

**Government of Karnataka**



**PARA MEDICAL BOARD**

**Revised Syllabus  
of  
II Year Diploma in Health  
Inspector**

**2017**

## **Second Year Diploma in Health Inspector**

**(DHI II)**

### **Teaching hours II DHI**

#### **Teaching program – II<sup>nd</sup> year DHI : Max 400 hrs**

- Theory – 04 hours per week
- Practicals – 06 hours per week
- Field visit – 08 hours per week
- Tutorials & seminars- 02hours per week

<b>Topic</b>	<b>Theory (in hrs)</b>	<b>Practical (in hrs)</b>	<b>Field visit (in hrs)</b>
Elementary concepts of applied Anatomy and Physiology.	07		
Concept of health & disease	08		
Sociology, Types of family	10		
Behavioural Sciences	05		
Environment & health	15		
Microbiology	05		
Medical Entomology	10		
Principals of Epidemiology and Epidemiological methods	10		
Screening for diseases	05		
Nutrition & health	09		
Health Information and Basic Medical Statistics	04		
Vital statistics	02		
Tutorials/Seminar	80		
<b>Total</b>	<b>90</b>	<b>130</b>	<b>180</b>

Grand total – 400 hours

## PAPER-I

### SECTION A Q P Code : 5111

Teaching hours II DHI Max 15 hrs.

1	Elementary concepts of applied Anatomy and Physiology. ( <i>Total Teaching – 07Hrs</i> )	
2	Concept of health & disease	Concept, definition, Dimension, Positive health, Determinants of health, Indicators of health. Concept of disease, Epidemiological triad, Quality of life Index, Natural H/O disease, Risk factors, Dynamics of disease transmission ,Concept of Prevention and Control, Concept of Modes of Intervention. ( <i>Total Teaching – 08 Hrs</i> )

### **1) Elementary concepts of Anatomy**

1. General anatomy
  - a. Basic tissues of body terminology and nomenclature .
2. Systemic anatomy
  - a. Locomotor system
  - b. Digestive system – brief description about different parts of the system with brief functional and applied aspects.
  - c. Cardiovascular system
  - d. Respiratory system
  - e. Excretory system
  - f. Endocrine system
  - g. Nervous system
  - h. Reproductive system
  - i. Special sense organs
3. Osteology – human skeleton -Basic.
4. Histology
  - a. Study of microscopes
  - b. Basic techniques in histology
  - c. Study of microscopic anatomy and correlations of the structure of the following
5. Basic tissues

6. Organs – oesophagus, stomach, small intestine, colon, appendix, liver, pancreas, kidney, testis, ovary, uterus and skin.
7. Glands – salivary, endocrine

## ELEMENTS OF APPLIED ANATOMY AND PHYSIOLOGY

Understanding of the structure and functions of human body as a foundation to the principles underlying nutrition and disease process.

### Practicals:

- models, charts and slides related to the structure and functions of the human body.
  - How to take blood pressure, pulse rate and respiration rate
  - Films showing the formation of human body.
- **Practicals (anatomy):**
- Gross anatomy of limbs, gastro-intestinal tract, cardiovascular system, respiratory system, reproductive system, urinary system, endocrine system, nervous system, special senses.
- **Histology:**
- Study of microscope, objective, basic techniques

## **2) Concept of health & disease**

1. Concept, definition,
2. Dimension,
3. Positive health,
4. Determinants of health,
5. Indicators of health.
6. Concept of disease,
7. Epidemiological triad,
8. Quality of life Index
9. Natural H/O disease,
10. Risk factors,
11. Concept of Prevention and Control,
- 12. Concept of Modes of Intervention.**

## PAPER-I

### SECTION B

Q P Code : 5112

1	Sociology, Types of family	Social security, social concept in sociology, social organization, Problem family in health & disease, Cultural factors in health & disease, Medico- Social Worker (MSW)	10 hrs
2	Behavioural Sciences	Importance in health, disease, Personal hygiene	05 hrs

### 1) Elements of social sciences, rural community & characteristics

#### Contents:

- Family structures, relationships and responsibilities of individual
- Community structure, functioning of the community, its privileges and responsibilities
- Types of social institutions, religion, state, family, marriage, inheritance, social rites on marriage and death, regulated human behavior in society,
- Duties of responsible citizens, citizenship, development of desirable social attitudes, ideals and abilities, community organization for self-help, co-operative society.
- Comparative idea of the Indian and rural society, characterizations of the people and habitats, urban society in India, economic, educational and social difference between urban and rural society, caste, religion and nationality.
- Improvements in the standards of health and life expectancy, social customs and forums, resistance to adoption of new practices and things. Problems of social order, economic aspects of family life, income & budget.
- Rural community and characteristics

### 2) Behavioral Sciences

Importance in health, disease

#### Personal hygiene

Contents: Habits and customs affecting personal hygiene.

- Cleanliness of body, habits, diet, clothing, exercises, sleep, public baths, care of special senses.

## PAPER-II

### SECTION A

Q P Code : 5113

1	Environment & health	Water- Pollution & treatment, Ventilation, Air pollution , Lighting, Noise pollution, Housing standards, Solid waste disposal. Climatology, Effects of Radiation	15 hrs
---	----------------------	--	--------

### **Environment and health**

Objective: To acquire sufficient knowledge to understand the –

- Impact of environment on health
- Impact of sanitation on health and to take preventive/promotive measures

Contents:

Water Supply sources: Physical/chemical quality, bacterial indicators, conservation of sources, collection, storage and distribution.

Urban areas:-

Steps in purification of water, storage, filtration, chlorination, purification of water on large scale with particular reference to rapid sand filter.

Rural Areas:-

Sanitary well – concept, purification of water in small scale – borewell.

Ventilation,

Air pollution , Noise pollution

Lighting, , Housing standards,

Solid waste disposal.

Climatology:

- General affects of climate on health
- Prevention of effects of cold climate

- Prevention of effects of hot climate
- Demonstration
- Visit to microbiological department

Practicals:

- Demonstration of purification of water on small scale
- Visit to water treatment plant and a brief report
- Collection of water samples
- Demonstration of chlorination of well water
- Demonstration to physical, chemical, bacterial quality of water.
- Estimating chlorine demand, steps in disinfection, estimating residual chlorine
- Interpreting a water analysis report.

**Waste disposal & Excreta disposal**

- Characterization
  - o Solid/Liquid
  - o General household/special circumstance - including aspects of management with emphasis on points of generation, storage, collection, transportation and different options available for management (in terms of reducing, recycling, composting, landfill, soakage pit, sanitary latrine, septic tank, biogasification)
- Hazards due to improper/ inappropriate management
- Protective devices and universal precautions
- Sewage treatment methods

Practicals:

- Undertake waste survey in market area, hotel, health care settings (preferably a 30 bed institution)
- Demonstration of composting, sanitary landfill
- Demonstration of trench latrine, sanitary latrine, septic tank, bio-gas plant.
- Visit to a sewage treatment plant.

**Residential environment**

General principles of healthy housing in terms of:

- Walls, roof, floor, rooms, ventilators, lighting
- Facilities/methods for waste disposal both solid/liquid.

### Practicals:

- Visit/observe at least 4 residences (2 urban and 2 rural), report and suggest practical solution.
- Interact with Corporation or municipal authorities regarding legislative provisions

### **Air and ventilation**

- Concepts, importance of adequate ventilation
- Ill effects of inadequate ventilation
- Type of ventilation
- Indicators of air pollution
- Measures to reduce air pollution

### **Public gatherings**

- Selection of place
- Provision of safe water supply, sanitary disposal of waste, construction of trench latrine
- Provision for emergency medical help

### Practicals:

Visit/observe a weekly fair report with practical suggestions

PAPER-II

SECTION B

Q P Code : 5114

1	Microbiology	Helminthiasis and Parasitology	05 hrs
2	Medical Entomology		10 hrs

**1) Elements of Medical Microbiology & Parasitology**

Objectives: To be able to understand by acquiring sufficient knowledge regarding microbiological aspects of infectious disease, lab and field methods of its diagnosis and principle of control of these infectious agents with particular reference to public health microbiology and parasitology.

Contents:

Introduction to microbiology

Characterization including classification, morphology, staining/cultural characteristics, viability virulence, pathogenicity, sensitivity resistance, lab-methods of diagnosis and field investigations.

**Parasitology:**

- Parasites of public health importance (locally relevant)
- Including life history, lab diagnosis, field investigations and control measures

Practicals:

- Use of microscope
- Demonstration of infectious agents and parasites as relevant locally
- Methods of field investigations
- Specimen collection – stool, urine, blood, sputum, etc
- Stool examinations – for ova/cysts,
- Blood smear collection, staining and examination
- Staining moths – Grams, , ZN,

## **2) Elements of Entomology**

**Objectives:** To identify the insects of public health importance and its control.

Contents:

- **Morphology:** Life history, bionomics, public health importance and control of the following vectors:
  - House fly
  - Louse
  - Ticks / Mites
  - Sandfly
  - Mosquitoes
  
- **Practicals:**
  - Demonstration to different stages in life history of above mentioned vectors
  - Demonstration of breeding places of the above mentioned vectors
  - Demonstration of control measures for the different stages of above mentioned vectors
  - Collection of larva and adult mosquito

**Methods:** Life history, group discussions, group work, demonstrations

PAPER-III

SECTION- A

Q P Code : 5115

1	Principals of Epidemiology and Epidemiological methods	Definition of Epidemiology, Measurements in Epidemiology Incidence/ Prevalence, Immunizing agents, UIP/NIP, Disinfection,.	10 hrs
2	Screening for diseases	Screening/ Diagnostic Tests, Types, Uses, Criteria, Sensitivity Specificity	05Hrs

## **General Epidemiology & Screening**

General concepts of control:

- Selected definitions (eg. Endemicity, epidemic, epizootic, incubation period etc.)
- Concepts in disease causation, levels of prevention, modes of intervention, spectrum of illness, epidemiological triad, web of causation.
- Dynamics of disease transmission, including modes of transmission
- Identification of the weak link in chain of disease transmission

Different control measures (eg. Protection of susceptible, immunization, chemoprophylaxis, prompt treatment)

. Immunity:

- Immunizing agents
- Adverse reaction

Disinfection:

- Concepts / terminologies
- Principles
- Procedures

**PAPER-III**

**SECTION B**

**Q P Code : 5116**

1	Nutrition & health	Classification of foods, Nutritional requirements, Balanced diet, Nutritional problems in public health, Food hygiene, Food adulteration & fortification, Food additives, Community nutritional programs, Milk-pasteurization, Milk borne diseases . Food sanitation.	09 hrs
2	Health Information and Basic Medical Statistics	Definition, Uses of health information, Sources of health information, Statistical averages, Data & Sampling methods . Basics of Demography.	04 hrs
3	Vital statistics	Definition, Population census, estimate of Rates ,Importance and use of vital statistics	02

**NUTRITION**

Objective: to acquire sufficient knowledge regarding:

- Nutritional requirement of the body in maintenance of health including those for special groups like infant, pregnant and lactating woman.
- Preventing nutritional deficiencies

Contents:

Concepts in nutrition like:

- Classification of food
- Nutrients – carbohydrates, proteins, fats, vitamins, minerals – their daily requirements.
- Nutritive values of common food articles
- Balanced diet – nutritional requirements for special group infants, weaning, pregnancy, lactation, pre-school, school going
- Assessment of nutritional status for family/individual
- Cultural factors/nutrition
- Nutrition education
- Malnutrition concepts
  - o Characterization
  - o Home management
  - o Follow-up, therapeutic diet

### Practical:

- Demonstration of food articles and their nutritive values
- Planning a balanced diet
- Demonstration of kitchen garden for mother in community
- Diet survey – 3 families with nutrition education

### Practical:

- Visits and observation
- Dairy, market place, hotel, super market, whole-saler, retailer, slaughter-house, food-processing factory
- Common tests to detect food adulteration
- Procedure for food sampling, dispatching and interpreting of results.
- Inspect and report on food establishment, market place and slaughter-house
- Interaction with a food analyst

Visit to public health institute

## **Food sanitation**

### Objective:

- To acquire knowledge regarding the importance of maintenance and promotion of food sanitation.
- To acquire practical skills in detecting food adulteration of food articles
- To be conversant with legislative provisions

### Contents:

- Diseases transmitted through food including milk
- Food poisoning, food adulterants, food toxins, food additives, food fortification, food safety.
- Concepts of food preservation – storage/transportation etc.
- Mass catering – concepts, hazards, preventive measures
- Legislations regarding promoting food sanitation with particular reference to PFA act and local bodies statutory requirements
- Food processing centres including slaughter houses, cottage industries in food (eg. Pickles, potato chips etc.), public hazards health importance, preventive measures.
- Food vending centres including markets, super markets, wholesale/retail outlets.

### Practical:

- Visits and observation
- Dairy, market place, hotel, super market, whole-saler, retailer, slaughter-house, food-processing factory
- Common tests to detect food adulteration
- Procedure for food sampling, dispatching and interpreting of results.
- Inspect and report on food establishment, market place and slaughter-house
- Interaction with a food analyst

Visit to public health institute

## **Vital statistics**

### Contents:

- Definition, value and objectives
- Population census, estimate of population
- Rates – birth rate, death rate, infant mortality rate, still birth rate, neonatal rate – significance
- Importance and use of vital statistics – informants, collections, compilation and presentation.
- Registration – rural, urban, objects, machinery, checking
- Notifications records, use of record keeping and reporting, definitions, purpose, application, appreciation, classification, service, records, sanitation, village health records – sanitary survey forms, spot maps.

### Practicals:

- Calculation of rates
- Presentation of vital statistics

-

-

- **II DHI/Practicals/Field visits**

<b>Practical's</b>	<b>Hours</b>	<b>Field visits</b>	<b>Day</b>
<u>Elementary Anatomy:</u>	15 hrs		
Entomology	24 hrs		
First aid Demo.	6 hrs	Milk dairy	One Day
Microbiology stool examination & staining	30 hrs		
Water	20hrs	UHTC	Ten days
Statistics	10 hrs	Water Treatment plant	One day
Nutritional spotters & nutritional problems	23 hrs	Dist. Lab; Malaria/RNTCP	One Week
Protective Devices	1 hr	Visit to an industry	One Day
Meteorological Devices	1 hr		
Tutorials/Seminar	hrs		
<b>Total</b>	<b>130hrs</b>	<b>Total</b>	<b>20 days (180 hrs)</b>

<b>SUBJECT</b>	<b>SECTION</b>	<b>Question paper Code</b>	<b>MAX. MARKS</b>
Paper - I	Section A	<b>5111</b>	50
	Section B	<b>5112</b>	50
Paper - II	Section A	<b>5113</b>	50
	Section B	<b>5114</b>	50
Paper - III	Section A	<b>5115</b>	50
	Section B	<b>5116</b>	50
Practical			100

## **THEORY EXAMINATION -100 MARKS**

### **Section A : 50 Marks**

#### **I. Short Notes:**

1. 5 marks X 4 questions = 20 marks (Answer any 4 out of 5 questions)

#### **II. Short Answers:**

2. 3 marks X 10 questions = 30 marks ( Answer All 10 Questions)

### **Section B : 50 Marks**

#### **I. Short Notes:**

5 marks X 4 questions = 20 marks (Answer any 4 out of 5 questions)

#### **II. Short Answers:**

3 marks X 10 questions = 30 marks (Answer All 10 Questions)

