

16. AYURVED DHANVANTRI - ASTHI SANDHI AND MARMAGAT ROGA

Paper – 1 ASTHI SANDHI MARMA ABHIGHAT SIDDHANTA

100 marks

1. Asthi Sharira - Etymology, Embryology, Applied Anatomy and Physiology of Asthi. Its Panchbhautik constitution, Poshan (Nutrition), Asthivaha Srotas, Upadhatu and Mala. Total Number and classification of Asthi. Concept of Dhatwagni in Ayurveda. Asthi Dhatu Kshaya and Vriddhi lakshana. Knowledge about Tarunasthi. Embryology, Ossification, Histology, Metabolism, Blood Supply, Types and Biomechanics of Bone and cartilage.
2. Healing mechanism of bone and factors influencing the bone healing according to Ayurvedic and Modern concept. Biological and Biophysical technologies for the Enhancement of Fracture Repair. Knowledge of Sandhaniya and Ropaniya drugs.
3. Sandhi Sharira – Classification, Applied Anatomy and Physiology of Asthi Sandhi. Classification, Applied Anatomy and Physiology of Joints and Healing Mechanism of a joint.
4. Marma Sharira – Basic concept of Marma, etymological derivation, definition, classification, Pramana, importance & applied aspect of individual Marma. Interpretation of each Marma in present context (*Regional surgical anatomy*). Detailed description of Tri-Marma and Rogamarga. Prognosis of Marmaghata.
5. Sira, Dhamni, Lasika, and Snayu Sharira - Applied Anatomy and Physiology of Vessels, Lymphatic, Ligaments, Tendons, Muscles, Peripheral Nerves and Plexuses.
6. Knowledge of Splints, Orthotics & Prosthetics.
7. Disability calculation, Bio-mechanics of gait.
8. Vrana Vigyan – Etiology, classification, symptomatology, prognosis, complications and management principles of Nija and Sadyo Vrana. Knowledge of Shashti Upakrama, Seevana - Suturing and Vrana Bandhana -Bandaging. Wounds and Ulcers – Etiology, classification, symptomatology, complications. prognosis and management principles. Advanced wound closure techniques, suture materials, dressing / bandaging materials and techniques. Wound Healing Mechanism.
9. Vranitopasniya - Management of Vranita - Wounded person. Management Principles of wounded persons. Assessment and immediate management of poly-trauma patient , crush syndrome and Acute Respiratory Distress Syndrome.
10. Vranashotha and Vidradhi - Inflammation and Abscess – Etiology, Pathogenesis, classification, stages and management.
11. Knowledge of Orthopedic implants (*e.g. wires, screws, plates, nails*) and Instruments. Knowledge of equipments (*e.g. C-arm image intensifier and drill machines etc*).
12. Orthopedic Radiology - Knowledge of Radiological imaging techniques (X-ray, CT Scan, MRI, USG, Radioisotop scanning) in Orthopedics.
13. Medico-legal aspects in Orthopedics - Handling of Medico- legal cases and issuing of MLCs, Understanding the implications of relevant acts e.g. Consumer Protection Act, Motor Vehicle Act, Right to information Act and other relevant acts in force time to time.
14. Concept of Pain according to Ayurved and Modern Medical science.
15. Principles of Reconstruction, Transplantation, Bone grafting, Bone Banking, Bone transportation and Amputation.
16. Knowledge about National Health Policies and relevant guidelines by State Govt. or Govt. of India.

Paper – II ASTHI SANDHI MARMA GATA VYADHI VISESHA

100 marks

1. Diseases of Asthi & Asthi Dhatu - Asthigata Vata, Asthivaha srothodushti, Asthi Dhatu Kshaya & Vriddhi, Adhyasthi, Asthi Vidradhi.
 - a. Congenital, Degenerative, Infective, Metabolic, Neoplastic and Miscellaneous Disorders of Bones.

2. Diseases of Sandhi – Sandhigat Vata, Vatarakta, Amavata and Kroshtukashirshaka.
 - a. Different diseases of joints – Etiology, classification, and treatment principles.
3. Vata Vikara – Asthi, Sandhi and Marma related Vata Vikara like Gridhrasi, Bisvachi, Avabahuka, Manyastambha, Khalvi, Dhatugata vata, Snayugata vata, Katishoola, Katigraha.
4. Diseases pertaining to Muscles, Tendons, Ligaments, Fascia and Bursae.
5. Diseases and Congenital anomalies of Spine e.g. Ankylosing spondylitis, Infective conditions, Tuberculosis, Spondylolisthesis, Inter-vertebral Disc Prolapse, Spondylosis, Scoliosis, Kyphosis, spina bifida, Hemivertebra, Block vertebra, Sacralisation and Lumbrisation etc.
6. Diseases and Congenital anomalies of Cervical Spine
7. Diseases and Congenital anomalies Sacroiliac Joint and Bony Pelvis.
8. Diseases and Congenital anomalies of Hand
9. Diseases and Congenital anomalies of Foot
10. Diseases and Congenital anomalies of Limbs
11. Orthopedic Neurological Disorders. Post Polio Paralysis & Cerebral Palsy.
12. Snehana, Swedana and Panchakarma in Marma, Asthi and Sandhi Vyadhi.
13. Yogic Practices in Orthopedics.
14. Principles of Arthroplasty- Joint Replacement.
15. Introduction of Peripheral Vascular Diseases.
16. Pediatric Orthopedics
17. Orthopedic Oncology
18. Introduction of Radiotherapy, Chemotherapy, Hormone Therapy, Immunotherapy and gene therapy.

Paper – III Abhigata Vigyan – Traumatology

100 marks

1. Bhagna - Etiology, classification and General Management principles and Prognosis.
2. Modern concept of Bone and Joint injuries - Etiology, Epidemiology, Classification and General management principles.
3. Individual Bone and Joint injuries - Etiology, Epidemiology, Classification and management principles.
4. External immobilization techniques - Classical and traditional Kusha -splints, Plaster of Paris Technique, Knowledge of different splints and Plasters
5. Pathological Fractures including Fragility fractures, Stress Fractures and Peri-prosthetic Fractures.
6. Fractures in Children – Etiology, Epidemiology, Diagnosis, management and complications.
7. Prognosis of skeletal injuries, Complications of Fractures and Joint Injuries e.g. Myositis ossificans, Volkman's ischemic contracture, Compartment syndrome, Crush Syndrome, DVT, Thromboembolism, Fat Embolism.
8. Rehabilitation of trauma patient and Principles of Sukhchestaprachara - Physiotherapy and its use in skeletal injuries
9. Treatment Principles of Asahanta Bhagna - Non-unions, Vishmolvana Sahanta - Malunions and Ignored or un-reduced dislocations.
10. Diagnosis and management principles of injuries of Vessels, Nerves, Tendons and Ligaments.
11. Head, Chest and Abdominal Injuries and management principles.
12. Pelvis and Spine injuries and their management principles.
13. Sports Medicine – Sports medicine and sports related Shoulder injuries, Elbow injuries, Knee injuries, Ankle Injuries, Recurrent Dislocations and other sports related injuries.
14. Knowledge of Marma Chikitsa like Kalari Marma – Martial Art, Adankal - Marmaghata Chikitsa in Siddha Marma in trauma and sports medicine.

Paper – IV Shalya Kriyatmaka - Operative Orthopedics

100 marks

1. Agropharniya Vigyan – Knowledge about Pre-operative preparation and Post operative care, Operation Theatre and its requirements regarding Instruments / Equipments and Personnel.
2. Fumigation of Operation Theatre and sterilization of Instruments, Equipments, Linen and Implants by various techniques.
3. Anu Shalya Karma (Para surgical procedures) in orthopedics – Role of Kshara Karma, Agni Karma, Raktavsechana in orthopedic disorders.
4. Knowledge of various Implants regarding their material, types, mechanics and practical use.
5. Knowledge of Conventional and advanced procedures being done for Different Bone and Joint Injuries e.g. Open Reduction and Internal Fixation, Closed Reduction and Internal Fixation, External fixators and other operative techniques.
6. Knowledge of Plastic Surgery in orthopedics and Bone grafting techniques.
7. Knowledge of various surgical procedures being done for Different Bone and Joint Diseases.
8. Hand Surgery for Diseases, Deformities and Injuries.
9. Foot Surgery for Diseases, Deformities and Injuries.
10. Amputations and Arthrodesis – General Principles of Amputations /Arthrodesis and regional Amputations.
11. Knowledge of Diagnostic and Therapeutic Arthroscopy.

Reference Books

Sushruta Samhita	Relevant Parts
Sushrut Samhita Ghanekar Commentary	
Sushruta Samhita (Dalhana Commentary)	Relevant Parts
Charak samhita	Relevant Parts
Ashtang Hridaya	Relevant Parts
Ashtang Sangraha	Relevant Parts
Bhava Prakash	Relevant Parts
Yog Ratnakar	Relevant Parts
Bhaishajya Ratnavali	Relevant Parts
Sharangdhar Samhita	Relevant Parts
The Surgical instruments of the Hindus	
Bhagna Chikitsa (Dr. P.J. Deshpandey)	- Girindranath Mukhopadhyaya.
Agni Karma – Technological Innovations	- Prof. P.D. Gupta
Shalya Tantra Samuchchaya	- Pandit Ramadesh Sharma
Shalya Vijyan (Part 1-2)	- Dr. Surendra Kumar Sharma
Shalya Samanvaya (Part 1-2)	- Vd. Anantaram Sharma
Shalya Pradipika	- Dr. Mukund Swarup Verma
Adhunika Shalya Chikitsa Siddanta	- Dr. Katil Narshingham Udupa
Shalya tantra Ke Sidhant	- Dr. K.K. Takral
Surgical Ethics in Ayurved	- Dr. G.D. Singhal
Susruta's Contribution to Surgery	- Dr. S. Sankaran
Anushastra Karma	- Dr. D.N. Pande
Concept of Vrana in Ayurved	- Dr. Lakshman Singh
Marma Chikitsa	- Dr. C. Suresh Kumar
Joint Affections and their Ayurvedic Prospective	- Vaidya Vilas M. Nanal
Marma Vimarsha	- Vaidya Vilas M. Nanal
Significance for Purva Karma in Surgical Patient	- Dr. Lakshman Singh
Medical Varmalogy	- Dr. N. Shunmugom et.al.
Siddha Varmalogy	- T. Vasanthakumar
Watson and Jones	- Fracture and Joint Injuries
Practical Fracture Treatment (R. McRae)	(J.N. Wilson)

Clinical Orthopedic Examination (R. McRae)
 Apleys System of Orthopedics (Apley Louis Solomon)
 Orthopedics – Principles & Their Application Vol. I-II (Samuel L. Turek)
 Textbook of Orthopedics and Trauma Vol. I-IV (G.S. Kulkarni)
 Fractures in Adults Vol. I – II (Rockwood and Green's)
 Fractures in Children Vol. I (Rockwood and Wilkins)
 Campbell's Operative Orthopedics Vol. I – IV
 A Concise Text Book of Surgery (S. Das)
 Pye's Surgical Handicraft
 Clinical Methods in Surgery (Sriram Bhatt)
 Clinical Methods in Surgery (S. Das)
 Operative Surgery (S. Das)
 Schwartz Principles of Surgery
 Surgical Exposures in Orthopedics - J.B. Lippincott Comp. Publication

Pattern of Practical Examination

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| • Discipline and regularity | 100 marks |
| • Bed side examination | 10 Marks |
| Short case | 10 Marks |
| Long case | 20 Marks |
| • Identification of specimen / instruments/Radiographs | 10 Marks |
| • Dissertation Presentation | 25 Marks |
| • Viva –Voce | 25 Marks |

PRACTICAL TRAINING

- Training of History taking, bed side clinical examination and case presentations.
- Identification and demonstration of surgical instruments.
- Training of orthopedic related Diagnostic imaging techniques.
- Training of Local anesthetic techniques in orthopedics.
- P.G. Scholar shall develop the skills by observing, assisting and performing independently the following procedures:
 - Non-operative
 - Manipulative reductions and external immobilization techniques.
 - Application of POP cast, Splints and Braces.
 - Bandaging Techniques
 - External medicaments and Procedures like Snehana, Swedana, Vasti, Kati Vasti, Janu Vasti, Greeva Vasti etc.
 - Training in various massage techniques.
 - Corrective POP casts for club foot & other congenital deformities
 - Operative
 - External fixation of compound fractures
 - Debridement of crush injuries
 - Amputations
 - Internal fixation of common simple fractures
 - Polio surgery such as TA lengthening.
 - Sequestrectomy in chronic osteomyelitis
 - Biopsy from a mass
 - Internal fixation of Fractures.
- Training in Vrana (Wound) Management techniques.
- Practical training of Physiotherapy in orthopedic and trauma patients.
- Training of Anu Shalya Karma like Agni Karma, Kshara Karma and Rakta Mokshna in orthopedic disorders.
- Orthopedic related Panchakarma Procedures.
