

# Contents

<i>Foreword by Dr Niranjan Kumar</i>	<i>v</i>
<i>Preface to the Third Edition</i>	<i>vii</i>
<i>Preface to the First Edition</i>	<i>viii</i>
<i>Index of Competencies</i>	<i>x</i>
<b>1. Microscope</b>	<b>1</b>
Light Microscope	1
<b>2. Epithelial Tissue</b>	<b>4</b>
Simple Epithelium	5
Apical Surface Modification of Columnar Epithelium	6
Stratified Squamous Non-keratinized Epithelium	8
Stratified Squamous Keratinized Epithelium	10
Transitional Epithelium	12
<b>3. Connective Tissue</b>	<b>16</b>
Cells of Connective Tissue	16
Loose Areolar Tissue	20
Dense Regular Connective Tissue	22
Dense Irregular Connective Tissue	24
Adipose Tissue	26
<b>4. Cartilage</b>	<b>30</b>
Hyaline Cartilage	30
Elastic Cartilage	32
White Fibrocartilage	34
<b>5. Bone</b>	<b>38</b>
Compact Bone: Transverse Section (TS)	38
Compact Bone: Longitudinal Section (LS)	40
<b>6. Muscle Tissue</b>	<b>44</b>
Skeletal Muscle: Transverse Section (TS)	44
Skeletal Muscle: Longitudinal Section (LS)	46
Cardiac Muscle	48
Smooth Muscle	50
<b>7. Nervous Tissue</b>	<b>54</b>
Peripheral Nerve: Transverse Section (TS)	54
Peripheral Nerve: Longitudinal Section (LS)	56
Sensory (Spinal) Ganglion	58
Autonomic (Sympathetic) Ganglion	60
<b>8. Circulatory System</b>	<b>64</b>
Large-sized Artery (Elastic Artery)	64
Medium-sized Artery (Muscular Artery)	66
Large-sized Vein	68
Medium-sized Vein	70
<b>9. Lymphoid System</b>	<b>74</b>
Lymph Node	74
Spleen	76
Thymus	78
Palatine Tonsil	80
<b>10. Respiratory System</b>	<b>84</b>
Epiglottis	84
Trachea	86
Lung	88
<b>11. Oral Cavity and Associated Structures</b>	<b>92</b>
Lip	92
Tongue: Filiform and Fungiform Papillae	94
Tongue: Circumvallate Papilla	96
Serous Salivary Gland	98
Mucous Salivary Gland	100
Mixed Salivary Gland	102
<b>12. Digestive System</b>	<b>106</b>
Oesophagus	106
Stomach: Fundus	108
Stomach: Pylorus	110
Duodenum	112
Jejunum	114
Ileum	116
Vermiform Appendix	118
Large Intestine/Colon	120
<b>13. Accessory Organs of Digestive System</b>	<b>124</b>
Liver	124
Gallbladder	126
Pancreas	128
<b>14. Urinary System</b>	<b>132</b>
Kidney (Cortex)	132
Ureter	134
Urinary Bladder	136
<b>15. Male Reproductive System</b>	<b>140</b>
Testis	140
Epididymis	142
Ductus (Vas) Deferens	144
Prostate	146
<b>16. Female Reproductive System</b>	<b>150</b>
Ovary	150
Uterus: Proliferative Phase	152
Uterus: Secretory Phase	154
Uterine Tube/Fallopian Tube	156
Placenta	158
Umbilical Cord	160
<b>17. Endocrine System</b>	<b>164</b>
Pituitary Gland	164
Thyroid and Parathyroid Gland	166
Adrenal/Suprarenal Gland	168
<b>18. Central Nervous System</b>	<b>172</b>
Cerebrum	172
Cerebellum	174
Spinal Cord: Transverse Section (TS)	176
<b>19. Integumentary System</b>	<b>180</b>
Thick Skin	180
Thin Skin	182
<b>20. Organ of Special Senses</b>	<b>186</b>
Eyelid	186
Cornea	188
Retina	190
Optic Nerve: Transverse Section (TS)	192

## Index of Competencies

<b>1. AN 25.1</b>	84	<b>12. AN 67.2</b>	44
Identify, draw and label a slide of trachea and lung		Classify Muscle and describe the structure and functional correlation of the same	
<b>2. AN 43.2</b>	92, 164, 186	<b>13. AN 67.3</b>	44
Identify, describe and draw the microanatomy of: Pituitary gland, thyroid and parathyroid gland, Tongue, Salivary glands, Tonsil, Epiglottis, Cornea, Retina		Describe the ultrastructure of Muscular tissue	
<b>3. AN 43.3</b>	92, 186	<b>14. AN 68.1</b>	54
Identify, describe and draw the microanatomy of: Eyelid, lip, optic nerve		Describe and Identify multipolar and unipolar Neuron, Ganglia, Peripheral nerve	
<b>4. AN 52.1</b>	106, 124, 164	<b>15. AN 68.2</b>	54
Describe and identify the microanatomical features of Gastrointestinal system: Oesophagus, Fundus of stomach, Pylorus of stomach, Duodenum, Jejunum, Ileum, Large intestine, Appendix, Liver, Gallbladder, Pancreas, Suprarenal gland		Describe the structure-function correlation of Neuron	
<b>5. AN 52.2</b>	132, 140	<b>16. AN 68.3</b>	54
Describe and identify the microanatomical features of: Urinary system: Kidney, Ureter and Urinary bladder Male Reproductive System: Testis, Epididymis, Vas deferens, Prostate Female reproductive system: Ovary, Uterus, Uterine tube, Placenta and Umbilical cord		Describe the ultrastructure of Nervous tissue	
<b>6. AN 64.1</b>	172	<b>17. AN 69.1</b>	64
Describe and identify the microanatomical features of Spinal cord, Cerebellum and Cerebrum		Identify elastic and muscular Blood vessels, Capillaries under the Microscope	
<b>7. AN 65.1</b>	4	<b>18. AN 69.2</b>	64
Identify Epithelium under the microscope and describe the various types that correlate to its function		Describe the various types and structure-function correlation of Blood vessel	
<b>8. AN 65.2</b>	4	<b>19. AN 69.3</b>	64
Describe the ultrastructure of Epithelium		Describe the ultrastructure of Blood vessels	
<b>9. AN 66.1</b>	16	<b>20. AN 70.1</b>	92
Describe and identify various types of Connective tissue with functional correlation		Identify Exocrine Gland under the microscope and distinguish between serous, mucous and mixed acini	
<b>10. AN 66.2</b>	16	<b>21. AN 70.2</b>	74
Describe the ultrastructure of Connective tissue		Identify the Lymphoid tissue under the microscope and describe microanatomy of Lymph node, Spleen, Thymus, Tonsil and correlate the structure with function	
<b>11. AN 67.1</b>	44	<b>22. AN 71.1</b>	38
Describe and identify various types of Muscle under the microscope		Identify Bone under the microscope: classify various types and describe the function correlation of the same	
		<b>23. AN 71.2</b>	30
		Identify Cartilage under the microscope and describe various types and structure-function correlation of the same	
		<b>24. AN 72.1</b>	180
		Identify the skin and its appendages under the microscope and correlate the structure with function	