଣ ଦ୍ଵିଡିଯାବେ ମହାପ୍ରଭୁଙ୍କ ଶ୍ରୀ ଗୁଣ୍ଡିଚା ଯାତ୍ରା ବାଟ୍ଯୁ ଯାଜୋଡିକ ଦୁ୭ । -ମ୍ଯା ଦିନ ଠାକ୍ଟଟମାନଙ୍କୁ ଦର୍ଶନ କଟିବବେ ସୁଜୋଗ ଟିବେ । ଚୀ ଉବେ ଯାଜାଢ଼ ଣାହ୍ଣବଟ ସମଣ୍ଟବେ ବିଜ୍ଜାଳ୍ଯେମାନି ମହାପ୍ରଭୁଙ୍କ କିଟ ଯାଟ୍ଟୀମାନ୍ ସୁକଟ ବଟୀ ଗୋକାଳନ୍ ଥାନ୍ତି । ଣାହ୍ଣବଟ ବେ ଟ୍ଦିଜ ବବେ ଜେଜ୍ଜୋସୁବ ଦୋଟ୍ଟଥାଇ । ଣାହ୍ଣବଟ ଣ୍ଡ ଟାଟ୍ଯି ମହାପ୍ରଭୁ ରଧ୍ଲାଣ୍ଣ୍ଟବେ ଠାକ୍ଟୁ ଯାଜୋଡିକ ଦୋଟ୍ଟଥାଇ ।

ଶ୍ରୀ ଗୁଣ୍ଡିଚା :-

ଆଷାଢ଼ ମାସ ଶୁକ୍ଳପକ୍ଷ ଦ୍ୱିତୀୟା ଦିନ ମହାପ୍ରଭୁଙ୍କର ଶ୍ରୀ ଗୁଣ୍ଡିଚା ମହୋତ୍ସବ
ବା ୟ୍ୟବାୟ୍ରା ପାଳନ କରାୟାଏ । ୟଦ୍ୟ ୟୁ ୟାଲାଯ୍ରା । ଜିମନ୍ତେ ତିନୋଟି ୟଥ ନିର୍ମାଣ କର୍ଯ୍ଯ
ଗୋଟାୟ ମାସ ୟୁକ୍ଳପକ୍ଷ ବୁୟୀୟୁ ବା ଯାଲିବୁ ୟ୍ୱିତୀୟାଠୁ ୟାଥ୍ରମୁ ଦୋଶ୍ୱଯ୍ରାଏ । ୟ୍ୟ
ଲାଥ୍ରାଦିନ ଠାକୁରମାନେ ୟାଡ଼ି ବାହୁଞ୍ଚ ଦୋଟ ପ୍ରଥମେ ସୁଦର୍ଶନ ତ୍ୟାବଠୁ ଧନ୍ୟଞ୍ଚୁ,
ସୁଭଦ୍ରା ଓ ଜଗନ୍ନାଥ ୟ୍ୱୀଙ୍କୁ ଠିଯେ କର୍ନ୍ତି । ଲେଵଣ୍ଟି ମହାରାଜ ଛେରାପହଁରା କାର୍ଯ୍ୟ
ୟ୍ୟରିବା ଉଲେ ପ୍ରଥମେ ବଳ୍ଯ୍ରାମ ତ୍ୟାବଠେ ସୁଭଦ୍ରା ଓ ଜଗନ୍ନାଥବଠେ ୟଥ୍ୟଞ୍ଚୁ ୟ୍ୟାଡ଼ି ୟ୍ୟାଡ଼ି
ୟୁଣ୍ଡିଚା ତ୍ୟାବଠୁ ଖଟାୟାବ । ମହାପ୍ରଭୁ ୟୁକ୍ଳ ନବ୍ୟୀ କର୍ଯ୍ୟଞ୍ଚୁ ୟୁଣ୍ଡିଚା ଲାବଠେ ୟଦ୍ୟ ଉଲମ୍ମାବଠେ
ଟାହୁଲା ଠିକେ କର୍ନ୍ତି । ୟୁଣ୍ଡିଚା ଲାବଠେ ଠାକୁରମାନେ ଧରା ନବ୍ୟଥଠେ ୟାଗାୟ୍ ମାସ ୟୁକ୍ଳ
ଉଲ୍ୟବାବଠେ 'ଦେଶା ବଧିମ' । ୟୟୁମନ ଠାୟୁ ନବିମନ ବର୍ୟ୍ୟୁ ୟାଲାବ ମୟୁ ବଲ୍ୟାୟ, ନବିମାବଠେ
ୟରିୟ୍ୟଦର୍ୟନ ୟାଲ୍ୟକାର୍ହି ଦୁବ । ଦିମୟୀ ଦିନ ଠାକୁରମାନେ ଚଲ୍ଯୀ ଠିକେ କର୍ଯ୍ୟ ୟ୍ୟବ ୟ୍ୟରେ ୟ୍ରୀ
ମନ୍ଦିରଙ୍କୁ ଲେଲ୍ୟନ୍ତି । ୟ୍ୱାଙ୍କୁ ଠାଡ଼ବା ଲାଯ୍ରା କୁଦ୍ୟାଯାବ । ୟ୍ୟଦିନ ଜଗନ୍ନାଥଙ୍କ ୟ୍ୟ ୟ୍ରୀ
ନ୍ୟଥ୍ୟ ଲାଲବଠେ ଲାଦ୍ୟ୍ୟଲେ ନୟ୍ୟୀ ନାୟ୍ୟାୟନ ଦେନ ଦୁବ ।

ୟୀୟୁନି ୨କଦ୍ୟମୀ :-

ୟାଗାୟ୍ ୟୁକ୍ଳ ୨କଦ୍ୟମୀ ଦିନ ୟ୍ୟ ଉବବଠେ ୟୁଗବେନ ଦୁବ । ଠାକୁରଙ୍କ
-ନ ୟ୍ୟଯୁୟଗ୍ନା ଦୌନ ଓ ୟୀୟୁନି ନାଡ଼ି ମୟ ଦୁବ । ଠାକୁରଙ୍କର ୟୀୟୁନି କୀୟ୍ନିକ୍ୟାନ୍ଦୁ
ଠାକୁରମାନେ ବାହୁଞ୍ଚ ଠିକେ ଦୌନ ୟଦ୍ୟ ନ୍ୟାୟ୍ୟାୟକୁ ଠିକେ କର୍ଯ୍ୟ । ୟକ୍ଷ୍ମୀ ନାୟ୍ୟାୟ
ଠିନୀକା ଓ ଲେନ୍ଦୀଲାମି ନୀଲ ନାୟୀ ମୟ ଦୁବ । ଦ୍ୟଦ୍ୟମୀ ୟତୁଦ ୟୀୟୁନି ଦ୍ୟଦ୍ୟମୀ
ୟୁନେ ମନିର । ୟଦ୍ୟ ଦିନ ନୟ୍ୟଦକଯ୍ୟ ୟୀୟୁନି କାୟ୍ ଦୁବ ।

ଦଲିଯାଟ୍ରଃ :-

ୟ୍ରାବ୍ୟ ମାସ ୟାନ୍ଦ୍ୟାନ୍ତି ବାର୍ଗର ୟାନ୍ଦ୍ୟାନ୍ତି ଦିନ ମହାପ୍ରଭୁଙ୍କର ଦଲିଯାଟ୍ରି ଲାଟ୍ରା
ଯାଲିନ ଦୁବ । ୟୁଲ୍ୟ ୟ୍ୟାୟ୍ୟାୟକାବ ଯୁଥାଟ୍ରେ ୟଦ୍ୟଲାୟ୍ରା ୟାଲ୍ଦି ଦେୟ୍ୟକ ବାଡ଼ି ୟ୍ୟରୁନୀୟ୍
ଦୁବ । ଟିମଲଙ ଗୋନେୟ୍ୟାୟ୍ ୟଦ୍ୟ ଦଲିଯାୟ୍ରି ମାୟ୍ୟ ୟୁଲ୍ୟ ୟ୍ୟଳେ ମହାପ୍ରଭୁଙ୍କୁ ଗ୍ୟାୟ୍ନା
କ୍ୟାନାବ । ଲେୟ୍ୟକେ ୟ୍ୱେନିକେ ଦୁଦ୍ୟୀ ୟଦ୍ୟ ୟ୍ୟ ଲାବଠେ ୟ୍ୟାଦ୍ୟ ୟ୍ୟୟ ବାବଠେ ୟ୍ୟନାନିୟାନ୍ୟୁ ବନ୍ଦ
ୟ୍ୟବ୍ୟୁ ଦୋଲ୍ୟାୟ୍ବ ।

ଚିତାଲାଗି ଯମାବତ୍ୟା :-

ଶ୍ରାବଣ ମାସ ଯମାବତ୍ୟା ଦିନ ସନ୍ଧ୍ୟାରୁକରେ ଚିତାଲାଗି ନୀତି ଚାଲିନ କ୍ୟାଲାଇ । ସେଦ୍ତୁମାସ ବୂର୍ଣ୍ଣିମା ସେବସ୍ଥାନ ବୂର୍ଣ୍ଣିମା ଦନ ଶ୍ରୀ ଜନନ୍ଦାକେ ଦୃଶ୍ୟାରିବା, ସଲିବ୍ରୁକେ ନାଲାରିତା , ଓ ସୁନ୍ଦାକେ ମାତିକ୍ୟ ଚିତା ବତ୍ଦାର କ୍ୟାଲାକ ଚୁସ୍ୟାର ଜାନୁ ସୁଆଲାବ୍ୟାଇ । ୟଦନେ ନ୍ୟାବୁ ଚୁଜ ବୂର୍ଚୁ ଠାକୁୱଙ୍କ ଚିତାଛୁ ଦିବୃଦୁଇକ ଗ୍ରନାଲାଜ୍ୟୁଇରୁ ଖ୍ୟାଇ ଚିତାଲାଗି ଯମାବତ୍ୟା କୁହାଲାଇ ।

ଜାନିନୁନ୍ଦ ନିଡେ :-

ଶ୍ରାବଣ ମାସ ଶୁକ୍ଳବଳ ସେନ୍ୟଦିନ ନ୍ୟାବୁ ଚୁଜ ଗଳେ ଦଳିଜ ବରୁ ନୁ୍ନିଦ ଗାଣ୍ଡାମାଲା ଲେଜ ବେଦୋନିନେ ମାର୍ବ୍ଦୁ , ଦଜ୍ଜ୍ତା , ବାୟୁ ଓ ରୁନୁ ଦ୍ୟାନି ସ୍ୟାତ୍ସ୍ୟକୁ ନିଡେ କର୍ନ୍ତି ।

ଝୁଲଣ ନାତ୍ରୀ :-

ଶ୍ରାବଣମାସ ଶୁକ୍ଳ ଦ୍ୟଶ୍ୟୀଠାରୁ ଗୁଟିଉଳା ଜଣ୍ଯକ୍ଡ ଶ୍ରୀମନିୱ୍ଦ୍ରେ ଝୁଲଣ ନାତ୍ରୀ ଦ୍ୟୁଁ । ନ୍ୟାବୁ ଚୁଜ ବତ୍ଦେ ମୁକ୍ତିମଣ୍ଡଜ ଉଭାରେ ନର୍ମ୍ଦି ଝୁଲଣ କୁଞ୍ଜରୁ ସନନ ଗୋଦନ ଦୁଁ । ଲକ୍ଷ୍ନୀ ଓ ସଦୁୱଦ୍ଦୁ ନ୍ୟାଜିମାନେ ନିଡେ କର୍ନ୍ତି । ଶ୍ୟାନନ ଗୋନ କ୍ୟାଲାଇ । ମନିର କୁଲୟ୍ୱ ଓ ସନନ ୱଜନ ଣିଜ ନ୍ୟାଜ ବତ୍ଦେ ନନ ଗୋଦନିକୁ ଦଳିଜ ଜଢୁକ୍ଡ ଓ ଲକ୍ଷ୍ୟା, ମସ୍ତ୍ରୀ ଦୁ ସିଦ୍ୟାନନ ନିଡେ କ୍ୟାଲାଇ । ଝୁଲଣ ବୂର୍ଣ୍ଣିମାକୁ 'ନ୍ୟୋବୂର୍ଣ୍ଣିମା' କୁହାଲାଇ । ସଲଦ୍ୟଦନ ଜନ୍ସ୍ୟାଷ୍କ ୧ଦୁ ଶିନ ନାଲନ କ୍ୟାଲାଇ ।

ୱାଦୁଗେଓା ଜାନି :- ଭାଦ୍ୱମାସ ଶୁକ୍ଳବଳ ଜୟିନନେ ଠାକୁୱମାନ୍କେ ୱାଦୁଗେଓା ଜାନି ନ୍ୟଇ ଦୁଁ । ସ୍ଥାନନାତ୍ରୀ ସମୟନେ ଠାକୁୱଙ୍କେ ୱାଦୁଗେଓା ବତ୍ଦାର କ୍ୟାଲାଣ ଥାଇ । ଓ ନ୍ୟତି ଉଇଧ ବୂର୍ବକ ଜାନି କ୍ୟାଲାଇ । ୧ଦୁ ୱାଦୁଗେଓା ଜାନି କନ ବାଜ୍ୟାଦ୍ୟ ଦଦ୍ଦାମାନେ କର୍ନ୍ତି ।

ଜନ୍ମାଷ୍ଟମୀ ଓ କୃଷ୍ଣ ଲୀଳା :-

ଓଡ଼ିଶାରେ କୃଷ୍ଣ ଭଗବାନଙ୍କ ଜନ୍ମୋତ୍ସବ ଶ୍ରୀ ଜଗନ୍ନାଥ ମନ୍ଦିରରେ ଭାଦ୍ରବ ମାସ କୃଷ୍ଣପକ୍ଷ ଅଷ୍ଟମୀ ଦିନ କୃଷ୍ଣ ଜନ୍ମାଷ୍ଟମୀ ନିର୍ବନ୍ଧର ସହିତ ହୁଏ । ଶ୍ରୀ କୃଷ୍ଣ ଜନ୍ମ ବିଧାନ, ଦୋଳି ଥିରେ ସ୍ୱାଦ ନାହିଁ ବାଲ୍ୟ କ୍ରୀଡ଼ା । ଭାଦ୍ରବ କୃଷ୍ଣ ନବମୀ ଦିନ ନନ୍ଦ ଉତ୍ସବ, ଦଶମୀ ଦିନ ଅଣଚୋରି ବେଶ, କେଣ୍ଡିବିଲ୍ୱ ଗୋପାଷ୍ଟମୀ ବିଦ୍ୟା ଦିନ ନଳ ଉତ୍ସବ, ଦଶମୀ ଦିନ ଅଣଚୋରି ବେଶ, କାଳୀୟଦଳନ ଓ ପେଣ୍ଡୁଖେଳ ବିଧା, ଦ୍ୱାଦଶୀ ଦିନ ଗୁଲିଥା -ବିଧ, ବ୍ରାଦଶମୀ ଦିନ କାଳୀୟଦଳନ ଓ ପେଣ୍ଡୁଖେଳ ବିଧ, ଦ୍ୱାଦଶୀ ଦିନ ଗୁଲିଥା ମୁରବିଧ, ତ୍ରୟୋଦଶୀ ଦିନ କୃଷ୍ଣ ବଳରାମ ବେଶ, ସ୍ୱାମାବସ୍ୟା ଦିନ ଯମୁନୁନୀ ଗୋଳ ଓ ଅଷ୍ଟ ପୁତ୍ର ନାହିଁ ଶୁକ୍ଳ ପ୍ରତିପଦ ଦିନ ବାଲ଼ାନ୍ତି । ଦ୍ୱିତୀୟା ଦିନ କୁଞ୍ଜଲୀଳା, ତୃତୀୟା ଦିନ ସ୍ୱାମୀମନ୍ଦିର ଧାମୀ ଉତ୍ସବ, ଚତୁର୍ଥ ଦିନ ଦାଦ୍ରଲୀଳା, ଚତୁଷ ଓ ପଞ୍ଚମୀ ଦିନ କୃଷ୍ଣ ଲୀଳା, ଅଷ୍ଟମୀ ଦିନ ଯଶୋୟାଷ୍ଟମୀ, ଦଶମୀ ଦିନ ନୃସିଂହ ବ୍ରୁବା, ଏକୁରା ଦାଦ୍ରପୁର କୃଷ୍ଣ ବୂଲା, ଅଷ୍ଟମୀଦିନ ଯଶୋୟାଷ୍ଟମୀ, ଦଶମୀ ଦିନ ନୃସିଂହ ବ୍ରୁବା, ଏକୁରା ଦାଦ୍ରପୁର ଦ୍ୱାଦଶ ଉତ୍ସବ, ପର୍ଣ୍ଣୁନର ଉତ୍ସବ, ମନ୍ମଥ ଉତ୍ସବ ଆଦି ନାହିଁ ବାଲ୍ୟନ କ୍ରୀଡ଼ାବ । ଏକାଦଶ ଉତ୍ସବ, ପର୍ବବର ଉତ୍ସବ, ମନ୍ମଥ ଉତ୍ସବ ଆଦି ନାହିଁ ବାଲ୍ୟନ କ୍ରୀଡ଼ାବ । ରାଦ୍ରବ ଶୁକ୍ଳ ଚତୁର୍ଥ ଦିନ ଅଶୋକ ଦୋଳା, ଅଷ୍ଟମୀ ଦିନ ନୃସିଂହ ପ୍ରୁ ମଧ ବାଲ଼ିଚ ହୁଏ ।

ବାର୍ଷ ପରିବର୍ତ୍ତନ :-

ଦ୍ୱାଦଶ ଯାତ୍ରା ମଧ୍ୟରେ ଏକାଦଶ ବାର୍ଷ ପରିବର୍ତ୍ତନ ଦ୍ୱାଦଶ ଭାଦ୍ରବ ଶୁକ୍ଳ ବ୍ରାଦଶମୀ ଦିନ ବାଲ଼ିଚ କ୍ରୀଡ଼ାବ । ଏହୁ ଦିନ ନବୀନ ଠାକୁରଙ୍କର ବାର୍ଷ ପରିବର୍ତ୍ତନ ନିର୍ବନ୍ଧର କ୍ରୀଡ଼ାଏ ଥାଏ ।

ନାନ୍ଦି ନବୁର୍ଦ୍ଦନ :-

ଭାଦ୍ରବ ଶୁକ୍ଳ ନବୁର୍ଦ୍ଦନ ଦିନ ସନ୍ଧ୍ୟାର୍ତ୍ତ ବେଳା ବାରେ ପ୍ରଭୁମଣ୍ଡଟର ଗର୍ବଗୃହରେ ପୃଷ ଆଲୋକିକ ବାଚରେ ନାନ୍ଦି ନବୁର୍ଦ୍ଦନ ପୂଜା ହୁଏ ଓ ଘୃତା ବାରେ ନାନ୍ଦି ପ୍ରଭୁ କ୍ରିୟା ପାଠ କ୍ରୀଡ଼ାବ । ଉତ୍ସବରେ ଠାକୁରଙ୍କ ବ୍ୟାବନା କ୍ରୀଡ଼ାବ ଥାଏ ।

ରାମଲୀଳା :-

ଶ୍ରାବଣ ଶୁକ୍ଳ ଦ୍ୱାଦଶୀ ଦିନ ରାମଲୀଳା, ନୂତନ ଗାର୍ବ ପରିବର୍ତ୍ତନ ଓ ରଥଯାତ୍ରା ପୂଜା ବାଡ଼ି ନାହିଁ ଦୁଇ । ଏହିଦିନ ଠାକୁରାଣି ମହାପ୍ରଭାଙ୍କ ଶ୍ରୀଅଙ୍ଗ ସାଜ ହେଲା ଦେଲେ ବର୍ଷ ସାରସ୍ୱ ପୂଜେ ଏହିଯ କରାଯାଏ । ସୁନାରେ ମହାପ୍ରଭାଙ୍କ 'ସାଜ' ମୋଡ଼ନ ଦେଇ ଦୁଆର ୬ଟା ଖୁଲିଲ୍ଲା ରୀତରେ ଚଳିଲେ । ଏହିଦିନ ସନ୍ଧ୍ୟାପୂଜା ସରିବା ଠାରେ ସ୍ୱବଲେ ଥାବୁ ୬ଟା ଖୁଲିଆ ଶ୍ରୀଅଙ୍ଗେ ଚଳିଲେ । ଏହିଦିନ ସଂଧ୍ୟାଧୂଳ ସରିବା ଠାରେ ସ୍ୱବଲେ ଶଶିବେ ନାହାରୀ ମଣ୍ଡପଠାରେ କୋଟଶ୍ୱରୀ ନିୟାମାନେ ଗୋବିନ୍ଦ କାଠ ଲେଖିବେ ସ୍ୱର୍ଜଗତ ଏାପ୍ସିଲାନେ ଦିୟାରୀ କରିଆନ୍ତି । ୬ଟା ଘୂର୍ଣ୍ଣିମା ଗଙ୍ଗଂଙ୍ଗ ଏଦେ । ୬ଦିନ୍ଥାରେ ରଥଯାତ୍ର ପାଢ଼ିଲାରେ ଦିୟାରୀ କରିଆନ୍ତି । ସ୍ଥରା ମିଳନ୍ତୁ ହୁର୍ଗୋଟ ପଚ୍ଚି ଗର୍ଭୋଦଠାରେ କରାଯାଏ ।

ଗଙ୍ଗ ଗୋଡ଼ିଏ କହାଣୀ :-

ଶ୍ରାବଣ ଘୂର୍ଣ୍ଣିମା ଦିନ ସନ୍ଧ୍ୟା ସାଜଟି ଠାରେ ଦୀଷ୍ଠାମାନି ଲେଲୁ ଗୋଲେଗୋଟ୍ଙ୍କ ସଡ଼ିଲ୍ଲା ମଠ ଗାଲୁଙ୍କୁ ଗିଲିଲାରେ । ୬ଠାରେ ଶାଘନ ଘୋଟ ପରିବ ଗଗେ ଗୁନ୍ଦୁ ନଶ୍ୱ ଓ ଗୋଲ୍ବରେଙ୍କୁ ଗଗୋଲନ କରାଲିବା ଗଗେ ଠାଙ୍କୁଥ ମନ୍ଦିରଙ୍କୁ ଗିଶେ କର୍ନ୍ତୁ ।

ଯାଦବ କୁମାରିଗେକ ସାଗାଙ୍କ ଶୁଦ୍ଧିନ :-

ଅଠଦିନ ଶୁଗୋଟ ଗୋଲେ ସାଧୁନ୍ଦ କୃଷ୍ଟୁ ଶ୍ୱରୁସ୍ୱ ୍ବା ସ୍ୱସ୍ୱସ୍ୱାଠାରୁ ଗୁଲଗଙ୍କ ଗୋଡ଼ଲ ପୂଜା ବାଡ଼ୁ ଦୁଇ । ୬ଦୁ ଦିନ ଦୁର୍ଗାଙ୍କୁ ଗସ୍ୱାର ଗନ୍ତୁ ସ୍ୱଦାମାନ୍ଦର ଗୋମନାଥ ମଣ୍ଡପରେ ୧୦୦୦ ଗଗ୍ର ଗଲଦ୍ୱାରା ଧରିବେକ କରାମାର୍ଗ୍ଦଗାରୁ ବ୍ୟାଙ୍କୁ ସ୍ୱଦ୍ୱ କୁମ୍ୱାରିଗେକ' କୃଦ୍ୱାଲ୍ବ । ୬ସ୍ୱ ଶଣ୍ୱାରେ ଗୁଧ୍ୟ ୮ଦିନ ଗିଶଗଲ ଶରିଠଗେ ଦୁର୍ଣ୍ଣ ମାଧବିଙ୍କୁ ଗୁଗା ଗାର୍ବିଗ ସାସ୍ୱି କରାଲ୍ବ । ୬ଟା ଶାକ୍ତି ଶୁଦ୍ଧିଗ' ନାମଗେ ନାମିଟ । ଶସ୍ୱ, ଗଗ୍ର ଓ ନର୍ଗାର ଦିନ ଗିଗାର୍ବରେ ଗିମଗଲ କରି ଦୁର୍ଗ ଗୋଣ୍ଡି ନାମିଟ । ୬ସ୍ୱ ଶମସ୍ୱ ସର୍ଗ ଠାରେ ବଶ୍ୱୁମ ଦ୍ୱାର ଗର୍ଗ୍ଦ୍ଦୁ ଗିନ ଗାଗେ । ଗୋନ ଓ ଗସ୍ୱ ଦୁଇ । ୬ସ୍ୱ ଶମସ୍ୱ ସର୍ଗ ଠାରେ ଗନ୍ଦ୍ୱମ ଦ୍ୱାର ଗର୍ଗ୍ଦ୍ଦୁ ଗିନ ଗାଗେ । ଗୋଲି ଦିନ ମାଧାରେ ଗୋଲେକ ମାନ୍ଦିଗ ଗଲ୍ଦୁମାନୁ ଗିମଲା ଠାଗୁଗ୍ୱାୟ୍ଗ୍କୁ ଏଲ୍ଦୁର୍ଣ୍ଣା, ରୁଗଗ୍ପୁରୀ, ନ୍ୟାଲ୍ୱୁଗ, ଗଗଲା, ଗଗ୍ଦୁର୍ଣ୍ଣା, ର୍ଗୁଦ୍ୱାରା, ମହାର୍ଗ୍ଦିଗ ଦଲ୍ଦୁଗା, ଗାଗ୍ରାଗ୍ଦୁ,ରୀ, ଦୁର୍ଗ୍ଦ୍ଧ, ଏଗ୍ଦୁବଗ୍ଦିଗ ସାର୍ଗ ଗୋମ କର୍ନ୍ତୁ ।

ଦ୍ବିତୀୟା ଓଷା :-

କାର୍ତ୍ତିକ ଶୁକ୍ଳ ଦ୍ବିତୀୟା ଦିନ ଦ୍ବିତୀୟା ଓଷା ପାଳନ କରାଯାଏ । ଏହି ଦିନ ବ୍ରହ୍ମା ଙ୍କ କଦଳୀଦଳରେ ଲକ୍ଷ୍ମୀଙ୍କ ଓଲ୍ଲକ, ବାଲୁକାର କଳସ୍ଥର ରାଖି ଦିଏ । ବ୍ରହ୍ମା ଙ୍କ ସମ୍ମୁଖରେ ଦୀପ ଓ ଝୁଣା ବତୀ ସାଲ୍ଲ୍ୟୀ ଦୋଇ ଶ୍ରଦ୍ଧା ଦୋଇ ଲକ୍ଷ୍ମୀ ସ୍ତୁତି କଥା ବାଚନ ଓ ଫୁଲକୋଳା କରାଯାଏ । ଏହି ଦିନ ଶବ୍ଦ କୁମ୍ଭାରିଣୀଙ୍କ ବଡ଼ିଲେ ଶ୍ରୀମେ ଲକ୍ଷ୍ମୀଙ୍କ କାର୍ଯ୍ୟ ସରିବା ଶରେ ଦୁର୍ଗାଙ୍କ କାମ ସାଲ୍ଲ୍ୟୁ ଦେଖ୍ୟାଏ ।

ଦଶହରା କା ଯୋଗୋଡିଆ ଦଶମୀ :-

କାର୍ତ୍ତିକ ଶୁକ୍ଳ ଦଶମୀ ଦିନ ଦଶହରା ପାଳନ କରାଯାଏ । ଏହାକୁ 'ଯୋଗୋଡିଆ ଦଶମୀ' ମଧ୍ୟ କୁହାଯାଏ । ଏହି ଦିନ ଶ୍ରୀ ଜଗନ୍ନାଥ, ବଳଭଦ୍ର ଓ ସୁଭଦ୍ରାଙ୍କ ଏଣେ ମଙ୍କତେ, ଦୁର୍ଗମାଳକ ଓ ରଜସ୍ୱ ଦୁର୍ଗୀ ବେଶୋକ ଭଲା କରାଯାଏ । ଓଡ଼ିଶାର ସୁରଲ୍ୟୀରେ ଦଶହରା ମହାସମାରୋହରେ ଭାଙ୍କିତ ଦୁଏ ।

କୁମାର ପୂର୍ଣ୍ଣିମା :-

କୁମାର ପୂର୍ଣ୍ଣିମା କାର୍ତ୍ତିକ ମାସ ପୂର୍ଣ୍ଣିମାରେ ଭାଙ୍କିତ ଦୁଏ । ଏହି ଦିନ ମୟଲୁ ଚୂଲ୍ଲରେ ସୁବର୍ଣ୍ଣ ଗୁଡ଼ିମେ ସାଲ୍ଲ୍ୟୁକୁ ଭିକେକଙ୍ଗି । ସ୍ନାନ ସମାପନ ଶରେ ସୂର୍ଯ୍ୟକୁ ମଲ୍ଲିରକୁ ଗୋଳିବାସ୍ତ । ସାଧ୍ୟାହ୍ନ ବଳରେ ମନମୋଦକ ଓ ଲକ୍ଷ୍ମୀକୁ ଯୋଗାମାନ ବେଣ ଲକ୍ଷ୍ମୀଙ୍କ କଦମୋଦକକୁ ନିବେଦନାଏ । ସେସାରେ ଏକା ଗୋଦନ ବୁର୍ଣ୍ଣିଦୁ ମୁଲୋ ସୁଦିବଧ ଓ ଲକ୍ଷ୍ମୀଙ୍କ ବୁଦିନିଦ୍ର ରାଦେ ବିଟ୍ରିଦ୍ଧ ନ୍ୟାରଞ୍ଜ ୨୧ଟି ବିକ୍ତୁଲି କର୍ଣ୍ଣିଓ ୨୧ଟି ଦୁଣ୍ଡ଼ା କଳ୍କି ବେ ଭଲା ବେଲଙ୍ଗୀ । ତାରାବେ ଏକ ବର୍ତ୍ତିକ ମାଦଲ ମବୋଡ଼ି ବେଣ ବାଭୁରକୁ ବିଦ୍ୟାଳକ୍ଷ୍ୟ ବେକେବ୍ରାଏ । ବ୍ୟାବାରେ ୨ଟ୍ଟ ଶ୍ରୀଦ୍ଧାଙ୍କ ବାଲୀବେ ଓ ସ୍ଥାବେ ସୂର୍ଣ୍ଣିଗା ବୋଧି ଦୁଏ । ଏହି ବେଲିବେ ମଣ୍ଟ ବସ୍ତ୍ରା ଓ ସୁଦିରବେ ବୋଲିଙ୍ଗୀ । ସେଲରେ ଷ୍ଟାବୁ ଦ୍ୱାରି ନିବାସ ନାମାବବ୍ଧୁ ଲକ୍ଷ୍ମୀଙ୍କ ମଲ୍ଲିରବେ ଓଦନ ଭର୍ସ୍ୟୁ ଏଷା ୨୍ଟିଭାଙ୍କୁ ବଣିବାଏ ।

ରାଧାଦାମୋଦର ବ୍ରତ :-

ରାଧାଦାମୋଦର ବ୍ରତ ଦଣ୍ଡିରା ଗତରେ ବଳଦେବଙ୍କଠୁ ମହାପ୍ରଭୁଙ୍କ ଶୁକ୍ଳ ଦ୍ୱାଦଶୀ ଦିନଠାରୁ ବାଳନ ହୁଏ । ଓ ଗୁର୍ବାର ବଳଦେବ ଠାରୁ ପୂର୍ଣ୍ଣିମା ଲାଗି ଦୋଳିକ ବ୍ରତ- ନାରାୟଣ ବେଶ , ରାଜରାଜେଶ୍ୱର ଓ ଗାଜ ବେଶ , ଦ୍ୱାଦଶିୟା ବା ତ୍ରିବିକ୍ରମ ବେଶ, ଲକ୍ଷ୍ମୀ ତୁଷ୍ଟ ବେଶ ଓ ରାଜରାଜେଶ୍ୱରୀ ବେଶ କରାଯାଏ । ଦେବ ବର୍ଷ ଠୁ ବାହୋଲି ଦିଏ , ଶୁଭଦିନ ହୁଏ ଦେ ବର୍ଷ ନବାର୍ଦ୍ଦନ ବେଶ ହୁଏ । କାର୍ତ୍ତିକ ମାସ ଅମାବାସ୍ୟା ଠାରୁ ପୂର୍ଣ୍ଣିମା ଲାଗି ପ୍ରତ୍ୟେକ ସୋମବାର ଦିନ ଦେବାଠାକୁର ଦରିଦ୍ର ବେଶ ଦେଖିଥାନ୍ତି ।

ଦୀପ ଉଦ୍ୟାପନ :-

ଦୀପ ଉଦ୍ୟାପନ କାର୍ତ୍ତିକ ଶୁକ୍ଳ ବଳଦେବ ଗାଳିଦ ହୁଏ । ଏହି ଦିନ ଗଡ଼ବିହାର ରୋଷତଳେ ଶିଘ୍ରବର୍ଦ୍ଦିକ ଜଳନିଠାକୁରଙ୍କୁ ବ୍ରାହ୍ମଣ ଉଦ୍ୟାର ଗତରେ ବୋଲେ କରାଯାଏ , ଦୀୟ ଗତରେ ମହାପ୍ରଭୁଙ୍କ ବଡ଼ ନୀତି ହୁଏ । କାର୍ତ୍ତିକ ଶୁକ୍ଳ ବଳଦେବ ଦିନ ସୀୟାଧ୍ୱନ ଗତରେ ଶୁଦେବ ଉଦ୍ୟାପନ ନୀତି ହୁଏ । ବଡ଼ ତ୍ରୟୋଦଶ ଓ ଚତୁର୍ଦ୍ଦଶ ଦିନ ସୀୟାଧ୍ୱନ ଗତରେ ମଦନମୋହନଙ୍କୁ ମହୁପରାୟ ନିକଟେ ବୋଲେକରାଯାଏ ।

ଚଣ୍ଡା ପଞ୍ଚମୀ :-

ଚଣ୍ଡା ପଞ୍ଚମୀ ବ୍ରତ କୃତ୍ତ୍ରିଜୁ କୃତାଯାଏ । ଏହି ଦିନ ମଦନ ଧୂନ ଠାକୁ ଗତରେ ସୁଦ୍ଦୀୟ ଠାକୁରଙ୍କ ଶ୍ରୀ ଅଙ୍ଗରେ ବ୍ରହ୍ମାନ ରାଗି କରନ୍ତି । ବ୍ରାହ୍ମାଣ ସୋଗତ ଉଗତାରେ ବୋଲ କରନ୍ତି । ବୈୟ ବଡ଼ିଗ ଗତରେ ଗଣେ ବସ୍ତ୍ରା ରୋଜଗାଜ କୀ ନୀଗତେ ବିଜୁ ଓଙ୍ଗଦ ପଣ୍ଡିଗ ବାହ୍ୟାର କରି ସ୍ୱାଗ ମନ୍ଦିର ଚତିଗାମଗେ ଗଜିବିମନ୍ଦି ।

ନବାନ୍ନ :-

ନବାନ୍ନ ନବକେ ମହାପ୍ରଭୁ ରାମିନିଗ୍ର ବେଦ ଦିନ ରିଗ କରାଯନ୍ତ୍ୱାର ୭ଦ୍ୟା ଗାଲ୍ୟ ଜୋଗବୀ ନର୍ଦ୍ଦିଗ ଦିନ ବର୍ଦ୍ଦିଂ , ବଡ଼ ଦିନ ପ୍ରଥମ କରୀ ନ୍ୟୁଆ ଚଗିଲ ଓ ଚାରଗି ଠାକୁରଙ୍କୁ ରୋଗ କଣ୍ଡାଗଧ୍ୱଗୁ ୭ଦ୍ୟାର ନାବଣେନ ନବନି ଦୋଗୁହ ।

ହୃଦୟାରୋପଣ :-

ମାର୍ଗଣର ମାସ କୃଷ୍ଣବେଗ ପକ୍ଷୁମାଙ୍କୁ ହୃଦୟାରୋପଣ କରାଯାଏ । ଏହିଦିନ ଦିନ
ରାତ୍ରେ ଠାକୁରଙ୍କ ନୂତନ ବସ୍ତ୍ର ଧାରଣ କରାଯାଏ । ମଧ୍ୟାହ୍ନ ଧୂପ ଓଡ଼େ ୩ ବାଡ଼େ
ମଙ୍ଗଳକାର୍ଯ୍ୟ ହୁଏ । ଏହି ସମୟରେ ଠାକୁରଙ୍କୁ କୁଳ୍କୁରିଆ ଲାଗି ଓ ଛେଦା ଭୋଗଲାଗି
କରାଯାଏ ଏବଂଲୋ କରାଯାଏ ।

ଦନ୍ତଦୋଷ ବା ବିଶୁଦ୍ଧିକରଣ :-

ମାର୍ଗଣର ମାସ କୃଷ୍ଣ ଚତୁର୍ଥୀ, ପଞ୍ଚମୀ ଓ ଶୁକ୍ଳ ପ୍ରତିପଦା ଏହି
ତିନିଦିନ ଚରି ମହାପ୍ରଭୁ ଦାନ୍ତଦୋଷ ଓ ବିଶୁଦ୍ଧିଘାତ କରନ୍ତି । ଏଣୁଦିନ୍ଦେ ପ୍ରତିପଦା ଦିନ
ମଧ୍ୟା ଧୂପ ବାଡ଼େ ଅଣ୍ଣାର ମୋକାମ ପ୍ରାର୍ଥନା ହେଲେ ଠାକୁରିଦେ ମୋନିବ ବସ୍ତ୍ର ନିର୍ମାଣ
କରନ୍ତି । ବାକିୟା ମୋକାମ ଜରାମାନିକ୍ରେ ଝିଆବେଦ ଏହି ରକ୍ଷରେ ସ୍ନାନ କାଳନ୍ତି ।
ବସ୍ତ୍ରା ଏଠାରୁ ପ୍ରକ୍ଷାର କରି ବାନ୍ତି ଛାଡନ୍ତି ଏ ଏବାଲୋ କରନ୍ତି । ଏହି ତିନି ଠାକୁର
ବଳ୍ଗା ଏଠାରୁ ବଳଗୋବା, ଜୟକ୍ରୀ ବାସୁଦେ, ରାଜା ଇନ୍ଦ୍ରଦ୍ୟୁମ୍ନ ରାଣୀ ଓ ଗୁଣ୍ଡିଚୀ ପାଦ୍ୟ ଉଦ୍ଦାଲ୍ୟ
ନମ ନୋୋବା , ଜୟଜୟ ବାସୁଦେ , ରାଜା ଇନ୍ଦ୍ରଦ୍ୟୁମ୍ନ ରାଣୀ ଓ ଗୁଣ୍ଡ ପାଦ୍ୟ ଉଦ୍ଦାଲ୍ୟ
ଗ୍ରାସ କରନ୍ତି । ଏହୁ ଜୋରୋରେକ ମଧ୍ୟରେ ଦାମୂ ଓ ବୋଇତ୍ୟଜ୍ଜୀକ ଉଦ୍ଦାଲ୍ୟରେ ଗ୍ରାସ
ଗ୍ରାସ କରନ୍ତି । କରାଯାଏ ।

ଜ୍ୟେଷ୍ଠାବୀ ଗଣ୍ଯ ବା ଉଦ୍ଧାରଗଣ୍ୟ :-

ମାର୍ଗଣର ଶୁକ୍ଳ ଗଣ୍ଡୀବାରୁ ଏହି ସମୀନୀ ବା ମାସଘୁକ୍ଳ ବର୍ଷିମ୍ଫ
ଗର୍ୟମ୍ୟ ଠାକୁରମାନଙ୍କୁ ୋୋଦିଲ୍ୟାନି କରାଯାଏ । ଏଠାକୁ ଉଦ୍ଦାରଗଣ୍ୟୀ ବା ଜୋଦ ଲାଗି ଗର୍ୟ
ଗର୍ୟକ୍ରୁ ଠାକୁରମାନଙ୍କୁ ଜୋଦିବାନି କରାଯାଏ । ଠାକୁର ମାନଙ୍କୁ ଏହିବାର ଠାରୁ ମାସିବାର ଗର୍ୟକ୍ରୁ ଦୋଳିକ ଲ୍ୟାଗ୍ରୁଙ୍କ
ଜୋଲି କୁଦ୍ଦାଯାଏ । ଠାକୁର ମାନଙ୍କୁ ଏହିବାର ଠାରୁ ଶନିବାର ଗର୍ୟକ୍ରୁ ଦୋଳିକ ଲ୍ୟାଗ୍ରୁଙ୍କ
ଗ୍ରାଲ ଜୋଦ, କଳିନ୍ଦିଙ ମିଳା ଶୁକ୍ଳ ଜୋଦ, ବାଠଦର୍ମିୟା ଯାଧିକୋୋ ମିଳା ଜୋଦ, ନୀଳ
ଜୋୋର୍ୟ ଜୋଦ, ଏମ୍ଭ୍ ଇଜୋୋର୍ୟ ଜୋଦ, ଶୁକ୍ଳ ଇଗୋୋର୍ୟ ଜୋଦ ଓ କଳା ଇଜୋୋର୍ୟ ଜୋଦ
ଇଜୋୋର୍ୟ ଜୋଦ, ଏମ୍ଭ୍ ଇଜୋୋର୍ୟ ଜୋଦ, ଶୁକ୍ଳ ଇଜୋୋର୍ୟ ଜୋଦ ଓ କଳା ଇଜୋୋର୍ୟ ଜୋଦ
ଲାଗି କରାଯାଏ । ଏହି ସମୟରେ ପୁଜାର୍ଯ୍ୟମାନିକ ମଧ୍ୟାହ୍ନ ଧୂପଜୋଦ ଏବଂ ପୁରୋହିତଜୋରେ
ବିଦ୍ୟାପକରେ ନ ରହି ପୁଜାକରନ୍ତି ।

ଉଦିଲି ଯୋଗ :-

ଚଳ୍ତି ପଦ୍ୟୁକ୍ତି ଅନୁ ମକର ପଦ୍ୟୁକ୍ତି ଦ୍ୱାୟଦୁ ଗୋଟାମାଲଣେ ଶ୍ରୀଜଗନ୍ନାଥଙ୍କ ମନ୍ଦିରେ ଉଦିଲି ଯୋଗ ନୀତି ହୁଏ । ୬ଟ୍ ମାପରେ ଅଟିନ୍ତ୍ୟ୍ୟା ଠାକୁରଙ୍କ ଯୋଗ କ୍ୟାନାଟ ଗୋଳକ ବଳ୍ୱର ଅନୁ ଉଦିଲି ଯୋଗ ହୁଏ । କିନୁଦ୍ଧୀ ଦ୍ୱାରୁ ୬ଟ୍ ସ୍ମାର୍ତୁବୀଳେ ଲକ୍ଷ୍ମୀ ନିଜର ଗୋଡକ ବଳ୍ୱର ଅନୁ ଉଦିଲି ଯୋଗ ହୁଏ । ...

ୟୁଗ୍ୟାରିଯୋଗ :-

ଗୋଟାମାପ ପୂର୍ଣ୍ଣିମା ଦିନ ମଧ୍ୟାୟ୍ନରୁଙ୍କ ୟୁଗ୍ୟାରିଯୋଗ ନୀତି ହୁଏ । ...

ଦ୍ୟକ୍ଟୁ ଦ୍ୱାଦଶୀ :-

ମାଘମାପ ଶୁକ୍ଲ ଦ୍ୱାଦଶୀ ହୁଏ ଦ୍ୱାଦଶୀ । ...

ଜଳଯାତ୍ରା ବେଶ :-

ମାଘମାସ ପୂର୍ଣିମା ମଧ୍ୟାହ୍ନ ପୂଜା ପରେ ଠାକୁରମାନେ ଏକ ଜଳଯାତ୍ରା ବେଶ ଦୁଅ । ବେଶ ଦେଖ ହେବୁ ଭୋଳି ଭୋଗ ମଣ୍ଡପ ଭୋଗ ମଧ୍ୟ ସାଧୁକ ଦୁଅ । ବେଶ ଦେଖ ଗ୍ରହଣ କାଯ୍ୟବେଶ ଜାଗାଜୀ କରାଯାଇଥିଲେ । ବେଶ ବର୍ଷକୁ ବୁଢ଼ୀ ହଜାର ସାହେବା ବେଶ ଗ୍ରହଣ କରାଯାଇଥିଲେ ଦୋଳି ଶୁଭାଯାଇ । କିନ୍ତୁ ହଜାର କରି ନଜିକୁ ମାରିଥିଲେ । ପ୍ରେମଦାନ୍ତୁ ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କ ଜଳଯାତ୍ରା ବେଶ କରାଯାଏଯାଇ ।

ଦୋଳଯାତ୍ରା :-

ଫାଲ୍ଗୁନ ମାସ ଶୁକ୍ଲ ଦ୍ୱାଦଶୀରୁ ପୂର୍ଣିମା ବର୍ଯ୍ୟନ୍ତୁ ଦୋଳଯାତ୍ରାର ବିଧାନ ଶ୍ରୀ ମନ୍ଦିରେ ଜାନିଥ ଦୁଅ । ଦ୍ୱାଦଶୀ ଦିନ ମଧ୍ୟାହ୍ନ ପୂଜା ପରେ ଲକ୍ଷ୍ମୀ, ସରସ୍ୱତୀ ଓ ଦୋଳଗୋବିନ୍ଦ ଭୋଷମାଳି ବେଶରେ କୃଷ୍ଣାଭ ବଳଭଦ୍ର ମନ୍ଦିର ଠିଜେକଯନ୍ତି । ସେଠାରେ ଭୋଗ ଜଜ୍ଞାଟ ଭୋଜି ଏହିଦ୍ବୀ ପରେ ଜାବୁଟା ଠିଜେ କରି ମନ୍ଦିରକୁ ଫେରନ୍ତି ଓ ଟାଲବେ ମନ୍ଦିରର ସ୍ୱାଗ୍ୟାଟ୍ୟ ନାଇ ଦୁଅ । ବେଢ଼ କି ନାଇ ବେଜାଳାଗାଦେଶ, ବୁଦଲ୍ୟ ଓ ଡ୍ରେଶ୍ୱାଦଲ୍ୟ ଦିନ ମଧ୍ୟ ଦୁଅ । ଶୁକ୍ଲ ଦ୍ୱାଦଶୀ ଦିନ ବାଗ୍ରି ଦୀଳଟ ଦୁଅ । ବେଶ ଦିନ ଲକ୍ଷ୍ମୀନାରାୟଣକରେ ଘୋଳ ବଟୁ ମୋଜି ଦୁଅ । ଲକ୍ଷ୍ୟାଗ ଦିନ ବାର୍ଷି ହଜଟ ଦୁଅ । ବେଶ ଦିନ ଲକ୍ଷ୍ମୀନାରାୟଣକରେ ଘୋଳ ବଟୁ ମୋଜି ଦୁଅ । ବଦାର ବାର୍ଷି ବାଟେ ସମ୍ପ୍ରା ମାରୀଯୀ ଓ ନାହାରହେକ ବଜାଟୁ ମୁଦ୍ରୀ, ବଟୁ ମୋଜିନ୍ତି । ବଦାର ବାର୍ଷି ବାଟେ ଲକ୍ଷ୍ମୀ, ସରସ୍ୱତୀ ଓ ଦୋଳଗୋବିନ୍ଦ ଭୋଳବେଦୀକୁ ଠିଜେ କଯ଼ିବେ । ସ୍ୱାଗ୍ୟାଟ ପୂର୍ଣିମା ଦିନ ଲକ୍ଷ୍ମୀ, ସରସ୍ୱତୀ ଓ ଦୋଳଗୋବିନ୍ଦ ଭୋଳବେଦୀକୁ ଠିଜେ କଯ଼ିବେ ।

ରାମଲୀଳା :-

ଚୈତ୍ର ଶୁକ୍ଲ ଅଷ୍ଟମୀ ଦିନଠାରୁ ଶ୍ରୀମନ୍ଦିରେ ରାମଲୀଳାଙ୍କର ଲୀଳ୍ୟା ସ୍ୱାଗ୍ୟୁ ଦୁଅ । ବେଶ ଦିନ ସସ୍ୟାଦୁର ମଧିବା ଦରେ ଜେଦ୍ଧ ଭୋଗ ମହାଭୁଜ ଭାଟେ ଦୁଅ । ଟା ବଟୁ ସ୍ୱାର୍ଷାର୍ଥ ବେଯ୍ୟଦିନ ମଧ୍ୟାହ୍ନ ପୂଜା ପରେ ରାମବିଦୁ ବିଧାନି ବାଳନି କଯ଼ାଯାଇ । ବେଶ ଦିନଠାରୁ ରାମଲୀ ଳ୍ୟରେ ମଣ୍ଡ ବିଧିବିଧାନି ବିଧୁତୁର୍ବିକ ବାଳିଟ ଦୁଅ । ଦ୍ୱାଦଶ ବେଶ ଦିନଠାରୁ ରାମଲୀ ଳ୍ୟରେ ମଣ୍ଡ ବିଧିବିଧାନି ବିଧୁତୁର୍ବିକ ବାଳିଟ ଦୁଅ । ଦ୍ୱାଦଶ ଲାଗ୍ରୋଗୀ । ବେଜାଦମୀ ଦିନ ମଧା ବିବାଦ, ଦ୍ୱାଦଶୀ ଦିନ ବନବାସ, ଚଦୁର୍ଦ୍ଦୀ ଦିନ ମାସ୍ୟୁଧ ଯୁଷ୍ୟକ. ପୂର୍ଣିମା ଦିନ ବ୍ରକାଯୋଧି, ବୋଧାନ ଭୁଜ୍ତ ବ୍ରତିଦିବା ଦିନ ଦେଢୁର୍ଭି, ଦ୍ୱିଶ୍ୟା ପ୍ରଶ୍ଚଦ ଦିନ ରାଜ୍ୟଭେବା ସ୍ୱାଦି ବାଳନ କଯ଼ାଯାଇ ।

ଶ୍ରୀକୃଷ୍ଣଙ୍କ ଗୋଲୋକ ଧାମକୁ ଶ୍ରୀ ବୃନ୍ଦାବନଧାମରେ ଆରୋପିତ କରି ଜଗନ୍ନାଥ ଦାସ ପ୍ରମୁଖ ଭକ୍ତ କବି ମଞ୍ଚକବି କରିଥିବାର ଚେଷ୍ଟା କରିଛନ୍ତି। ଶ୍ରୀ ବୃନ୍ଦାବନ୍ ଦ୍ବୈତଭକ୍ତି ତଥା ରାଧା ଯାଗୋଜା ବାରିଥିବୁ ବାୟୁଭୁ ଭଜନରେ କାଳିନ୍ଦୀରେ କିମ୍ବା ବିଦ୍ୟାଧାର କରିଛନ୍ତି : ତାର ଦୃଷ୍ଟାନ୍ତ ଭଜନ ଗୀତାରେ ଏଠାରେ ବର୍ଣ୍ଣିତ ଦେଖନ୍ତୁ।

"ଜେଉଲୋ ବାୟୁ ବୃନ୍ଦେ ବନି।   ଜେଉଁ ବୃନ୍ଦୁ ପଶ୍ଚାରୀ।

ରାଧା ଜୀ ଯେଉଠୁ ଗଲ୍ଲେ।   ବ୍ରାଜୀ ଜିତିରେ ଠାୱ୍ରେ।

ଏମନ୍ତ ଗୋପିଦିନି ଯଙ୍କୁ।   ଜେଉଁବେଲାଯ୍ ନୀଲାଧେ।

ଚଢ଼ଡି ଚନ୍ଦ୍ରମା ପୃହଁ।   କବରେ ବାୟୁ ବୃନ୍ଦୁ ଗୋୟୀ।

ଯେଉଁଣ ନୃତାଣି ଗୋୱର।   ମନରେ ଦେଉବଲ କାଜରେ।

ତ୍ରୋଜ କମଙ୍କୁ ଜିଶାରିଲା।   ଭୁନିଲ ନିନୋଗ ତେ କଲ୍ଣ୍ଣା।

ନିଣୀ ଜୋ ପୁଜ ଆଗୁରିଲା।   ଯାଧୁ ନୋ ଯାଇକାନ ଜଲ୍ଲୀ।

ମୟମ୍ୟ ନୀରିବ ଭିଗ୍ଲାଗ।   ଗୀଜା ଜୋ ମୟମ୍ୟ କରଚ।

ବେ ଦୃବେ ବୃନ୍ଦୁ ରାଜ୍ଟ୍ଟାଗ୍ଟୀ।   ନୀଲ ନେଣ୍ଟରେ ଯୁନଲ ଋଣି। "

                    (ବାୟୁ ବୃନ୍ଦୁ ଗୀତା)

ସେହିପରି 'ଭ୍ରମରିଗୀତା' ଭଞ୍ଜରେ କବି ଜଗନ୍ନାଥ ଦାସ ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କୁ ବ୍ରଜରେ ଗୁପ୍ତ ଭାବରେ ଗୁପ୍ତ କରିଛନ୍ତି।

                    "   ଦେଖ ବେ ନଗଲ୍ଲାଜିଚ ।

                    ଗୁପ୍ତ ଗୁପଚ ଯାଜାର୍। "

ନିବନ୍ଧ

ଶ୍ରୀ ଜଗନ୍ନାଥ ଚଉଳିର ବର୍ଣ । ଗୋଟିଏ ସ୍ୱାତନ୍ତ୍ର ଦେବତା । ଏମାନେ ଚାରି ଜଣଙ୍କ ନାମ ଶ୍ରୀଜଗନ୍ନାଥ ପୂଜେ ବୂଲା ଡାକିକା କରନ୍ତି । ଶ୍ରୀ ଜଗନ୍ନାଥଙ୍କ ମହାପ୍ରସାଦକୁ ନିର୍ମଳ୍ୟ ବୋ ଚାଡ଼ିଳ ପ୍ରାଣ୍ୟୀଣ ସମୟେ ଜକ୍ର ଦୋଟିକି କରିଥାନ୍ତି । ଏହିଳିଳୁ ଅଟ୍ଟୁଟିଣ ବାମ୍ୟାଣଣେ ଜଣ ବର୍ଣ ବାଲିକି କରାଯାଥାଏ । ଶ୍ରୀ ଜଗନ୍ନାଥ ସମୋକ ଦେଶ ମଧ୍ୟ ପାଉଣ କରିଥାନ୍ତି । ଦେଖନ୍ତି - ପ୍ରାଟେ ଦେଶ, ଗେଣ୍ଡାଣ ଦେଶ, କାଳିନୁ ଦିନକି ଦେଶ , ସୁନା ଦେଶ , ୟୁନା ଦେଶ, ଜୋଡ଼ଲାଗି ଦେଶ ଦେଖ୍ୟାନ୍ତି । ଡ଼ାଜ୍ଞଦ୍ବେ ଦଜ୍ଞଣ ଅଟ୍ଟି —

"ମର୍ଦ୍ଦମସ୍ୟୁକେ ଦେଦୁ ବର୍ଦୁ
ଦେବଟା ବୋଲ୍ୟର୍ଦେକ ମଡ଼ତ" ।

ଶ୍ରୀ ଜଗନ୍ନାଥ ଅଟ୍ଟ ସମ୍ୟକ । ଟାଟ ବାବଦେ କାଟିଦେ , ଦୁକଟାଟ ୟାଦେ ଅଟ୍ଟୁ ବିଚାର ନାହିଁ । ଅଟ୍ଟ ଦାଢ଼ିଆ ବଜଟୀ ଦ୍ୱାରା ଯାର୍ତିଟ ନଟିକେକି ସ୍ୟାଟ୍ଟୁଣେ ଜକ ଶ୍ରୀ ଦୁ ବୁଜାଟୀ ଜଟ୍ୟବାଟୁକୁ । ଅଟ୍ଟୁ ଜଳ୍ୟାମ ଦାସଟୀ ରାବଦେ ଜିଟ୍ୟକ ଦେଜ୍ୟ ଜଟ୍ଦାୟଟ ନଟି ଜୋଟଟୁ ଛାଟି ବାଜିବାଟୁଟ୍ଟୁ ଟାଂ୍ୟ ସୁବାଟ୍ଟ ବାଟି ଅଧକୁ । ସେଟୁ ବଟି ମଟ୍ୟପ୍ଟୁ ବୁଟିଟ ଦେଶ ମଧ୍ୟ ପାଉଣ କରିଥାନ୍ତି ଧନ୍ୟ୍ୟାଟୁଟାଟେ । ୭୬୦ ଶ୍ରୀ ଜଗନ୍ନାଥ ପଟୁଟ୍ଟଟ ବୁଟିଟ ବାଟଟେ ବଟିଟୁ ୭ଟଟେ ବ୍ୟ ବ୍ୟ କଟିଜାଲି କରିଥାନ୍ତି । ମଟ୍ୟପ୍ଟୁ କଟୀ ମୁଖ୍ୟ ଲୀଲା ଦେଟୁକୁ ବାଟ ବଟନୀ ବ୍ଦା ନିଲଟଜନେ ଟି୍ୟାଟୀ ୭୬ ନିଟ୍ୟ ରମୁଟେ ବିଟ୍ୟାଟୀ ବୋଟଟ ବାତ । ମହାପ୍ରଭୁକଟ ବୁଟଲ ନାଟୀ । ଶ୍ରୀ ଜୋଟ୍ଟଦେ ସଟୁଟ୍ଟିଟ ବୋଟଟ୍ୟାଟ । ଜଗନ୍ନାଥକଟ ବାଟ । ମଟ୍ୟପ୍ଟୁକଟ ବୁଟଲ ନାଟୀ । ଶ୍ରୀ ଜୋଟ୍ଟଦେ ବାମ୍ୟାଟଦେ ଟେଟ ବର୍ଣ ବାଲିକି ଟଟ୍ୟାଟୀ ଦେଟୁକୁ ସର୍ଟ୍ୟବ୍ୟ ନାଟୀ । ଶ୍ରୀ ଜୋଟ୍ୟମାଟ ବୁର୍ଣିମା ନି ମଟ୍ୟପ୍ଟୁକ ସ୍ୟାଟନାଟ୍ୟା ବାଟିଟ ଦୁବ । ୭ଟୁ ନନ ଟ୍ୟୋଟ୍ୟାଟ । ଜେଟୁମାଟ ବୁର୍ଣିମା ନି ମଟ୍ୟପ୍ଟୁକ ସ୍ୟାଟନାଟ୍ୟା ବାଟିଟ ଦୁବ । ଟ୍ୟାଟାଟ ମାଟ ବୁଲ୍ଲଲ ଟିଟିଲ୍ୟା ନି ମଟ୍ୟପ୍ଟୁକଟ ଟ୍ୟୋଟୁବ ଦା ଟ୍ୟାଟାଟୀ ବାଲିକି କ୍ୟାମାବ । ଶ୍ରୀ ଜଗନ୍ନାଥ ବଟଟ ନାଟ । ଶ୍ରୀ ବୁଟ୍ୟିଟା ମଟୋଟ୍ୟ ବା ଦୁ୍ୟଲାଟ୍ୟା ବାଲିକି କ୍ୟାମାବ । ସେ ଅଟ୍ୟାସ୍ୟାଧ ଦେବଟା । ସେ ବୁଟ୍ୟ୍ୟମୟ । ବାଟଟାଲୁ ପଟ୍ୟୁଟିଟେ ସେ ଦୃଟ୍ୟ୍ୟ ମୟ ୟୁ ଦେବଟା । ଓଟ୍ଟିଣାଟ ସେ ବ୍ୟକ୍ତେ । କନିବାଟେ ଶ୍ୟୁ ଟ୍ୟାର୍ବିଣ ଦେଟୁକ୍ତ ଶ୍ୟାକ୍ମ

PROJECT REPORT ON

DEPARTMENT OF ODIA

PATTAMUNDAI COLLEGE, PATTAMUNDAI

SESSION 2021-22

ATTENDANCE SHEET OF STUDENTS

SL. NO.	NAME OF THE STUDENT	ROLL NO.	SIGNATURE
1	Itishree Panda.	19010114400205	Itishree Panda.
2	Kamalini maliak	19010114400306	Kamalini malik
3	Karisma Samal	190101144002017	karisma Samal
4	Litu Sethi	19010114400201118	Litu sethi
5	Liza sethi	190101144002019	Liza sethi
6	minakshi malik	190101144002012	minakshi mali
7	Namita Gerul	190101144002022	Namita Gerul
8	Prabina Sahoo	190101144002012	Prabina sahoo
9	Pratima swain	190101144002020	Pratima swain
10	Prativa Das	190101144002012	Prativa Das
11	Gitanjali Parida	190101144002014	Gitanjali Parida
12	Dipti rani malik	190101144002013	Dipti rani Malik
13	Diptimayee Behera	190101144002019	Diptimayee Behera
14	Bioopemane Ropt	190101144002011	Bioopemane Ropt
15	Baresha Malloch	19010114400202010	Baresha Malloch
16	Arpitarani Das	190101144002010	Arpitarani Das
17	Anima Sahoo	190101144002010	Anima Sahoo
18			
19			
20			
21			

PATTAMUNDAI COLLEGE
PATTAMUNDAI

DEPARTMENT OF PHYSICS

PROJECT
ON

"FUNDEMENTAL FORCES AND ELEMENTARY PARTICLES"

PREPARED BY 3RD YEAR STUDENTS

AND

SUPERVISED BY -: Baikunth Charan Roul
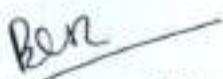
March-2022

Signature of the
Supervisor
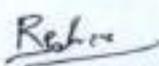
signature of
H.O.D. Physics

REPORT

A project on "**FUNDAMENTAL FORCES AND ELEMENTARY PARTICLES**" was prepared by students of Department of Physics during the month of March 2022. Two members of student participated in the project work. They collected several materials on the concerned topic from different Libraries and other studious Places. The department faculties co-operated them in all these works and this project is original.

H. O. D. Physics
H.O.D. Physics
Pattamundai College

Principal
Pattamundai College

PROJECT ON : **FUNDAMENTAL FORCES AND ELEMENTARY**

PARTICLES

DEPARTMENT OF PHYSICS,

PATTAMUNDAI COLLEGE, PATTAMUNDAI.

SESSION 2021-2022

ATTENDANCE SHEET

Sl. No.	Name of the Student	Roll No	Signature
1	ADITYANARAYAN ROUT	1902010740020053	Adityanarayan Rout.
2	AUROBINDA JENA	1902010740020060	Aurobinda Jena.

Rah...
H.O.D. Physics
Pattamundai College
H. O. D. Physics
Pattamundai College

CONTENTS

Introduction

The theories and discoveries of thousands of physicists since the 1930s have resulted in a remarkable insight into the fundamental structure of matter: everything in the universe is found to be made from a few basic building blocks called fundamental particles, governed by four fundamental forces. In physics, the fundamental interactions, also known as fundamental forces. There are four fundamental interactions known to exist: the gravitational and electromagnetic interactions, which produce significant long-range forces whose effects can be seen directly in everyday life, and the strong and weak interactions, which produce forces at minuscule, subatomic distances and govern nuclear interactions. Some scientists hypothesize that a fifth force might exist, but these hypotheses remain speculative. Each of the known fundamental interactions can be described mathematically as a field. The gravitational force is attributed to the curvature of spacetime, described by Einstein's general theory of relativity. The other three are discrete quantum fields, and their interactions are mediated by elementary particles described by the Standard Model of particle physics Many theoretical physicists believe these fundamental forces to be related and to become unified into a single force at very high energies on a minuscule scale, the Planck scale, but particle accelerators cannot produce the enormous energies required to experimentally probe this.

The weak and electromagnetic forces have already been unified with the electroweak theory of Sheldon Glashow, Abdus Salam, and Steven Weinberg, for which they received the 1979 Nobel Prize in physics.Some physicists seek to unite the electroweak and strong fields within what is called a Grand Unified Theory (GUT). An even bigger challenge is to find a way to quantize the gravitational field, resulting in a theory of quantum gravity (QG) which would unite gravity in a common theoretical framework with the other three forces. Some theories, notably string theory, seek both QG and GUT within one framework, unifying all four fundamental interactions along with mass generation within a theory of everything (ToE).

History Of Fundamental Force:

1.Classical History: In his 1687 theory, Isaac Newton postulated space as an infinite and unalterable physical structure existing before, within, and around all objects while their states and relations unfold at a constant pace everywhere, thus absolute space and time.Newton inferred that matter exhibits an attractive force. His law of universal gravitation implied there to be instant interaction among all objects. As conventionally interpreted, Newton's theory of motion modelled a central force without a communicating medium. Conversely In 1873, James Clerk Maxwell unified electricity and magnetism as effects of an electromagnetic field whose consequence was light, travelling at constant speed in a vacuum. If his electromagnetic field theory held true in all inertial frames of reference, this would contradict Newton's theory of motion, which relied on Galilean relativity.

2.The Standard Model: The Standard Model of particle physics was developed throughout the latter half of the 20th century. In the Standard Model, the electromagnetic, strong, and weak interactions associate with elementary particles, whose behaviours are modelled in quantum mechanics (QM).For predictive success with QM's probabilistic outcomes, particle physics conventionally models QM events across a field set to special relativity, altogether relativistic quantum field theory (QFT). Force particles, called gauge bosons—force

Standard Model of Elementary Particles

carriers or messenger particles of underlying fields—interact with matter particles, called fermions.Everyday matter is atoms, composed

of three fermion types: up-quarks and down-quarks constituting, as well as electrons orbiting, the atom's nucleus. The force carriers of the weak interaction are the massive W and Z bosons.

Overview of the fundamental interactions

In the conceptual model of fundamental interactions, matter consists of fermions, which carry properties called charges and spin $\pm 1/2$ (intrinsic angular momentum $\pm \hbar/2$, where $\hbar$ is the reduced Planck constant). They attract or repel each other by exchanging bosons.

The exchange of bosons always carries energy and momentum between the fermions, thereby changing their speed and direction. The exchange may also transport a charge between the fermions, changing the charges of the fermions in the process (e.g., turn

Elementary Particles

them from one type of fermion to another)."Since bosons carry one unit of angular momentum, the fermion's spin direction will flip from $+1/2$ to $-1/2$ (or vice versa) during such an exchange (in units of the reduced Planck's constant). Since such interactions result in a change in momentum, they can give rise to classical Newtonian forces. In quantum mechanics, physicists often use the terms "force" and "interaction" interchangeably; for example, the weak interaction is sometimes referred to as the "weak force"
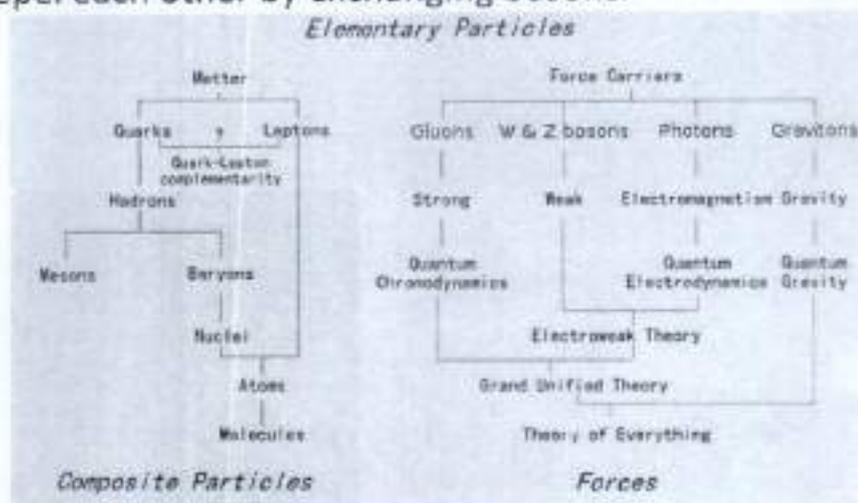
Interaction	Current theory	Mediators	Relative strength[20]	Long-distance behavior	Range (m)[21]
Weak	Electroweak theory (EWT)	W and Z bosons	10^{25}	$\frac{1}{r}e^{-m_{W,Z}\,r}$	10^{-18}
Strong	Quantum chromodynamics (QCD)	gluons	10^{38}	$\sim r$ (Color confinement, see discussion below)	10^{-15}
Electromagnetic	Quantum electrodynamics (QED)	photons	10^{36}	$\frac{1}{r}$	∞
Gravitation	General relativity (GR)	gravitons (hypothetical)	1	$\frac{1}{r}$	∞

The Fundamental Interactions

1. Gravity

Gravitation is by far the weakest of the four interactions at the atomic scale, where electromagnetic interactions dominate. Gravitation is the most important of the four fundamental forces for astronomical objects over astronomical distances for two reasons. First, gravitation has an infinite effective range, like electromagnetism but unlike the strong and weak interactions. Second, gravity always attracts and never repels; in contrast, astronomical bodies tend toward a near-neutral net electric charge, such that the attraction to one type of charge and the repulsion from the opposite charge mostly cancel each other out. [22] Even though electromagnetism is far stronger than gravitation, electrostatic attraction is not relevant for large celestial bodies, such as planets, stars, and galaxies, simply because such bodies contain equal numbers of protons and electrons and so have a net electric charge of zero. Nothing "cancels" gravity, since it is only attractive, unlike electric forces which can be attractive or repulsive. On the other hand, all objects having mass are subject to the gravitational force, which only attracts. Therefore, only gravitation matters on the large-scale structure of the universe. The long range of gravitation makes it responsible for such large-scale phenomena as the structure of galaxies and black holes and it retards the expansion of the universe. Gravitation also explains astronomical phenomena on more modest scales, such as planetary orbits, as well as everyday experience: objects fall; heavy objects act as if they were glued to the ground, and animals can only jump so high. Gravitation was the first interaction to be described mathematically. In ancient times, Aristotle hypothesized that objects of different masses fall at different rates. During the Scientific Revolution, Galileo Galilei experimentally determined that this hypothesis was wrong under certain circumstances — neglecting the friction due to air resistance and buoyancy forces if an atmosphere is present (e.g. the case of a dropped airfilled balloon vs a water-filled balloon), all objects accelerate toward the

Earth at the same rate. Isaac Newton's law of Universal Gravitation (1687) was a good approximation of the behaviour of gravitation. Our present-day understanding of gravitation stems from Einstein's General Theory of Relativity of 1915, a more accurate (especially for cosmological masses and distances) description of gravitation in terms of the geometry of spacetime. Merging general relativity and quantum mechanics (or quantum field theory) into a more general theory of quantum gravity is an area of active research. It is hypothesized that gravitation is mediated by a massless spin-2 particle called the graviton. Although general relativity has been experimentally confirmed (at least for weak fields, i.e. not black holes) on all but the smallest scales, there are Alternatives to general relativity. These theories must reduce to general relativity in some limit, and the focus of observational work is to establish limits on what deviations from general relativity are possible. Proposed extra dimensions could explain why the gravity force is so weak.

2.Electromagnectic Interaction

Electromagnetism is the force that acts between electrically charged particles. This phenomenon includes the electrostatic force acting between charged particles at rest, and the combined effect of electric and magnetic forces acting between charged particles moving relative to each other. Electromagnetism has an infinite range like gravity, but is vastly stronger than it, and therefore describes a number of macroscopic phenomena of everyday experience such as friction, rainbows, lightning, and all human-made devices using electric current, such as television, lasers, and computers. Electromagnetism fundamentally determines all macroscopic, and many atomic-level, properties of the chemical elements, including all chemical bonding. This force is many times larger than the weight of the planet Earth. The atomic nuclei in one jug also repel those in the other with the same force. However, these repulsive forces are canceled by the attraction of the electrons in jug A with the nuclei in jug B and the attraction of

the nuclei in jug A with the electrons in jug B, resulting in no net force. Electromagnetic forces are tremendously stronger than gravity but cancel out so that for large bodies gravity dominates. Electrical and magnetic phenomena have been observed since ancient times, but it was only in the 19th century James Clerk Maxwell discovered that electricity and magnetism are two aspects of the same fundamental interaction. By 1864, Maxwell's equations had rigorously quantified this unified interaction. Maxwell's theory, restated using vector calculus, is the classical theory of electromagnetism, suitable for most technological purposes. The constant speed of light in a vacuum (customarily described with a lowercase letter "c") can be derived from Maxwell's equations, which are consistent with the theory of special relativity. Albert Einstein's 1905 theory of special relativity, however, which follows from the observation that the speed of light is constant Electroweak interaction Electromagnetism no matter how fast the observer is moving, showed that the theoretical result implied by Maxwell's equations has profound implications far beyond electromagnetism on the very nature of time and space.

3.Weak Interaction

The weak interaction or weak nuclear force is responsible for some nuclear phenomena such as beta decay. Electromagnetism and the weak force are now understood to be two aspects of a unified electroweak interaction — this discovery was the first step toward the unified theory known as the Standard Model. In the theory of the electroweak interaction, the carriers of the weak force are the massive gauge bosons called the W and Z bosons. The weak interaction is the only known interaction that does not conserve parity; it is left–right asymmetric. The weak interaction even violates CP symmetry but does conserve CPT.

4. Strong Interaction

The strong interaction, or strong nuclear force, is the most complicated interaction, mainly because of the way it varies with distance. The nuclear force is powerfully attractive between nucleons at distances of about 1 femtometre (fm, or 10–15 metres), but it rapidly decreases to insignificance at distances beyond about 2.5 fm. At distances less than 0.7 fm, the nuclear force becomes repulsive. This repulsive component is responsible for the physical size of nuclei, since the nucleons can come no closer than the force allows. After the nucleus was discovered in 1908, it was clear that a new force, today known as the nuclear force, was needed to overcome the electrostatic repulsion, a manifestation of electromagnetism, of the positively charged protons. Otherwise, the nucleus could not exist. Moreover, the force had to be strong enough to squeeze the protons into a volume whose diameter is about 10–15 m, much smaller than that of the entire atom. From the short range of this force, Hideki Yukawa predicted that it was associated with a massive force particle, whose mass is approximately 100 MeV. The 1947 discovery of the pion ushered in the modern era of particle physics. Hundreds of hadrons were discovered from the 1940s to 1960s, and an extremely complicated theory of hadrons as strongly interacting particles was developed.

- The pions were understood to be oscillations of vacuum condensate
- Jun John Sakurai proposed the rho and omega vector bosons to be force carrying particles for approximate symmetries of isospin and hypercharge;
- Geoffrey Chew, Edward K. Burdett and Steven Frautschi grouped the heavier hadrons into families that could be understood as vibrational and rotational excitations of strings.

ELEMENTARY PARTICLES

Elementary Particles Circa 1930. By the 1930's physicists recognized four elementary particles and four fundamental forces (see Table 2). The interactions that the particles take part in are shown after the particle name. Note that only the neutron and proton take part in the strong interaction.[2] Thus, one might have ventured to say in the 1930's that the number of elementary particles was remarkably few. Furthermore these particles, interacting via the four fundamental forces were the components of all matter in the universe and that all phenomena in the universe could, in principle, be explained in terms of these particles and interactions. However, there were large gaps of knowledge to be filled in this picture before full understanding was achieved. First of all, the "quanta" of the strong interaction needed to be identified

Elementary particles and the fields with which they interact, as viewed in the 1930's. The fields are denoted: S = netic, W = Weak, = Gravitational.	
Elementary	**Interacting**
Neutron	S, E, W, G
Proton	S, E, W, G
Electron	E, W, G
Photon	E, G

Baryons, Mesons, and Leptons. When, in the late 1940's, what was thought to be these quanta were discovered, it turned out to be only the beginning. Over the years, not only did a complex spectrum of quanta of various masses appear, called "mesons," there also was discovered a spectrum of heavier strongly interacting particles, called "baryons." The "ground state" of this baryon spectrum is the familiar proton, and the first excited state is the neutron. The particles in these two spectra, all of which take part in the strong interaction, are collectively called "hadrons." The study of the properties of these hadrons and the search for what these properties tell about the

nature of the strong interaction, occupies a significant part of what is called "high energy physics." An important step in unraveling the mysteries of hadronic physics is devising intelligent schemes for classifying these large numbers of hadrons.[1] A third spectrum of particles, called "leptons," or "light particles," do not participate in the strong interaction. The members of this class includes the electron, the muon (a heavy version of the electron) and neutrinos corresponding to the electron and the muon.

Intrinsic Properties of the Elementary Particles. The intrinsic properties of the elementary particles are their mass, charge, spin, and magnetic moments. These properties are listed in Table 3 for the elementary particles we will encounter.

Intrinsic Properties of Elementary Particles. Mass in MeV/c², charge in units of e, spin in units of h

Family	Particle	Symbol	Mass	Charge	Spin
	photon	Y	0	0	1
LEPTONS	electron's neutrino	Ve	0	0	1/2
	muon's neutrino	V_μ	0	0	1/2
	tau's neutrino	V_τ	0	0	1/2
	electron	e	0.511	-1	1/2
	muon	P	105.66	-1	1/2
	tau	T	1784.2	-1	1/2
HADRONS: mesons	pion	n^0	134.96	0	0
			139.57	+1	0
		n^-	139.57	-1	0
	Kaon	K+	493.8	+1	0
		K⁻	493.8	-1	0
		κ^0	493.8	0	0
	eta	n	548.8	0	0
baryons	proton	P	938.26	+1	1/2
	neutron	n	939.55	0	1/2
	lambda	A^0	1115.6	0	1/2
	sigma	E+	1189.4	+1	1/2
		E^0	1192.5	0	1/2
		E⁻	1197.4	-1	1/2
	xi	H0	1315	0	1/2
		H⁻	1321.3	-1	1/2
	omega	o⁻	1673	-1	3/2

Pair Production and Annihilation. For every particle listed in Table 3 there is an "antiparticle" with the same mass but opposite charge. An antiparticle is symbolized by the particle symbol with a bar over it e.g. p is an antiproton. Exceptions to this nomenclature rule include the chargeless photon and n meson, which are their own antiparticles, and the electron, whose antiparticle is given the special name of "positron" with the symbol e+. A particle and its antiparticle may be created spontaneously out of energy in a process called "pair production." To conserve momentum, such a particle-antiparticle pair must have equal and opposite momenta. The energy required for such a process is equal to the rest energy of both particles plus their total kinetic energy. When a particle and an antiparticle combine, they destroy each other in a process called "pair annihilation." The total energy of the pair (rest energy plus kinetic)

converted into two or more photons of equivalent energy. At least two photons must be created to conserve momentum in the process.

Particle Decay. The majority of the particles in Table 3 have finite lifetimes and decay radioactively to some other state or group of particles with a characteristic mean life.[1] Most particles that decay have more than one final state, or "decay mode, available, although frequently one decay mode is dominant. The only particles which appear to be stable against decay are the photon, the electron, both neutrinos (v_e and v_m) and the proton.

REFERENCE

1. Quigg C (1985) Elementary-Particles and Forces. Scientific American 252: 84-95.

2. Salam A (1980) Gauge Unification of Fundamental-Forces. Reviews of Modern Physics 52: 525-538.

3. Wilczek F. Unification of Fundamental Forces, in Proceedings of the International Symposium on Lepton and Photon Interactions at High Energies.: 1979; Batavia. pp. 9.

4. Schmidt BP (2012) Nobel Lecture: Accelerating expansion of the Universe through observations of distant supernovae. Reviews of Modern Physics 84.

5. Riess AG. Filippenko AV, Challis P. Clocchiatti A. Diercks A. et al. (1998) Observational evidence from supernovae for an accelerating universe and a cosmological constant.Astronomical Journal 116: 1009-1038.

6. Gondolo P. Gelmini G (1991) Cosmic Abundances of Stable Particles – Improved Analysis, Nuclear Physics B 360: 145-179. 7. Mongan TR (2018) Origin of the Universe. Dark Energy, and Dark Matter. Journal of Modern Physics 9: 832-850.

8. Beane SR. Savage MJ (2003) The quark-mass dependence of two-nucleon systems.Nuclear Physics A 717: 91-103.

PATTAMUNDAI COLLEGE
PATTAMUNDAI

DEPARTMENT OF PHYSICS

PROJECT
ON

"LASER DIODE"

PREPARED BY 3RD YEAR STUDENTS

AND

SUPERVISED BY -: Baikunth Charan Roul

March-2022

Signature of the
Supervisor

signature of
H.O.D. Physics

REPORT

A project on "**LASER DIODE**" was prepared by students of Department of Physics during the month of March 2022. Two members of student participated in the project work. They collected several materials on the concerned topic from different Libraries and other studious Places. The department faculties co-operated them in all these works and this project is original.

H. O. D Physics
H.O.D. Physics
Pattamundai College

Principal
Pattamundai College

PROJECT ON : **LASER DIODE**

DEPARTMENT OF PHYSICS,

PATTAMUNDAI COLLEGE, PATTAMUNDAI.

SESSION 2021-2022

ATTENDANCE SHEET

Sl. No.	Name of the Student	Roll No	Signature
1	BASUDEV PADHI	1902010740020061	Basudev padhi
2	RAJENDRA KUMAR SWAIN	1902010740020068	Rajendra ku. swain

Rah.o
H.O.D. Physics
Pattamundai College
H. O.
Pattamundai College

CONTENTS

1. Introduction

Diode lasers are semiconductor devices that use the p-n junction of a semiconductor diode to create light that is coherent and generally of a single wavelength. Due to the small size, low power consumption, and cost-effective production of these devices, diode lasers have become the most common types of lasers in the world, used in a large variety of components and fields, including electronics, communications, and medical practices. The function of diode lasers is dependent on a variety of properties, including the threshold current, slope efficiency, and characteristic temperature.

When investigating the properties of a diode laser, a plot of the detector output vs. forward current, known as an L-I characteristic, can be used to determine the threshold current and the dependence of the diode laser at various temperatures. When the data is plotted, the point at which there is a significant change in detector output is an indication that the device has reached lasing conditions. The current at which this occurs is the threshold current of the laser.

The slope of the L-I characteristic can determine the efficiency of the diode laser once the diode laser as been supplied with a current higher than its threshold current. No device is 100% efficient, with the best diode lasers available able to convert approximately 50% of the electrical input power into laser light.

Diode lasers are extremely sensitive to temperature, which can influence their functionality and efficiency. By collecting data and plotting L-I characteristics at multiple temperatures between 5°C and 40°C, this temperature dependence is clearly observable, influencing the value of the threshold current for the diode laser as well as the diode laser's efficiency.

A fundamental property of a diode laser is the characteristic temperature of the device. Every laser device has an independent characteristic temperature value, which represents the diode laser's thermal stability. Diode lasers with higher characteristic temperatures are less susceptible to thermal changes of the device and its surrounding environment, yielding a more dependable and stable laser. The characteristic temperature can be empirically calculated using the relation Eq. 1.

$$I_{t!} \, a \, e^{T} \, T_o \qquad (1)$$

The characteristic temperature is an important quality for determining whether a diode laser is "good" or not.

The profile of the output laser beam of a laser diode is also of fundamental importance. The cross-sectional power distribution of the beam can be measured to determine the shape of the beam profile. From this information, the divergence of the beam in the parallel and perpendicular to the junction may be determined. The divergence of the laser beam is important for understanding the propagation of the beam through space at extended distances, and why the beam profile takes the Gaussian shape associated with it.
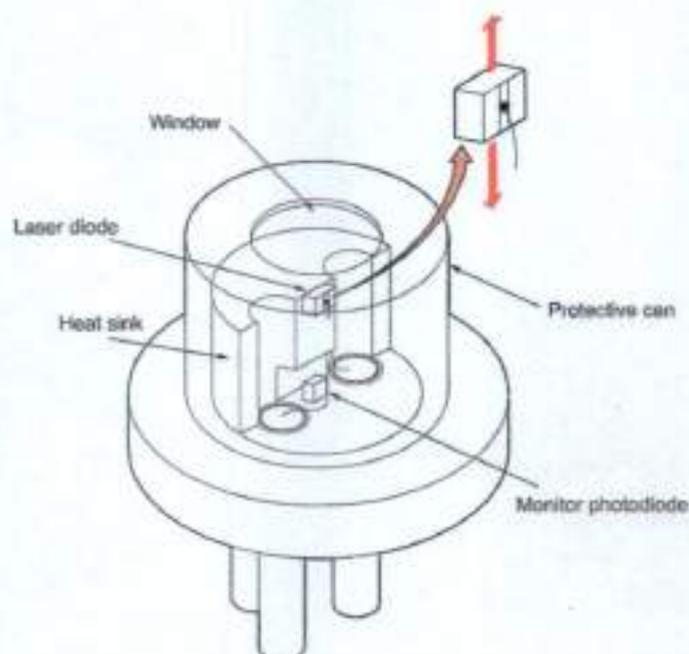
2.Advantages and disadvantages of LASER diode

The terms stand for LASER full form Light Amplification by Stimulated Emission of Radiation. It can produce coherent radiation in the visible or in an infrared spectrum when current passes through it. It can be used in optical fiber systems, compact disk players and also some remote control devices. Here this post gives information about the advantages and disadvantages of LASER diode to know more about it.

Advantages of LASER diode :

- Simple economic design
- It has low power as compared to other types of laser diodes
- Better modulation capability
- The laser diode has a high coupling efficiency
- It can be used at high temperatures
- It gives high optical power
- In this diode cheaper device to produce laser output

- It has a smaller size as compared to other types of laser diodes
- Production of light can be precisely controlled
- Laser diode to transmit optical output powers between the range of about 5 and 10 mW
- Low spectral width (3.5 nm)
- Compact
- It is easily manufactured in arrays
- The delivered system not as expensive as hard tissue laser diode
- Ability to maintain the intrinsic layer characteristics over long time periods

Disadvantages of LASER diode :

- It produces a more divergent laser beam
- They require big and costly optics for a large source of size
- It has a critical heating problem
- Hight drive current to drive the large laser for pellets
- Expensive
- A speckle pattern appears as two coherent types of light beams to added or subtracts their electric field depending upon their relative phases at the end of the fiber optic device
- Poorly absorb in hard tissue and hydroxyapatite
- Current produces unfavorable thermal characteristics
- Necessitates the use of cooling and power stabilization

3.Applications of Laser Diode :

The following are the applications of laser diode:

- **Consumer electronics:** This includes laser printers, CDs and DVD players, and fiber optic communication.
- **Industrial applications:** When it comes to industrial applications, laser diodes are preferred as it is a source of a high-intensity laser beam and used for cutting, drilling, welding, etc.
- **Medical applications:** Laser diode is used for the elimination of unwanted tissues and tumors and also in dental medication.
- **Scientific instrumentation:** Instruments like spectrometer, range finders, contact-less measurements can be done with the help of laser diodes.
- **The laser diode in telecom:** Laser diodes with 1.3 μm and 1.55 μm bands are used as the main source of light in telecom and as the band changes laser diodes find application in optical amplification

4.Methodology and Apparatus

The experiment was conducted using a GaAs based laser of 670nm, a Peltier cooler, and a large area silicon photodiode as the photodetector, connected to a voltmeter. The Peltier cooler was used to transfer heat to the heat sink and change the temperature of the diode laser. Both the temperature and forward current through the diode laser were set and monitored using the control unit provided.

The laser and detector were both attached to a triangular rail and adjusted to be at the same height. The laser was adjusted so that the output beam fell on the detector. A voltmeter was attached to the photodetector to read the output in mV, which would later be converted to mW for analysis. The experiment was divided into three parts.

Experimental Measurements of the Laser Power Output at Constant Temperature

For the first part of the experiment, the temperature was set at approximately 20°C and the drive current was varied. The output voltage and corresponding drive current was recorded with the photodetector switched to the x1 sensitivity setting. The current was started at 0.0 mA and went to a maximum of no more than 43.0 mA. The data was plotted in Excel to create an L-I characteristic, as seen in Figure 3. The associated uncertainty was also plotted. From analysis of the data plot, the threshold current was determined and recorded. For data points above the threshold current, a line of best fit was plotted. The equation of this line was determined, and the slop of this line was recorded as the slope efficiency of the diode laser.

Experimental Measurements of Laser Power Output at Varying Temperature

For the second part of the experiment, the same process from the first part was followed at seven different temperatures between 5°C and 40°C. As with the first part of the experiment, the output voltage and corresponding drive current was recorded to a maximum current of no more than 43.0 mA. Seven L-I characteristics were produced and plotted on the same graph to show the influence of the temperature variation, as can be seen in Figure 4. For each plot, the associated uncertainty was also plotted. For each temperature, the plots were analyzed and threshold current and slope efficiencies were determined and recorded. From Eq. 1., Eq. 2 was derived and the characteristic temperature was empirically calculated.

$$T_0 \, \alpha \, \frac{I}{\ln{(I_t!)}} \tag{2}$$

Experimental Measurements of Beam Spatial Cross-Sectional Power Distribution

For the third part of the experiment, the aperture was attached to the front of the photodetector. The diode laser was adjusted to be at the same height as the photodetector and moved to be 2.5 ± 0.2 cm from the photodetector. A white sheet of paper was used to view the laser beam and how it diverges. It was noted that the output beam was approximately 45° to the vertical. The sensitivity of the photodetector was switched to the x10 setting.

The temperature was set at approximately 20° and the current at 40.0 mA. The photodetector position was recorded and then displaced in the x-axis at a constant height. The detector output voltage was recorded at 0.5 ± 0.2 mm increments along the x-axis. Once the entire profile of the beam in the x-axis at that height was scanned, the detector was centered on the laser beam again at the original recorded position. The position of the photodetector along the y-axis was then displaced at a constant position on the x-axis. Once again, the detector output voltage was recorded at 0.5 ± 0.2 mm increments along the y-axis. After the entire beam had been scanned, the recorded data was plotted and beam profiles in the x-axis and y-axis were produced, as can be seen in Figure 5. For each plot, the associated uncertainty was also plotted. From the Full Width Half Maximum (FWHM), the beam divergence in the perpendicular and parallel to the junction, θ_1 and θ_1 respectively, were calculated.

5.Results

Laser Power Output as a Function of Forward Current at Constant Temperature

For the first part of the experiment the plot of the L-I characteristic is provided in Figure 3. The associated uncertainty from the detector at a sensitivity setting of x1 of ± 5% is also provided for mW measurements. From the plot, the threshold current I_{th} was determined to be 24.50 mA by analyzing the point at which the diode laser reached lasing conditions. The slope efficiency was determined from the plotted line of best fit for data points above the threshold current as 0.2925 mW/mA. This means the laser is operating at approximately 29.25% efficiency at 20°C.
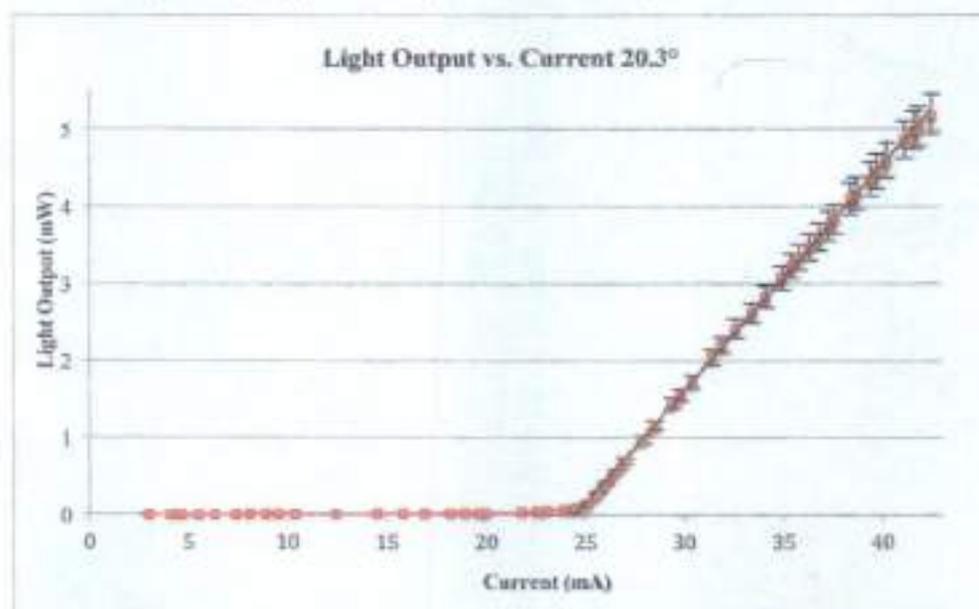
Fig. 3. L-I characteristic for diode laser at 20.3°C and varying drive current.

Temperature Dependence of the Threshold Current

For the second part of the experiment, the data collected was used to plot seven L-I characteristics at different temperatures, which is provided in the graph in Figure 4. The associated uncertainty from the detector at a sensitivity setting of x1 of ± 5% is also provided for mW measurements. The threshold currents and slope efficiencies were determined from the plots as previously stated and are provided in Table 1. Furthermore, the characteristic temperature T_o was estimated, based on the experimental relation in Eq. 2, for each temperature. For further data analysis, the characteristic was calculated in K, rather than the temperature units used by the Peltier cooler, °C.

Table 1. Threshold Current, Characteristic Temperature, and Slope Efficiencies for various diode laser temperatures.

T (°C)	7.1	10.8	15.5	20.3	25.2	29.9	34.8	39.9
T (K)	280.25	283.95	288.65	293.45	298.35	303.05	307.95	313.05
I_{th} (mA)	22.705	23.216	23.721	24.50	24.814	25.533	26.126	27.087
T_o (K)	89.75	90.29	91.16	91.74	92.90	93.34	94.38	94.89
Slope Efficiency	31.21%	30.78%	29.89%	29.25%	27.82 %	27.11%	25.96%	25.49%

6.Discussion

The experiment was completed and yielded good results. Over fifty measurements were recorded for the first part of experiment, with following parts having fewer measurements taken at low currents, which were deemed to not influence significant calculations (currents below approximately 20 mA). The results for the threshold current I_{th}, provided in Table 1, were consistent with the expected results [16]. It was observed that the threshold current varied with temperature, increasing as the temperature of the diode laser increased. Typical values for threshold currents of InGaAsP based diode lasers at room temperature range between 31-34 mA[17]. The diode laser used for this experiment is GaAs based with a GaInP active layer and AlGaInP p-type and n-type doped cladding layers, thus the resulting threshold currents can be said to be comparable with known results.

The empirically calculated values for the characteristic temperature T_0 were within the expected range of values. However, the values varied slightly with temperature, which was not expected. This variation was only by 5% between the measurements taken at 7.1°C and 39.9°C. Typical values for T_0 for GaAs/AlGaAs based diode lasers are between 60K to 150K, and consistent with the calculated results [17, 18]. The value of T_0 is highly dependent on the active layer used for the diode laser [17]. Specifically, larger values of the threshold current can be expected for lasers that use semiconductors with wider band gaps, and higher energy gaps, such as GaN as previously mentioned [8, 11, 19].

It should be noted that the calculated T_0 was only a proportional empirical relation with a final value needing multiplication by a constant based on the dimensions of the diode material. Actual values for the characteristic temperature use the current density through the device. However, additional research has shown that the relation used for calculating the characteristic temperature only holds for a small range of temperatures and current densities, with other equations used when determining the characteristics of diode lasers at very low temperatures [20]. Higher characteristic temperature values correspond to lower threshold current values. This provides a laser that is more thermally stable. Characteristic temperature is a measurement of thermal sensitivity, with good lasers having high values of T_0. Such diode lasers with large characteristic temperatures would be useful in fibre optics and other telecommunication systems [21, 22].

For the final part of the experiment, it was observed that the laser beam was diverging and formed an ellipse that was not directly aligned with the x-y axis. The angle of the laser beam was approximately 45° to the vertical, with respect to the elliptical beam shape being vertical. The diffraction of laser light through a small aperture is expected to form diffuse circular discs, Airy's disc, followed by faint concentric circles [23, 24]. The calculated values for the divergence of $\theta_x = 21.8° \pm 1.6°$ and $\theta_y = 9.1° \pm 0.7°$ were within the expected limitation. Typical angle values for the perpendicular axis is 30°, up to 40°, and parallel axis of 10° up to 12° [17-19]. The calculated values are lower than those of the expected values. This is due to the alignment of the beam and the diode laser. The method used for data collection did not scan the entire width of the beam profile. To properly determine the angular divergence, the full length and width of the beam must be measured by either changing the angle of the beam or simultaneously changing the x and y displacement of the sensor rather than keeping one constant. However, considering the limitation, the calculated divergence angles are acceptable.

The plots of the beam profile use the detector output readings in mV rather than light power in mW. This is because the x10 sensitivity setting of the photodetector was required for readings and the lab manual did not include information on the uncertainty of the detector sensitivity at the x10 setting. As the resulting values for the divergence angles are agreeable with known values, the uncertainty of the sensitivity of the detector at the x10 setting may be considered insignificant enough to have not caused any discrepancies with the final results.

To further expand this experiment, taking a full scan of the beam profile would have shown more accurate results to compare with the known divergence angles. From a full beam scan, an accurate full 2D cross-sectional map of the power distribution of the beam could have been plotted.
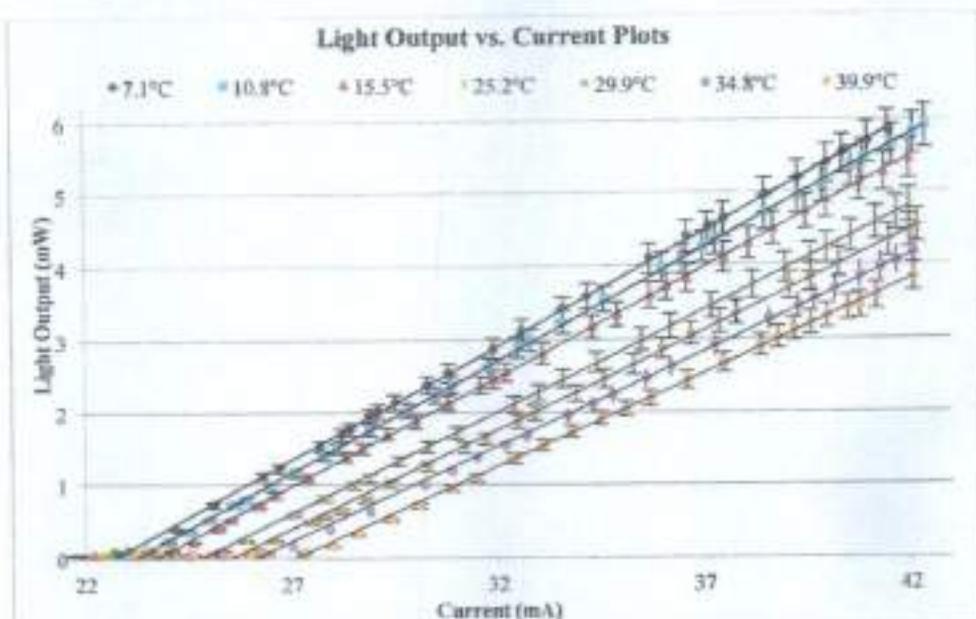
Fig. 4. L-I characteristics for diode laser at varying temperatures between 5°C and 40°C and varying drive current below 43.0 mA.

Analysis of Beam Profile and Beam Divergence Angle

For the third part of the experiment, Figure 5 shows the beam profile in the x-axis and y-axis. The associated uncertainty in the displacement of the photodetector of $\pm$ 0.2 mm is also provided. No associated uncertainty is provided for the detector output as the laboratory manual did not provide the uncertainty at a sensitivity setting of x10. The beam divergence in the perpendicular and parallel was calculated from the Full Width Half Maximum (FWHM), as $\theta_\perp = 21.8° \pm 1.6°$ and $\theta_\parallel = 9.1° \pm 0.7°$ at a distance of 2.5 ± 0.2 cm.

(a)   (b)
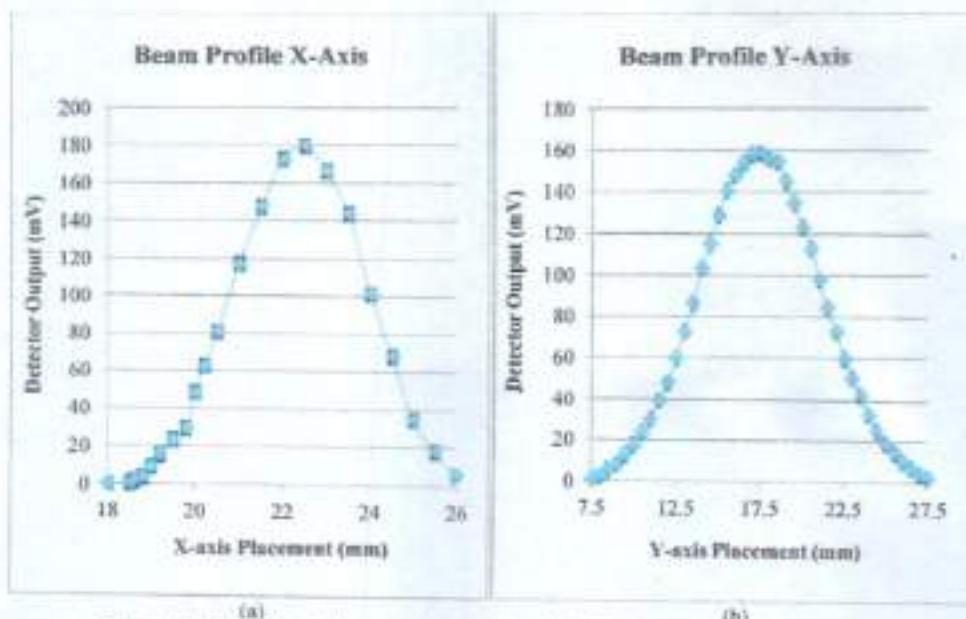
Fig. 5. Beam profile: (a) along x-axis at constant y-height; (b) along y-axis at constant x-axis displacement.

7.Conclusion

The experiment was conducted to explore the characteristics of a diode laser. The temperature dependence of the threshold current Ith was investigated and L-I characteristic plots for various temperatures were produced and analyzed. The characteristic temperature To was estimated using the empirical relation given. The optical properties of the output beam profile were investigated and the divergence angles of the laser beam are calculated. All results were within the experimental uncertainty of expected values and consistent with other research literature.

PATTAMUNDAI COLLEGE
PATTAMUNDAI

DEPARTMENT OF PHYSICS

PROJECT
ON

"VLSI FABRICATION TECNOLOGY"

PREPARED BY 3RD YEAR STUDENTS

AND

SUPERVISED BY -: Dr. Ramesh Kumar Sahoo

March-2022

Signature of the
Supervisor

signature of
H.O.D. Physics

REPORT

A project on "**VLSI FABRICATION TECHNOLOGY**" was prepared by students of Department of Physics during the month of March 2022. Two members of student participated in the project work. They collected several materials on the concerned topic from different Libraries and other studious Places. The department faculties co-operated them in all these works and this project is original.

H. O. D Physics
H.O.D. Physics
Pattamundai College

Principal
Pattamundai College

PROJECT ON : **VLSI FABRICATION TECHNOLOGY**

DEPARTMENT OF PHYSICS,

PATTAMUNDAI COLLEGE, PATTAMUNDAI.

SESSION 2021-2022

ATTENDANCE SHEET

Sl. No.	Name of the Student	Roll No	Signature
1	AKASH ROUT	1902010740020055	Akach Roul
2	ASIMA NATH	1902010740020059	Asima Nath

Bah..
H.O.D. Physics
Pattamundai College

CONTENTS

- Introduction

- IC Fabrication Steps

- VLSI Processes

- VLSI Layout

- Beyond 20nm Technology

- Conclusion

- Reference

Introduction

Since the first edition of this text, we have witnessed a fantastic evolution in **VLSI** (very-large-scale integrated circuits) technology. In the late 1970s, non-self-aligned metal gate MOSFETs with gate lengths in the order of 10 μm were the norm. Current VLSI fabrication technology is already at the physical scaling limit with gate lengths in the 20-nm regime. This represents a reduction in device size of almost 1000x, along with an even more impressive increase in the number of devices per VLSI chip. Future development in VLSI technology must rely on new device concepts and new materials, taking quantum effects into account. While this is a very exciting time for researchers to explore new technology, we can also be assured that the "traditional" **CMOS** and **BiCMOS** (bipolar CMOS) fabrication technology will continue to be the workhorse of the microelectronic industry for many more years to come.

The purpose of this appendix is to familiarize the reader with VLSI fabrication technology. Brief explanations of standard VLSI processing steps are given. The variety of devices available in CMOS and BiCMOS fabrication technologies are also presented. In particular, the availability of components in the **IC** (integrated circuit) environment that are distinct from discrete circuit design will be discussed. In order to enjoy the economics of integrated circuits, designers have to overcome some serious device limitations (such as poor device tolerances) while exploiting device advantages (such as good component matching). An understanding of device characteristics is therefore essential in designing high-performance custom VLSIs.

This appendix will consider only silicon-based (Si) technologies. Although other compound materials in groups III through V, such as gallium arsenide (GaAs) and aluminum gallium nitride (AlGaN), are also used to implement VLSI chips, silicon is still the most popular material, with excellent cost–performance trade-off. Recent development in SiGe and strained-silicon technologies will further strengthen the position of Si-based fabrication processes in the microelectronic industry for many more years to come.

Silicon is an abundant element and occurs naturally in the form of sand. It can be refined using well-established purification and crystal growth techniques. It also exhibits suitable physical properties for fabricating active devices with good electrical characteristics. In addition, silicon can be easily oxidized to form an excellent insulator, SiO_2 (glass). This native oxide is useful for constructing capacitors and MOSFETs. It also serves as a diffusion barrier that can mask against unwanted impurities from diffusing into the high-purity silicon material. This masking property allows the electrical properties of the silicon to be altered in predefined areas. Therefore, active and passive elements can be built on the same piece of material (substrate). The components can then be interconnected using metal layers (similar to those used in printed-circuit boards) to form a monolithic IC.

IC Fabrication Steps

The basic IC fabrication steps will be described in the following sections. Some of these steps may be carried out many times, in different combinations and/or processing conditions duringa complete fabrication run.

Silicon Wafers

The starting material for modern integrated circuits is very-high-purity, single-crystal silicon. The material is initially grown as a single crystal ingot. It takes the shape of a steel-gray solid cylinder 10 cm to 30 cm in diameter and can be one to two meters in length. This crystal is then sawed (like a loaf of bread) to produce circular **wafers** that are 400 μm to 600 μm thick (a micrometer, or micron, μm, is a millionth of a meter). The surface of the wafer is then polished to a mirror finish using chemical and mechanical polishing (CMP) techniques. Semiconductor manufacturers usually purchase ready-made silicon wafers from a supplier and rarely start their fabrication process in ingot form.

Oxidation

In **oxidation**, silicon reacts with oxygen to form silicon dioxide (SiO_2). To speed up this chemical reaction, it is necessary to carry out the oxidation at high temperatures (e.g., 1000–1200°C) and inside ultraclean furnaces. To avoid the introduction of even small quantities of contaminants (which could significantly alter the electrical properties of the silicon), it is necessary to operate in a **clean room** . Particle filters are used to ensure that the airflow in the processing area is free from dust. All personnel must protect the clean-room environment by wearing special lint-free clothing that covers a person from head to toe.

Photolithography

Mass production with economy of scale is the primary reason for the tremendous impact VLSI has had on our society. The surface patterns of the various integrated-circuit components can be defined repeatedly using photolithography. The sequence of photolithographic steps is asillustrated in Fig.

The wafer surface is coated with a photosensitive layer called photo resist, using a spin-on technique. After this, a photographic plate with drawn patterns (e.g., a quartz plate with chromium layer for patterning) will be used to selectively expose the photo resist under a deep ultraviolet illumination (UV). The exposed areas will become softened (for positive photo resist). The exposed layer can then be removed using a chemical developer, causing the mask pattern to be duplicated on the wafer. Very fine surface geometries can be reproduced accurately by this technique. Furthermore, the patterns can be projected directly onto the wafer, or by using a separate photo mask produced by a 10x "step and repeat" reduction technique as shown in Fig.
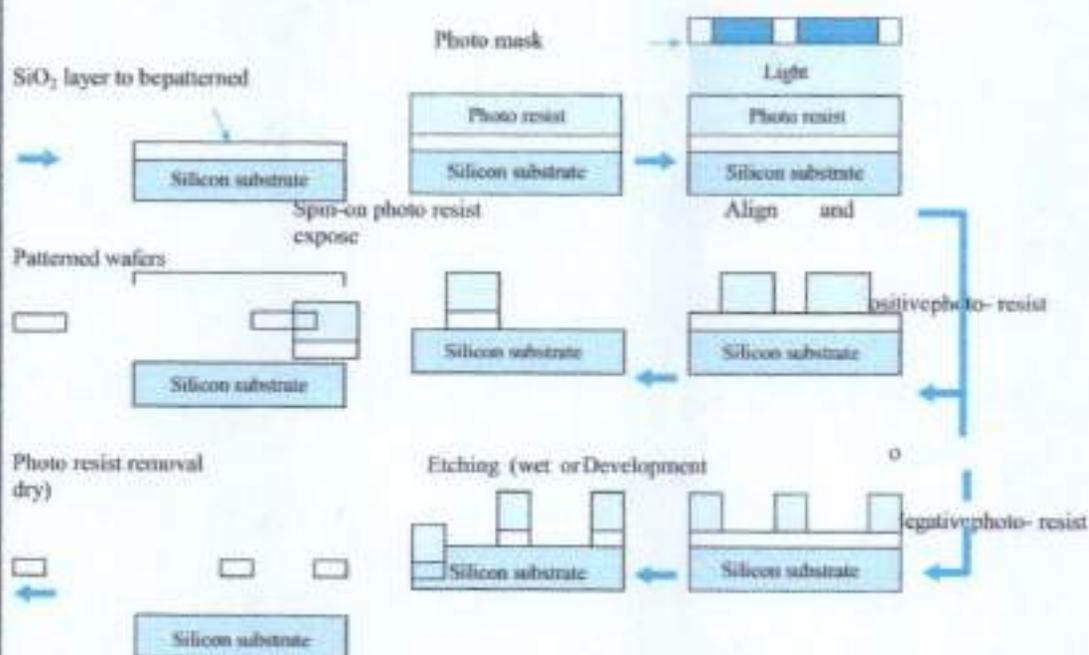
Photolithography using positive or negative photo resist.

x10 Reticule

Step and repeat camera

Actual photo-mask

Mask aligner

Patterned wafer
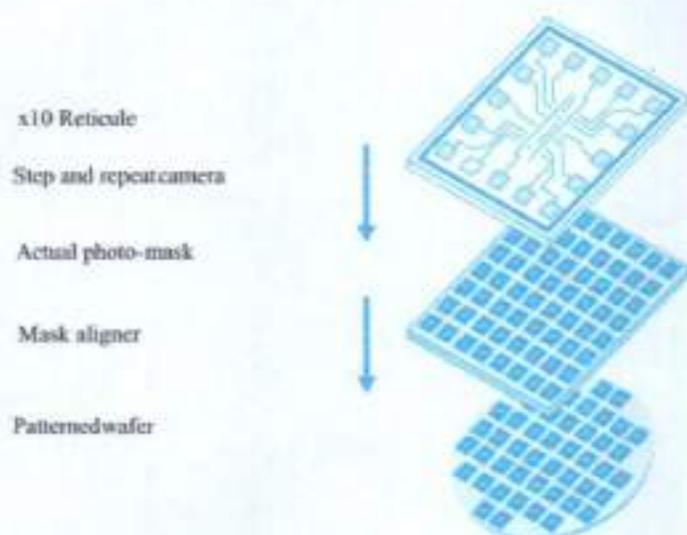
Conceptual illustration of a step-and-repeat reduction technique to facilitate the mass production of integrated circuits.

Etching

To permanently imprint the photographic patterns onto the wafer, chemical (**wet**) etching or RIE **dry etching** procedures can be used. Chemical etching is usually referred to as **wet etching**. Different chemical solutions can be used to remove different layers. For example, hydrofluoric (HF) acid can be used to etch SiO_2, potassium hydroxide (KOH) for silicon, phosphoric acid for aluminum, and so on. In wet etching, the chemical usually attacks the exposed regions that are not protected by the photo resist layer in all directions (**isotropic etching**).

Diffusion

Diffusion is a process by which atoms move from a high-concentration region to a low- concentration region. This is very much like a drop of ink dispersing through a glass of water except that it occurs much more slowly in solids. In VLSI fabrication, this is a method to introduce impurity atoms (dopants) into silicon to change its resistivity. The rate at which do pants diffuse in silicon is a strong function of temperature. Diffusion of impurities is usually carried out at high temperatures (1000–1200°C) to obtain the desired doping profile. When the wafer is cooled to room temperature, the impurities are essentially "frozen" in position.

Ion Implantation

Ion implantation is another method used to introduce impurities into the semiconductor crystal. An ion implanter produces ions of the desired dopant, accelerates them by an electric field, and allows them to strike the semiconductor surface. The ions become embedded in the crystal lattice. The depth of penetration is related to the energy of the ion beam, which can be controlled by the accelerating-field voltage. The quantity of ions implanted can be controlled by varying the beam current (flow of ions). Since both voltage and current can be accurately measured and controlled, ion implantation results in impurity profiles that are much more accurate and reproducible than can be obtained by diffusion. In addition, ion implantation can be performed at room temperature. Ion implantation normally is used when accurate control of the doping profile is essential for device operation.

Chemical Vapor Deposition

Chemical vapor deposition (CVD) is a process by which gases or vapors are chemically reacted, leading to the formation of solids on a substrate. CVD can be used to deposit various materials on a silicon substrate including SiO_2, Si_3N_4, poly silicon, and so on. For instance, if silane gas and oxygen are allowed to react above a silicon substrate, the end product, silicon dioxide, will be deposited as a solid film on the silicon wafer surface. The properties of the CVD oxide layer are not as good as those of a thermally grown oxide, but they are sufficient to allow the layer to act as an electrical insulator. The advantage of a CVD layer is that the oxide deposits at a faster rate and a lower temperature (below 500°C).

Metallization

The purpose of metallization is to interconnect the various components (transistors, capacitors, etc.) to form the desired integrated circuit. Metallization involves the deposition of a metal over the entire surface of the silicon. The required interconnection pattern is then selectively etched. The metal layer is normally deposited via a sputtering process. A pure metal disk (e.g., 99.99% aluminum target) is placed under an Ar (argon) ion gun inside a vacuum chamber. The wafers are also mounted inside the chamber above the target. The Ar ions will not react with the metal, since argon is a noble gas. However, the ions are made to physically bombard the target and literally knock metal atoms out of the target. These metal atoms will then coat all the surface inside the chamber, including the wafers. The thickness of the metal film can be controlled by the length of the sputtering time, which is normally in the range of 1 to 2 minutes. The metal interconnects can then be defined using photolithography and etching steps.

Packaging

A finished silicon wafer may contain several hundreds of finished circuits or chips. A chip may contain from 10 to more than 10^8 transistors; each chip is rectangular and can be up to tens of millimeters on a side. The circuits are first tested electrically (while still in wafer form) using an automatic probing station. Bad circuits are marked for later identification. The circuits are then separated from each other (by dicing), and the good circuits (dies) are mounted in packages (headers). Examples of such IC packages are given in Fig. A.4. Fine gold wires are normally used to interconnect the pins of the package to the metallization pattern on the die. Finally, the package is sealed using plastic or epoxy under vacuum or in an inert atmosphere.

VLSI Processes

Integrated-circuit fabrication technology was originally dominated by bipolar technology. By the late 1970s, metal oxide semiconductor (MOS) technology became more promising for VLSI implementation with higher packing density and lower power consumption. Since the early 1980s,

complementary MOS (CMOS) technology has almost completely dominated the VLSI scene, leaving bipolar technology to fill specialized functions such as high-speed analog and RF circuits. CMOS technologies continue to evolve, and in the late 1980s, the incorporation of bipolar devices led to the emergence of high-performance bipolar-CMOS

(BiCMOS) fabrication processes that provided the best of both technologies. However, BiCMOS processes are often very complicated and costly, since they require upward of 15 to 20 masking levels per implementation—standard CMOS processes by comparison require only 10 to 12 masking levels.

The performance of CMOS and BiCMOS processes continues to improve with finer lithography resolution. However, fundamental limitations on processing techniques and semiconductor properties have

prompted the need to explore alternate materials. Newly emerged SiGe and strained-Si technologies are good compromises to improve performance while maintaining manufacturing compatibility (hence low cost) with existing silicon-basedCMOS fabrication equipment.

In the subsection that follows, we will examine a typical CMOS process flow, the performance of the available components, and the inclusion of bipolar devices to form a BiCMOS process.

Integrated Devices

Besides the obvious n- and p-channel MOSFETs, other devices can be obtained by appropriate masking patterns. These include pn junction diodes, MOS capacitors, and resistors.

MOSFETs

The n-channel MOSFET is the preferred device in comparison to the p-MOSFET. The electron surface mobility is two to three times higher than that for holes. Therefore, with the same device size (W and L), the n-MOSFET offers higher current drive (or lower on- resistance) and higher Trans conductance.
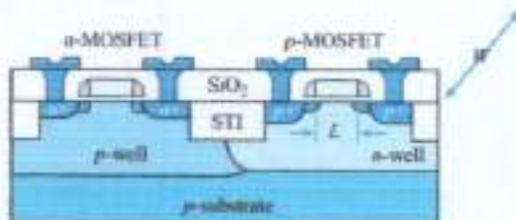
Resistors

Resistors in integrated form are not very precise. They can be made from various diffusion regions as shown in Fig. Different diffusion regions have different resistivity. The n well is usually used for medium-value resistors, while the n and p diffusions are useful for low-value resistors. The actual resistance value can be defined by changing the length and width of diffused regions. The tolerance of the resistor value is very poor (20–50%), butthe matching of two similar resistor values is quite good

(5%). Thus circuit designers should design circuits that exploit resistor matching and should avoid designs that require a specificresistor value.

Capacitors

Two types of capacitor structure are available in CMOS processes: MOS and inter poly capacitors. The latter are also similar to metal–insulator–metal (MIM) capacitors. The cross sections of these structures are as shown in Fig. The MOS gate capacitance, depicted by the center structure, is basically the gate-to-source capacitance of a MOSFET. The capacitance value is dependent on the gate area. The oxide thickness is the same as the gate oxide
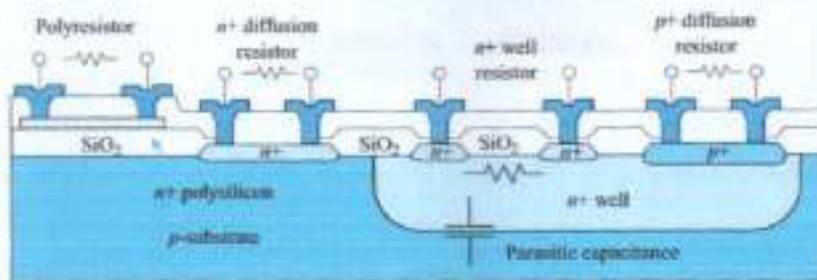
Cross sections of various resistor types available from a typical n-well CMOS process.

Inter poly Capacitor
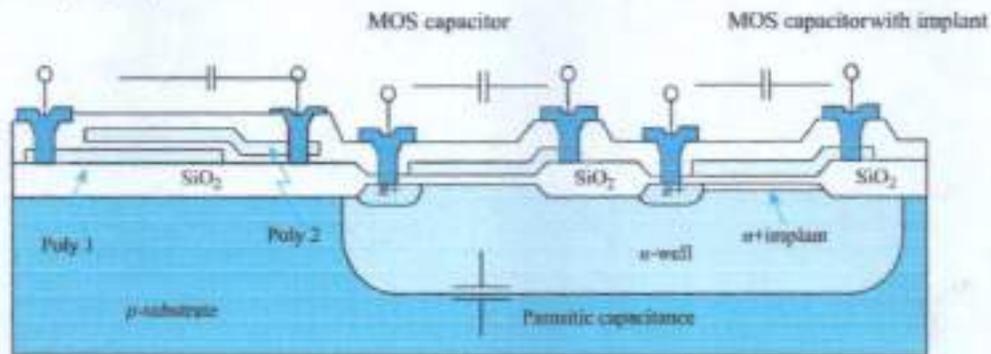
Inter poly and MOS capacitors in an n-well CMOS process.

Thickness in the MOSFETs. This capacitor exhibits a large voltage dependence. To eliminate this problem, an addition n+ implant is required to form the bottom plate of the capacitors, as shown in the structure on the right. Both these MOS capacitors are physically in contact with the substrate, resulting in a large parasitic *pn* junction capacitance at the bottom plate.

Pn Junction Diodes

Whenever n-type and p-type diffusion regions are placed next to each other, a pn junction diode results. A useful structure is the n-well diode. The diode fabricated in an n well can provide a high breakdown voltage. This diode is essential for the input clamping circuits for protection against electrostatic discharge. The diode is also very useful as an on-chip temperature sensor by monitoring the variation of its forward voltage drop.

VLSI Layout

The designed circuit schematic must be transformed into a layout that consists of the geometric representation of the circuit components and interconnections. Today, computer-aided design tools allow many of the conversion steps, from schematic to layout, to be carried out semi- or fully automatically. However, any good mixed-signal IC designer must have practiced full custom layout at one point or another. An example of a CMOS inverter can be used to illustrate this procedure.

The circuit must first be "flattened" and redrawn to eliminate any interconnection crossovers, similar to the requirement of a printed-circuit-board layout. Each process is made up of a specific set of masking layers. In this case, seven layers are used. Each layer is usually assigned a unique color and fill pattern for ease of identification on a computer screen or on a printed color plot. The layout begins with the placement of the transistors. For illustration purposes, the p and n MOSFETs are placed in an arrangement similar to that shown in the schematic. In practice, the designer is free to choose the most area-efficient layout. The MOSFETs are defined by the active areas overlapped by the "poly 1" layer. The MOS channel length and width are defined by the width of the "poly 1" strip and that of the active region, respectively. The p-MOSFET is enclosed in an n well. For more complex circuits, multiple n wells can be used for different groups of p-MOSFETs. The n-MOSFET is enclosed by the n diffusion mask to form the source and drain, while the p-MOSFET is enclosed by the p diffusion mask. Contact holes are placed in regions where connection to the metal layer is required. Finally, the "metal 1" layer completes the interconnections.

The corresponding cross-sectional diagram of the CMOS inverter along the AA^r plane is as shown in Fig. A.15. The poly-Si gates for both transistors are connected to form the input terminal, X. The drains of both transistors are tied together via "metal 1" to form the output terminal, Y. The sources of the n- and p-MOSFETs are connected to GND and V_{DD}, respectively. Note that butting contacts consist of side-by-side n^+/p^+ diffusions that are used to tie the body potential of the n- and p-MOSFETs to the appropriate voltage levels.

When the layout is completed, the circuit must be verified using CAD tools such as the circuit extractor, the design rule checker (DRC), and the circuit simulator. Once these verifications have been satisfied, the design can be "taped out" to a mask-making facility.

Beyond 20 nm Technology

The rapid advancement of VLSI fabrication technology has followed a prediction called Moore's Law for more than four decades. In 1965, Gordon Moore, one of the cofounders
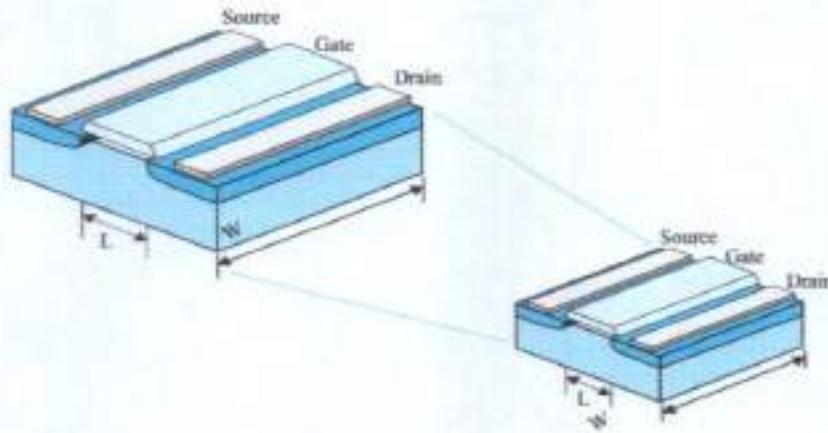
MOSFET scaling consists of the reduction of both the surface and vertical dimensions. In addition, modification of the doping profiles and choice of materials are also necessary.

of Intel, foresaw that the number of transistors that can be integrated onto a VLSI chip would roughly double every two years. In order to achieve this, the size of the transistor has to be reduced accordingly. Otherwise, the size of the VLSI chip would have grown to an unacceptable size, leading to low yield and high cost. Instead of redesigning a fabrication technology from scratch every time, a scaling procedure is normally carried out. The scaling process is not only an optical shrink of the device surface layout, it also requires the reduction in vertical dimensions such as gate oxide thickness, source and drain junction depths, etc. The effect of MOSFET scaling is illustrated. VLSI fabrication technology is categorized by the minimum dimension that it can define. This is usually referred to as the channel length of the MOS gate. The reduction in device dimensions not only allows higher integration density, the shorter channel length and closer proximity of the devices also allow higher switch speed, hence better performance. As a rule of thumb, scaling cannot be carried out with an aggressive factor. Normally, 50% reducing in dimensions is achieved every two generations. Therefore, a scaling factor of approximately 0.7 is normally used. This is why we have technology nodes such as 1 µm in 1990, to 0.7 µm, 0.5 µm, 0.35 µm, 0.25 µm, 0.18 µm, 0.13 µm, 90 nm and so on.

Conclusion

This appendix presents an overview of the various aspects of VLSI fabrication procedures. This includes component characteristics, process flows, and layouts. This is by no means a complete account of state-of-the-art VLSI technologies. Interested readers should consult other references on this subject for more detailed descriptions.

Reference

- R. S. Muller, T.I. Kamins, and M. Chan, *Device Electronics for Integrated Circuits*, 3rd ed., Hoboken, NJ, John Wiley & Sons, 2003.
- J. D. Plummer, M.D. Deal, and P.B. Griffin, *Silicon VLSI Technology*, Upper Saddle River, NJ, Prentice Hall, 2000.
- S. Wolf, *Microchip Manufacturing*, Lattice Press (www.latticepress.com), 2004.

A PROJECT REPORT
ON
"POULTRY FARMING IN PATTAMUNDAI LOCALITY"

Department of Zoology

Pattamundai College

Pattamundai

PROJECT REPORT ON

"POULTRY FARMING IN

PATTAMUNDAI LOCALITY"

SESSION - 2021-22

PREPARED BY

DEPARTMENT OF ZOOLOGY

PATTAAMUNDAI COLLEGE
PATTAMUNDAI, KENDRAPARA
ODISHA– 754215

REPORT

A **Project**titled "**Poultry Farming In Pattamundai Locality**" was undertaken by 15 students of Zoology department guided by Prof D.K. Bhuyan , Reader in Zoology in this session. Samples were collected by students from different Poultry Farms of Pattamundai Locality. All the teachers of the department help them during the project work.The Demonstrators in the department also helped the students during their experimental work . The performances of students were found to be satisfactory.

SMrishra 12.04.2023	12.4.22	12-4.22
Signature of Supervisor	**Signature of HOD**	**Principal** **Pattamundai college**

Head of The Department
Zoology
Pattamundai College.

CONTENTS

Dillip Kumar Dhuya
Head of The Department
Zoology
Pattamundai College.

ABSTRACT

Rural Environment has been transformed by the adapting model breads of livestock together with the associated packages of external inputs such as fertilizers, pesticides, antibiotics, machinery etc. necessary to make these productive.

As agriculture has developed, there has also been an increasing in population of poultries. The poultry waste and the biochemicals deposited on land and sometimes mixed with water to cause land, water and air pollution, so that the overall environment of the area under study has gone into critical stage due to these conditions.

OBJECTIVE

Study of impacts of changes in animal husbandry practice like poultry room over a period of time in a given locality of village on a local environment.

Village   :-Kasananta

P.O.   :-Kasananta

District   :-Kendrapara

State   :- Odisha

Country   :- India

INTRODUCTION

Odisha continues to be one of the poorest and backward state of India. Though it is endowed with the natural resources, its 87% population is rural based in which 22% and 16% belong to ST and SC communities respectively. Economy of Odisha is mainly based on agriculture. Odisha agriculture is mainly crop based. But other components like diary, fishery and poultry production etc. are very much important for economic development of people.

MATERIALS AND METHODS

An extensive survey has been done along different parameters, such as locality and area of poultry farms, types of birds, types of shelter, types of animals, feed methods of preservation and processing of products, medicare to the birds, disposal of wastes.

OBSERVATION

There are two poultry farms in this village.

1. Locality in which Poultry Farm is Established:

The locality of poultry farm in rural based with a lot of open space nearby. This residential units are 60 ft. away to the west side of the poultry units. There is no hinderance for people nearby residential home.

2. Area of Poultry Farms:

200 – 300 sq. ft. areas of one or two poultry farms are established by one or two educated persons of this village.

There are open space to the front east – 8 ft. and back west – 3 ft. and other two sides 3 ft. each of the poultry farms.

3. Types of Birds:

The birds like Black Rock Broiler, Kalinga Brown (Hybrid hen), Giriraj Broiler, China Fowl/Hen etc. are kept within farms.

i. *Black Rock Broiler:*

The colour of wings of those birds are black. The weight of one day chick is 3.8 grams. Usually the weight of fowl/hen is 2.5 to3.5 kg within 40 weeks.

ii. *Kalinga Brown Fowl/Hen:*

There birds are hybrids of R.R.I. hen and W.L.H. fowl. The weight of one day chick is 3.5 gm. Each hen produces 270 to 272 eggs per year. They need either 2.240 kg or

3.760 kg feed to produce 12 dozen or 1kg eggs respectively. The weight of each egg is 50 gm and the colour of egg is brown.

iii. **Giriraj Broiler:**

These birds grow very fast and the weight of the chick is 1.25 kg and 1.5 kg for 7 and 8 weeks respectively. They produce 120 to 150 eggs per year. The weight of adult fowls/hens in 3 to 4 kg.

iv. **China Fowl/Hen**

The weight of chicks within 12 to 16 weeks is 1kg. Usually they produce eggs from March to September. Each hen produces 120 eggs per year. The meat of china fowl/hen is 80% more than that of other fowls/hens.

4. Shelter for Poultry:

One is 200 sq. ft. for 200 birds and another is 400 sq. ft. for 400 birds. Mostly these are pucca buildings.

Table – 1 (shelter needed for each fowl/hen):

Types of House	Deep Litter House	Net House
Breeding House	0.4 sqft/chick	0.5 sqft/chick
Grower House	1 sqft/Grower (adult)	0.6 sqft/grower
Breeding with Rearing House	1 sqft/bird (fowl/hen)	0.6 sqft/bird (fowl/hen)
Layer House	1 sqft/layer	0.7 -0.9 sqft/layer

For every stage of fowl/hen different type of shelter or house are needed.

5. Feed for Fowls/Hens:

Table – 2 (Types of feed for fowl/hen):

Name of Food or Grain	Chick 0-8 Weeks (kg.)	Grower 9-16 Weeks (kg.)	Layer Breeder 17 Weeks or More (kg.)	Broiler Starter 0-6 Weeks (kg.)	Broiler Finisher 6 Weeks or More (kg.)
Maize Powder	45	45	45	49	60
Rice Polish	22	25	15	10	07
Soybean Mill	30	19	27	38	30
Boiled Rice Brun	-	08	06	-	-
Mineral Mixture	03	03	03	03	03
Mineral and Powder	-	-	04	-	-
Total	100	100	100	100	100

Table -3 (Feeds with vitamins with other medicines per quintal)

Name of vitamins / medicines	Chick 0-8 Weeks (kg.)	Grower 9-16 Weeks (kg.)	Layer Breeder 17 Weeks or More (kg.)	Broiler Starter 0-6 weeks (kg.)	Broiler Finisher 6 Weeks or More (kg.)
Vitamin A+B2+D3+ K2+D5 (g)	10	10	10	10	10
B Complex with E (g)	25	25	25	25	-
Net Fin - 200 g	50	50	50	50	50
Merivoit – 100 g	22	22	10	22	22
Kodan – 100 g	100	100	-	100	100
Calcivimin Fort (g)	250	250	250	500	500
Lyesene (g)	100	100	50	100	100
DAL – Methionine (g)	100	75	50	100	50
Salt (g)	500	50	500	500	500

Crude Proteins (Minimum %)	20	16	13	23	20
Crude Fiber (Maximum %)	07	08	08	06	06
Salt (Maximum %)	0.6	0.6	0.6	0.6	0.6
Calcium (Minimum %)	1.0	1.0	3.0	1.2	1.2
A Level Phosphorus (Minimum %)	0.5	0.5	0.5	0.5	0.5
Metabolizable Energy (kcal/kg.)	2600	2500	2600	2800	29000

6. Provision for Waste Disposal:

The sheds of the birds of these one or two poultry farms are cleaned and there is provision for disposal of the waste materials mainly litter.

DISCUSSION

As agriculture has developed, there has been an increase in population of cattle. Due to increase in population and decrease in agriculture land, people also want to do Poultry Farming for increase their financial condition. Now-a-days more people are interested to established the Poultry Farm.

Effect of Poultry Wastes:

The poultry waste which is composed of rice spun, wooden powder and litter, is washed out with water and deposited on wet slurry on the land. The slurry deposited on soil, may be washed or may run into drains, canals and ponds causing water pollution.

The poultry wastes are regarded as an important source of soil fertility, but they also give rice to serious problems of odors and causes air pollution. The water enters into water sources and cause water pollution when run off carries the wastes into water bodies. Such wastes containing pathogenic organisms are ultimately transmitted to human and cause air and water borne diseases.

Effect of Medicine:

The medicines used for curing diseased fowls/hens are mixed with water to cause water pollution. These chemicals have been found to be the cause for arthritis, skin diseases, serious eye, kidney and liver disorder to local people.

If the fowls/hens are attacked by severe diseases they would die. The dead bodies give bad odor and create air pollution. So dead bodies should be dug inside the hole which would be decomposed by micro-organisms. So that the farms are well maintained.

There is no waste deposited inside the farm. If their waste material deposited, the bird will fall on poultry diseases. The farms are sprayed with sanital / pine oil / phenyl after cleaning. The poultry waste, extra feed and manure i.e., phosphate etc. are put in a big hole for preparing compost, which are being used for agriculture. The birds are treated with approved medicare.

IMPLEMENTATION

Looking to adverse effect of deposited poultry wastes, medicines, dead bodies of fowls/hens etc. current emphasis is being stressed on the properly use of litter of fowl/hens, sanitation of poultry farms.

1. Provision for Waste Disposal:

The shed of the birds of poultry farms are cleaned and there is provision for disposal of waste material (mainly litter of fowls/hens).

Litters are used as manure in the field for healthy growth of crops and vegetables. It is also used as fish food. The normal rate of litters for 1 kg. is Rs. 5/- which is being sold to local farmers.

2. Litter Used for Farm Yard Manures:

Farm Yard manures are bulk organized manure resulting from decomposed mixture of dung and urine of farm animals (Cow etc.) with the litter of fowls/hens from poultry farms on average, well-rotted FYM contains 0.5-1.0% N, 0.15-0.20% P_2O_5 and 0.5-0.6% K_2O, desired C:N ratio in FYM should not exceed 15-20.

3. Sanitation for Poultry Farms:

i. **Preparation of Brood House Before Birth of Chicks:**

The house should be vacant and cleaned the wall and floor with Costic Soda. All the materials of poultry farm should be cleaned with phenyl and then with potassium permanganate water. After the cleaning these materials should be dried and dept before 8 days. Water line or channel should be cleaned by phenyl. The floor and the rooms etc. should be sprayed with 10% formalin solution (i.e., 450ml – 10 lt. water) and dept close the room for 24 hours. The wall of the house should be painted with mixture of lime and malathion powder. The rice bran or saw dust should be spread on the floor and then old news paper should be covered over them. Maize floor or suji powder should be maintained at 95° F before coming of the chicks. Then the feeds and water should be supplied slowly to the chicks.

ii. **Maintenance of Grower (For 9 to 16 weeks):**

Grower should be kept inside grower or rearing room. These rooms should be well ventilated and also kept open space for their walking and running. They should be eating their appropriate feed and water. After 8-10 weeks the hair of grower fowl should be cut.

iii. **Maintenance of Layers:**

The feed should be supplied to layers according to the proportion of feed, seasons and weather. The house of

layers also kept some open space for their walking and running. They should be taken care during summer, rainy and winter. The box for production of eggs for 5 layers should be kept in each room and good rice bran/saw dust should be spread on the floor. The egg box should be cleaned in every week and poured good rice bran. The egg should be collected 4 to 6 times from deep litter house. The birds should be saved from mice and other animals, insects etc. the dead birds should be burned or dug into the soil.

iv. **Medicare to the Birds (Chart for Injection):**

The house should be vacant and cleaned the wall and floor with Costic Soda. All the materials of poultry farm should be cleaned with phenyl and then with potassium permanganate water. After the cleaning these materials should be dried and dept before 8 days. Water line or channel should be cleaned by phenyl.

Sl. No.	Age	Name of Vaccines	Place for Giving Vaccines	Disc
1	1 day	Morax Disease	Below the skin of Neck	0.2 ml
2	5-7 days	F-1 or Lasota (For Ranikhata Disease)	On Nostril of Nose or on eye	1 drop
3	21 days	F-1 or Lasota (For Ranikhata Disease)	Eye	1 drop
4	6 weeks	Chicken Pox	Injection syringe on Wings Below wings in the skin	2 times

5	8 weeks	Ranikhata Disease (R₂B)	Below wings in the skin	0.5 ml
6	12 weeks	Chicken Pox	Through injection syringe	2 times
7	16 weeks	Ranikhata Disease (R₂B)	Below the skin of the wings	0.5 ml

CONCLUSION

If the poultry farmer will take proper sanitation care, of their poultry farms, then the fowls/hens would live healthily. So that the economic condition of these farmers will be improved. There may be less environmental pollution of the management practices and monitoring of the poultry produce will be well maintained by the consolation of experienced concerned doctors and scientists and proper feedback to them.

REFERENCES

1. A Textbook of Environmental Education - By Dr. A.N. Rai
2. Oriya Bulletin of Poultry Cultivation – Central Govt. of India
3. Environmental Education for +2 Students – By M.P. Mishra
4. Agrobios News Letter (Environment) Vol. 02 (No. 6) – 2003

PROJECT ON "POULTRY FARMING IN PATTAMUNDAI LOCALITY"

DEPARTMENT OF ZOOLOGY
SESSION- 2021-22
PATTAMUNDAI COLLEGE, PATTAMUNDAI, KENDRAPARA, ODISHA

SL. No	Name of Student	Roll No	Signature
BSCB)-19-003	chandrasekhar Mishra	BSCB)-19-003	chandrasekhar Mishra
-004	Monali Baral	-004	Monali Baral
-008	Nandini Behera	-008	Nandini Behera
-009	Amrita Behera	-009	Amrita Behera
-018	Swostika Tarei	-018	Swostika Tarei
-021	Archita Panda	-021	Archita Panda
-025	Monalisa Sethi	-025	Monalisha Sethi
-031	Tilottama Mallik	-031	Tilottoma Malik
-041	Laxmipriyo Mallik	-041	Laxmipriyo Mallik
-066	Krishnabeni Dash	-066	Krishnabeni Dash
-079	Sonali Savitri Baral	-079	Sonali Savitri Baral
-096	Rupali Kundu	-096	Rupali Kundu
-101	Biswojit Barik	-101	Biswojit Barik
-102	Sushanta Roul	-102	Sushant Roul
-121	Subhadarsini Panda	-121	Subhadarsinipanda
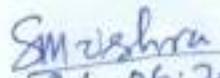
SM Mishra
26.06.2022
Signature of Supervisor