

## **22.Chhaya Avum Vikiran Vigyan**

### **Paper-1 Fundamentals of Chhaya Avum Vikiran Vigyan (Radio-diagnosis & Imaging)**

#### **Part-A**

Detail knowledge of principles of Ayurveda and their applied aspects, specially Panch Mahabhuta, Dosh, Dhatu, Mala, Panch Nidan, Prakriti, Shatkriyakaal, Praman, Chhya-Pratichchhaya , Prabha, , Rogi pariksha (Trividha, Shatvidha especially Darshan pariksha),their relevance with Chhaya avum Vikiran Vigyan.

-Study of Ayurvedic classics and modern Medical Science texts related to Chhaya avum vikiran vigyan

- Chhaya avum Vikiran vigyan as a means of Darshan priksha.

#### **Part-B**

- Infrastructure of an ideal Chhaya avum vikiran unit.
- Fundamental principles of Chhaya avum vikiran vigyan
- Detail knowledge of equipments (yantra) used in Chhaya avum Vikiran Vigyan.
- Dark room techniques
- Ionizing and non ionizing energies related to Chhaya avum Vikiran Vigyan - relevant hazards, prevention and precautions, their management by Ayurvedic and modern measurements.
- Trividh Karma –Poorva ,Pradhan avum Pashchat Karma in Chhaya avum Vikiran Vigyan
- Occupational physical disorders of consultants related to Radio-diagnosis and imaging.

### **Paper-2 Applied Anatomy, Physio-pathology and Procedures in Chhaya avum Vikiran Vigyan (Radio-diagnosis & Imaging)**

#### **Part-A**

#### **Applied Anatomy, Physiology & Pathology in Chhaya avum vikiran Vigyan (Radio-diagnosis & Imaging)**

Detail knowledge of Ayurvedic and Modern applied radiological Anatomy (including sectional), Physiology and Pathology of the human body;

1. Sira(Vessels), Gaurya Sira, (Lymphatic channels), Mansa (Muscles), Snayu (Ligaments), Kandara (Tendons), Sandhi(Joints), Nadi(Nerve), Asthi(Bones), Strotas,Marma, Antahsravi granthi (Endocrine glands) etc.
2. Urdhwajatrugata(Supraclavicular) parts-Kapaal(Skull),Karna(Ears),Chakshu( Eyes), Nasa(Nose), Paranasal sinuses, Lalagranthi( Salivary glands), Face, Greeva(Neck), Sushumna( Spinal cord) and Kaseruka (vertebrae), Mukha(Mouth), Danta(Teeth), Mastulunga(Brain), Lasika granthi( Lymph glands) etc.
3. Koshtha (Trunk) parts-Sushumna( Spinal cord) and Kaseruka( vertebrae).
  - a. Vaksha(Thoracic)parts-Phuphphus(Lungs),Hridaya(Heart)&Sira(Vessels), Shwashnalika (Trachea, Bronchi), Annamarg (Esophagus), Lymph nodes, Kooch (Breast), Hridayabandhan ( Diaphragm )etc.
  - b. Udar(Abdominal)parts- Audaryyakalaa (Peritoneum) Aamashaya(Stomach) , Kshudrant (Smallintestine), Vrihadantra (Large intestine), Guda(Rectum and Anal canal), Aantrapuchchha (Appendix) , Yakrit(Liver), Tilam(Gall bladder), Billiary channels, Pleeaha(Spleen), Agnyashaya(Pancreas), Vrikka (Kidney),Gavini(ureter), Basti(urinarybladder), Shishna(penis),Paurushgranthi (prostate) ,Vrishan(testes),Shukrashaya (seminalvesicles),Dimbashaya(ovaries), Perineum Garbhashaya(uterus), Yoni, Dimbvahini( fallopian tubes), Lasika granthi (lymph nodes) etc.
4. Shakha-parts of upper and lower extremities.

## **Part –B Procedures in Chhaya avum Vikiran Vigyan (Radio-diagnosis & Imaging)**

- Various routine and special, non-contrast and contrast radiography, Digital radiography, Radiographic positions and views.
- Various Ultra Sonographic procedures -Various diagnostic and therapeutic Ultrasonography [routine,,joint study, various Endo-USG, Obstetrics -Garbha vinishchaya (confirmation of pregnancy) , Masanumas Garbh vridhhi (fetal development), Garbha swastha (fetal well being) and Vyadhi (fetal diseases) ,Vikrita garbha (congenital anomalies ) . Apara (Placenta ) , Nabhinadi darshan (umbilical cord ),Garbhapatta (abortion ) Apara / Garbhaavayav Apaatan (Retained conceptual products), Gynaecology –Yonivyapat (gynaecological disorders), Bandhyatva (infertility) , Garbhashayabhransha (uterine prolapse)etc. Dopplers USG guided techniques and other advances.
- CT, MRI, Radionuclide scanning, PET and other recent advanced procedures in Radio-diagnosis & Imaging.  
Mammography  
Bone Densitometry  
Interventional radiology

## **Paper 3 *Physics and Biology related to Chhaya avum Vikiran Vigyan( Radio diagnosis & Imaging)***

### **Part-A**

- Physics of radiography, Digital radiography, Fluoroscopy, their application.
- Physics of ultrasonography, its applied aspect related to various U.S.G, Doppler procedures.
- Study of contrast materials used in Radio-diagnosis and imaging.

### **Part-B**

- Physics of CT scan, its applied aspect, efficiency and limitations.
- Physics of MRI, its applied aspect, efficiency and limitations.
- Physics and its applied aspect related to other imaging procedures e.g. PET, Radio-Nuclides imaging etc.
- Biology related to Chhaya avum Vikiran Vigyan

## **Paper-4<sup>th</sup> *Applied Chhaya avum Vikiran Vigyan (Radio-diagnosis & Imaging)***

### **Part-A**

Applied aspects of radiographic interpretation and reporting of various diseases related to systems, organs (as mentioned in paper-2<sup>nd</sup>, part-A ) and metabolism.

### **Part-B**

- Applied aspects of Ultrasonography, interpretation and reporting of various diseases related to system, organ (as mentioned in paper-2<sup>nd</sup>, part-A,) and metabolism, routine joint study, various Endo-USG. , Obstetrics -Garbha vinishchaya (confirmation of pregnancy) , Masanumas Garbh vridhhi (fetal development), Garbha swastha (fetal well being,bio-physical profile) and Vyadhi (fetal diseases) ,Vikrita garbha (congenital anomalies,2<sup>nd</sup> level obstretic USG ) . Apara (Placenta ) , Nabhinadi darshan (umbilical cord ),Garbhapatta (abortion ) Apara / Garbhaavayav Apaatan (Retained conceptual products), Gynaecology –Yonivyapat (gynaecological disorders), Bandhyatva (infertility) , Garbhashayabhransha (uterine prolapse)etc. Dopplers, USG guided techniques and other advances..
- Applied aspect , interpretation and reporting of CT scan, MRI scan and other advanced Radiological techniques.

- Application of Chhaya avum vikiran vigyan in context to Ayurvedic fundamentals, diagnosis, management and research.

**Reference Books;**

Shusruta Samhita	Relevant part
Charak Samhita	- do-
Astang Hridaya/Sangrah	- do-
Text Book of Radiographic Positioning and Related Anatomy	- By Kenneth L Bontrager, John P Lampignano
Radiographic interpretation to general practitioner	-W.H.O.
Procedures in diagnostic Radiology	- By T. Doyle, W. have, K. Thomson.
Radiographic positioning	- By Clark
Radiobiology for the Radiologist	- By Hall.Christensen's
Physics of Diagnostic Radiology	- By Curry T S , Dowdey J E , Murry R C
Farr's Physics for Medical Imaging	- By Penelope Allisy-Roberts , jerry Williams
Fundamental of Diagnostic Radiology	- By Brant.
Diagnostic Imaging	- By Federle
Diagnostic Imaging	- By Peter Armstrong , Martin Wastie , Ansrea Rockall
Gastrointestinal radiology	- R.L. Eisenberg
Uro-radiology	- T.Sherwood, A.J.Davidson, .B.Talner
Grainger and Allison's Diagnostic Radiology	-Text book of medical imaging
Text Book in Radiology and Imaging	- By D. Sutton.
Introduction to Vascular Ultrasonography	- By Zwiebel , Pellerito
Text book in Ultrasonography	- By Roumack
Manual of Medical Diagnostic Ultrasonography	- By W.H.O. Scientific group.
Computed Tomography & MRI of the whole body	- By Hagga.
Surface and Radiological Anatomy	- By A. Halim
X-Ray equipment for student Radiographers	- By DN and MO Chesney
Clinical Sonography , A Practical Guige	- By Roger C. Sanders ,
Tom Winter	
Ultrasonography in obstretics and gynaecology	-Callen
<b>Standard Journals</b> like Indian Journal of Radiology, Radiology,Radiological clinics of north America,British Journal of Radiology etc.	
<b>Audio-visual aids</b>	-CDs & DVDs

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**AYURVEDA**

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