

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

Test Booklet Series

T. B. C. : AP – 9 – 17/18

A

TEST BOOKLET
ASSISTANT PROFESSOR IN O.M.E.S.
(ORTHOPAEDIC SURGERY)

Sl. No. **1441**

Time Allowed : 3 Hours

Maximum Marks : 200

: INSTRUCTIONS TO CANDIDATES :

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET OF THE SAME SERIES ISSUED TO YOU.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES **A, B, C OR D**, AS THE CASE MAY BE, IN THE APPROPRIATE PLACE IN THE ANSWER SHEET USING BALL POINT PEN (BLUE OR BLACK).
3. You have to enter your **Roll No.** on the Test Booklet in the Box provided alongside. **DO NOT** write *anything else* on the Test Booklet.
4. **YOU ARE REQUIRED TO FILL UP & DARKEN ROLL NO., TEST BOOKLET / QUESTION BOOKLET SERIES IN THE ANSWER SHEET AS WELL AS FILL UP TEST BOOKLET / QUESTION BOOKLET SERIES AND SERIAL NO. AND ANSWER SHEET SERIAL NO. IN THE ATTENDANCE SHEET CAREFULLY. WRONGLY FILLED UP ANSWER SHEETS ARE LIABLE FOR REJECTION AT THE RISK OF THE CANDIDATE.**
5. This Test Booklet contains **200** items (questions). Each item (question) comprises four responses (answers). You have to select the correct response (answer) which you want to mark (darken) on the Answer Sheet. In case, you feel that there is more than one correct response (answer), you should mark (darken) the response (answer) which you consider the best. In any case, choose **ONLY ONE** response (answer) for each item (question).
6. You have to mark (darken) all your responses (answers) **ONLY** on the **separate Answer Sheet** provided by using **BALL POINT PEN (BLUE OR BLACK)**. See instructions in the Answer Sheet.
7. All items (questions) carry equal marks. All items (questions) are compulsory. Your total marks will depend only on the number of correct responses (answers) marked by you in the Answer Sheet. **There will be no negative markings for wrong answers.**
8. Before you proceed to mark (darken) in the Answer Sheet the responses to various items (questions) in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions sent to you with your **Admission Certificate**.
9. After you have completed filling in all your responses (answers) on the Answer Sheet and after conclusion of the examination, you should hand over to the Invigilator the *Answer Sheet* issued to you. You are allowed to take with you the candidate's copy / second page of the Answer Sheet along with the **Test Booklet**, after completion of the examination, for your reference.
10. Sheets for rough work are appended in the Test Booklet at the end.

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1. Ratio of the length of the lever arm of the body weight to that of the abductor musculature of hip is about :
 (A) 2.5 : 1
 (B) 3 : 1
 (C) 2 : 1
 (D) 4 : 1
2. Dorr Type A femur is also known as :
 (A) Champagne flute
 (B) Stove pipe
 (C) Lead hose
 (D) None of the above
3. The normal femoral neck has :
 (A) 5-10 degrees of anteversion
 (B) 10-15 degrees of anteversion
 (C) 0-5 degrees of retroversion
 (D) 10-15 degrees of retroversion
4. The jump distance of femoral prosthetic head is approximately :
 (A) $\frac{1}{4}$ th the diameter of head
 (B) $\frac{1}{3}$ rd the diameter of the head
 (C) $\frac{1}{2}$ the diameter of the head
 (D) Equal to the diameter of the head
5. Type 2 uncemented femoral stems have :
 (A) Single wedge design
 (B) Dual wedge design
 (C) Modular stem design
 (D) Extensively coated design
6. ALVAL is commonly seen with :
 (A) Ceramic on poly articulation
 (B) Ceramic on ceramic articulation
 (C) Metal on poly articulation
 (D) Metal on metal articulation
7. Squeaking is a problem with :
 (A) Ceramic on poly articulation
 (B) Ceramic on ceramic articulation
 (C) Metal on poly articulation
 (D) Metal on metal articulation
8. Moore's approach to hip is :
 (A) Anterolateral
 (B) Medial
 (C) Direct anterior
 (D) Posterior
9. According to acetabular quadrant system described by Wasielewski et al. for determining safe screw placement, the safest zone is :
 (A) Anterosuperior
 (B) Anteroinferior
 (C) Posterosuperior
 (D) Posteroinferior
10. The radiographic hallmark of protrusio acetabuli is the medial migration of the femoral head beyond :
 (A) Ilioischial line
 (B) Iliopectineal line
 (C) Shentons line
 (D) Schumakers line

11. In Dysplastic hips, the amount of head subluxation in Crowes type II is :
 - (A) <25%
 - (B) 25-50%
 - (C) 50-75%
 - (D) 75-100%
12. According to the classification of Brooker et al., the extent of bone formation in Gd II Heterotropic ossification :
 - (A) Islands of bone within soft tissues
 - (B) Bone spurs from the proximal femur of pelvis with at least 1cm between opposing bone surfaces
 - (C) Bone spurs from the proximal femur or pelvis with at least 2 cm between opposing bone surfaces
 - (D) Ankylosis
13. The nerve most susceptible to injury in the anterolateral approach to hip is :
 - (A) Femoral nerve
 - (B) Sciatic nerve
 - (C) Inferior gluteal nerve
 - (D) Superior gluteal nerve
14. Treatment of choice in late chronic infections of hip arthroplasty is :
 - (A) Debridement and component retention
 - (B) Single stage revision
 - (C) Two stage revision
 - (D) Antibiotic suppression
15. Cement zones around the acetabular component have been described by :
 - (A) Gruen et al.
 - (B) Delee and Charnley
 - (C) Crowe et al.
 - (D) All of the above
16. Which of the following is a stabiliser in bone cement ?
 - (A) Hydroquinone
 - (B) Di Benzoyl peroxide (BPO)
 - (C) N, N Dimethyl p toluidine
 - (D) Barium sulphate
17. Which of the following is an initiator in bone cement ?
 - (A) Hydroquinone
 - (B) Di Benzoyl peroxide (BPO)
 - (C) N, N Dimethyl p toluidine
 - (D) Barium sulphate
18. Crossover sign on an AP pelvis radiograph indicates :
 - (A) Excessive acetabular anteversion
 - (B) Excessive inclination of acetabulum
 - (C) Retroversion of acetabulum
 - (D) Isolated posterior wall overcoverage

19. In Dysplastic hips, the Lateral centre edge angle of Wiberg is :
 - (A) More than 40 degree
 - (B) 30-40 degree
 - (C) 20-30 degree
 - (D) Less than 20 degree
20. Anatomical axis of tibia lies in :
 - (A) 2 to 3 degrees of varus from vertical axis of body
 - (B) 2 to 3 degrees of valgus from vertical axis of body
 - (C) Parallel to the vertical axis of the body
 - (D) 5 to 6 varus from vertical axis of body
21. Pellegrini Steida syndrome is calcification in :
 - (A) Patellar tendon
 - (B) Quadriceps tendon
 - (C) Tibial collateral ligament
 - (D) Fibular collateral ligament
22. A patient is considered to have rheumatoid arthritis if at least four of the seven criteria for classification have been present for at least :
 - (A) 6 weeks
 - (B) 3 months
 - (C) 6 months
 - (D) 9 months
23. Which of the following is a complication following High tibial osteotomy ?
 - (A) Patella Alta
 - (B) Recurrent dislocation of patella
 - (C) Patella Baja
 - (D) Patellofemoral arthritis
24. Head shaft angle of humerus is :
 - (A) 20-30 degree
 - (B) 30-55 degree
 - (C) 55-70 degree
 - (D) 70-90 degree
25. Reverse shoulder arthroplasty can be done in all except :
 - (A) Massive rotator cuff tear
 - (B) Failed shoulder arthroplasty
 - (C) Proximal humerus fracture
 - (D) Deltoid insufficiency
26. The artery forceps was introduced by :
 - (A) Hippocrates
 - (B) Galen
 - (C) Ambroise Pare
 - (D) Lister
27. Amputation is more likely when mangled extremity severity score is more than :
 - (A) 6
 - (B) 5
 - (C) 7
 - (D) 4

28. Class III haemorrhage is _____ loss of circulating volume.
 (A) 15-30%
 (B) 30-40%
 (C) 40-50%
 (D) > 50%
29. True for osteoporosis :
 (A) Normal serum calcium
 (B) Normal serum phosphorus
 (C) Normal alkaline phosphatase
 (D) All of the above
30. In metastatic disease in skeleton, using the Mirels criteria, a score of _____ should have prophylactic internal fixation.
 (A) 4 or more
 (B) 6 or more
 (C) 8 or more
 (D) 3 or more
31. All of the following are classification systems of periprosthetic hip fractures except :
 (A) Johansson
 (B) Cooke and Newman
 (C) Vancouver
 (D) Felix
32. Root value of bulbocavernosus reflex is :
 (A) S2-S3
 (B) S3-S4
 (C) L5-S1
 (D) S1-S2
33. Root value for cremasteric reflex is :
 (A) L1
 (B) L2
 (C) L2-L4
 (D) L5
34. Sacral sparing and greater weakness in the upper limbs than the lower limbs is seen in :
 (A) Bell cruciate paralysis
 (B) Anterior cord syndrome
 (C) Central cord syndrome
 (D) Brown sequard syndrome
35. In Frenkel classification of spinal cord injury, Grade A is :
 (A) Absent motor and sensory function
 (B) Absent motor, sensation present
 (C) Motor function present but not useful
 (D) Normal motor and sensory function
36. Which vertebra has the largest body amongst the cervical vertebrae ?
 (A) Atlas
 (B) Axis
 (C) C3
 (D) C7
37. Anderson and Montesano classification is used for :
 (A) Occipital condyle fractures
 (B) Atlas fractures
 (C) Atlanto occipital dislocations
 (D) Atlanto axial injuries

38. Traction is contraindicated in which type of Hangmans fracture ?
 (A) Type 1a
 (B) Type 2a
 (C) Type 3
 (D) All of the above
39. 50% of neck rotation occurs at :
 (A) Occiput – C1
 (B) C1-C2
 (C) C2-C3
 (D) C4-C7
40. Middle third clavicle fractures account for _____ % of clavicle fractures.
 (A) 10
 (B) 20
 (C) 50
 (D) 80
41. In which type of AC joint dislocation, the clavicle is displaced posteriorly :
 (A) Type 3
 (B) Type 4
 (C) Type 5
 (D) Type 6
42. Hobbs view and serendipity views are taken for evaluation of :
 (A) Acromioclavicular joint
 (B) Sternoclavicular joint
 (C) Glenoid bone loss
 (D) Hill sachs lesion
43. Most common complication after traumatic anterior dislocation of shoulder is :
 (A) Axillary nerve injury
 (B) Rotator cuff injury
 (C) Recurrent dislocation
 (D) Vascular injury
44. The axillary nerve traverses through the :
 (A) Upper triangular space
 (B) Lower triangular space
 (C) Quadrangular space
 (D) Rotator interval
45. Nerve injury which occurs in Holstein Lewis type fractures is :
 (A) Median
 (B) Radial
 (C) Ulnar
 (D) Musculocutaneous
46. Riseborough and Radin classification is used for :
 (A) Humerus shaft fractures
 (B) Intercondylar fracture of humerus
 (C) Capitellum fractures
 (D) Trochlea fractures
47. Hahn Steintal fragment is seen in which type of capitellum fractures ?
 (A) Type 1
 (B) Type 2
 (C) Type 3
 (D) All of the above

48. Coronoid fractures are classified by :
 (A) Mason
 (B) Regan and Morrey
 (C) Thompson
 (D) Mayo
49. Terrible triad of elbow consists of all except :
 (A) Olecranon fracture
 (B) Radial head fracture
 (C) Coronoid fracture
 (D) Elbow dislocation
50. Radial head fracture-dislocation with associated interosseous ligament and distal radioulnar joint disruption is known as :
 (A) Thurston holland lesion
 (B) Essex Lopresti lesion
 (C) Kocher-Lorenz lesion
 (D) None of the above
51. In Bado classification of Monteggia fractures, in type 1 injuries, the dislocation of radial head is :
 (A) Anterior
 (B) Posterior
 (C) Medial
 (D) Lateral
52. Piedmont fracture is also known as :
 (A) Monteggia fracture
 (B) Galeazzi fracture
 (C) Bartons fracture
 (D) Colles fracture
53. Fracture of distal ulna with disruption of distal radio ulnar joint is known as :
 (A) Galeazzi fracture
 (B) Reverse galeazzi fracture
 (C) Monteggia variant
 (D) Smiths fracture
54. Normal radial inclination of distal radius is around :
 (A) 11 degree
 (B) 23 degree
 (C) 0 degree
 (D) 30 degree
55. As per Frykmans classification, intra articular radiocarpal joint involvement is seen in :
 (A) Type I/II
 (B) Type III/IV
 (C) Type V/VI
 (D) Type VII/VIII
56. Tourniquet paralysis may result from the following conditions **except** :
 (A) Excessive pressure
 (B) Narrow cuff on large thigh
 (C) Insufficient pressure
 (D) Keeping tourniquet too long
57. The Tourniquet caliberation should be :
 (A) Weekly
 (B) Two weekly
 (C) Biweekly
 (D) 3 monthly

58. Calcium Phosphate grafts belong to the following class of bone graft substitute :
- (A) Osteoinduction
 - (B) Osteoconduction
 - (C) Osteogenesis
 - (D) Combined
59. Postero-lateral approach to ankle is also known as :
- (A) Ollier's approach
 - (B) Kocher's approach
 - (C) Gatellier and Chastang approach
 - (D) Koernig and Schaffer approach
60. Pfannestiel incision is an approach to :
- (A) SI joint
 - (B) Symphysis pubis
 - (C) Ilium
 - (D) Sacrum and SI Joint
61. Shoulder strap or suspension incision is :
- (A) Anteromedial approach of Henry
 - (B) Anteromedial Cubbin's approach
 - (C) Antero lateral Deltoid splitting approach
 - (D) Trans-acromial approach to shoulder
62. Reliable features of ACL injury on MRI include the following except :
- (A) Abnormal horizontal course
 - (B) Wavy or irregular appearance
 - (C) Ligamentous thickening without edema
 - (D) ACL parallel to intercondylar notch
63. Dorr classification of Proximal femur based on cortical thickness and canal dimensions, 'funnel shape' appearance refers to :
- (A) Dorr A
 - (B) Dorr B
 - (C) Dorr C
 - (D) Dorr D
64. Centre of rotation of femoral head depends on :
- (A) Neck length
 - (B) Medial offset
 - (C) Version of femoral neck
 - (D) All of the above
65. Total Condylar Prosthesis in TKR is :
- (A) Posterior stabilised
 - (B) Cruciate retaining
 - (C) Cruciate sacrificing
 - (D) Mobile bearing
66. Following is **not** a reference of femoral rotation :
- (A) White side line
 - (B) Epicondylar axis
 - (C) Posterior tibial axis
 - (D) Posterior condylar axis

67. Following is **not** a factor for favourable result in HTO :
- (A) Purely unicompartmental
 - (B) Ligamentous stability
 - (C) Pre op Arc of motion > 90°
 - (D) FFD of > 15°
68. Following is the method of 3rd generation cementing technique :
- (A) Plugging medullary canal
 - (B) Clearing with pulse lavage
 - (C) Vacuum mixing
 - (D) Retrograde injection of cement
69. Cam type of Femoro Acetabular Impingement is associated with :
- (A) Acetabular retroversion
 - (B) Coxa Profunda
 - (C) Antero superior neck prominence
 - (D) Protrusio Acetabuli
70. Following is a contraindication for Shoulder Hemiarthroplasty :
- (A) Humeral head irregularity
 - (B) Insufficient bone on glenoid
 - (C) Deficiency in Rotator Cuff and Deltoid
 - (D) Upward subluxation of Humerus
71. Coonrad Morrey Total Elbow Prosthesis is :
- (A) Semi constrained hinge
 - (B) Constrained hinge
 - (C) Resurfacing
 - (D) Semi constrained Non Hinged
72. Mangled extremity score does not have the following group for scoring :
- (A) Trauma group
 - (B) Ischemia group
 - (C) Age group
 - (D) Shock group
73. Most beneficial test to detect blood perfusion in skin for distal level of amputation is :
- (A) Thermography
 - (B) Doppler flowmetry
 - (C) Transcutaneous oxygen measurement
 - (D) Fluctuation test
74. Following is **not** a principle of Paediatric amputation :
- (A) Preserve growth plate
 - (B) Perform transosseous amputation than disarticulation
 - (C) Preserve knee whenever possible
 - (D) Preserve the length

75. Following is the Sarmiento modification of Syme's amputation :
- (A) Transection of tibia and fibula $\frac{1}{2}$ " proximal to ankle
 - (B) Forward Calcaneal shift and Calcaneo Tibial arthrodesis
 - (C) Two stage Syme's Amputation
 - (D) Arthrodesis between Tibia and Part of Calcaneum
76. Prophylactic antibiotic therapy duration should be given for :
- (A) 5 days
 - (B) 3 days
 - (C) 48 hrs
 - (D) 24 hrs
77. In children of following age group the blood vessel crosses the physis and may allow spread of infection into epiphysis :
- (A) 2-5 yrs
 - (B) 5-10 yrs
 - (C) < 2 yrs
 - (D) 10-12 yrs
78. Following is not a type of Chronic Osteomyelitis (Cierny and Madar) :
- (A) Medullary type
 - (B) Central metaphyseal
 - (C) Superficial
 - (D) Localised
79. Harmon Hip Reconstruction is :
- (A) New femoral neck and head fashioned for articulation
 - (B) Trochanteric Acetabuloplasty
 - (C) Ball and Socket Osteotomy
 - (D) Transverse Closing Wedge Osteotomy
80. While performing biopsy in bone tumour following steps are to be avoided :
- (A) Use tranverse incision
 - (B) Use tourniquet without exsanguinations
 - (C) Go through single muscle compartment
 - (D) Biopsy performed from soft tissue extension
81. Following tumor is radioresistant :
- (A) Lymphoma
 - (B) Ewing's sarcoma
 - (C) Myeloma
 - (D) Chondrosarcoma
82. In marginal resection the resection passes through :
- (A) Normal tissue
 - (B) Through pseudocapsule
 - (C) Through tumour tissue
 - (D) Through skip lesion

83. In an expansile tumour prosthesis for paediatric age group lengthens on :
 (A) Automated mode
 (B) Manual methods
 (C) Electromagnetic manipulation
 (D) Epiphyseal growth stimulation
84. Type 6 Tikoff Linberg resection consists of :
 (A) Extra articular humeral total scapular resection
 (B) Intra articular total scapulectomy
 (C) Partial scapulectomy
 (D) Extra articular humeral and glenoid resection
85. Which of the following in case of osteoid osteoma is not correct ?
 (A) Occurs 20-30 years
 (B) No malignant change documented
 (C) Pain relieved by aspirin
 (D) Bone scan and CT scan not specific for diagnosis
86. Group A1 rotationplasty is done after :
 (A) Proximal femoral lesion
 (B) Distal femoral lesion
 (C) Mid femur
 (D) Entire femur
87. The following is not a feature of non ossifying fibroma :
 (A) Developmental anomaly
 (B) Metaphyseal location
 (C) Multilocular appearance scalloped borders on x ray
 (D) Periosteal reaction
88. Multiple hereditary exostosis is :
 (A) Autosomal dominant with gene mutation
 (B) No disturbance in growth seen
 (C) Has lower tendency for malignancy as compared to solitary osteochondroma
 (D) Does not occur as solitary lesion
89. Osseofibrous dysplasia is :
 (A) Affects femur and pelvis
 (B) Some regress spontaneously in childhood
 (C) Progression after puberty is common
 (D) Non recurrence after curettage in children
90. Desmoplastic fibroma of bone has the following features :
 (A) Latent benign tumour
 (B) Long tubular bones involved
 (C) Marginal resection advised
 (D) No tendency for recurrence

91. Unicameral bone cyst :
- (A) Is variant of aneurismal bone cyst
 - (B) Lesions are active after skeletal growth
 - (C) 90% of patient can be treated by injection of steroid in cavity
 - (D) It has high tendency for recurrence
92. Following is not a feature of hemangioma of bone :
- (A) Common benign lesion
 - (B) Spine X-ray shows jail house appearance
 - (C) Curettage and grafting mandatory treatment
 - (D) Selective arterial Aembolisation for treatment
93. Bone infarcts not seen in :
- (A) Sickle cell anaemia
 - (B) Gaucher's disease
 - (C) Cirrhosis of liver
 - (D) Dysbaric condition
94. Following is an example of benign active lesion :
- (A) Non ossifying fibroma
 - (B) Aneurysmal bone cyst
 - (C) GCT
 - (D) Osteochondroma
95. Chondroblastoma is an example of the following benign tumour :
- (A) Benign active
 - (B) Benign latent
 - (C) Benign aggressive
 - (D) Low grade malignancy
96. Eosinophilic granuloma (Langerhans histiocytosis) is treated with all except :
- (A) Conservatively
 - (B) Steroid injection
 - (C) Wide excision
 - (D) Radiation therapy
97. "Punctuate" popcorn or comma shaped calcification seen in the following cartilaginous tumour :
- (A) Osteochondroma
 - (B) Chondrosarcoma
 - (C) Chondromyxoid fibroma
 - (D) Chondroblastoma
98. Following is not a prognostic factor in Ewing's sarcoma :
- (A) Distant metastasis
 - (B) Size of primary swelling
 - (C) Grade
 - (D) Location
99. Commonest site for occurrence of chordoma is :
- (A) Sacrococcygeal lesion
 - (B) Base of skull
 - (C) Cervical spine
 - (D) Lumbar region

100. Admantioma arises from :
- (A) Mesenchymal cell
 - (B) Nests of Epithelial cells
 - (C) Fibrous tissue
 - (D) Histiocytes
101. The following is not true in case of malignant fibrous histiocytoma :
- (A) May occur in bone infarction
 - (B) Radiologically malignant and shows new bone formation and periosteal reaction
 - (C) Histologically high grade spindle cell sarcoma
 - (D) Treatment is similar to osteosarcoma
102. Commonest source of metastatic lesion in the bone is :
- (A) Breast
 - (B) Kidney
 - (C) Lung
 - (D) Thyroid
103. Mirel's scoring system in metabolic tumours helps in :
- (A) Predicting impending pathological fracture
 - (B) Predicting survival in metastasis
 - (C) Predicting risk of metastasis
 - (D) Predicting response to Radiotherapy
104. The following feature is not seen in metatarsus adductus :
- (A) Is congenital anomaly
 - (B) Hind foot and midfoot normal
 - (C) Severe deformity needs to be treated by surgery
 - (D) Mild deformity resolves spontaneously
105. Which of the following is not a basic component of clubfoot ?
- (A) Supination
 - (B) Equinus
 - (C) Varus
 - (D) Cavus
106. In CTEV talus first metatarsal angle is :
- (A) 5° to 15°
 - (B) 0
 - (C) Negative
 - (D) $> 15^{\circ}$
107. Which of the following is not a parameter in demeglio scoring ?
- (A) Varus deviation
 - (B) Adduction of forefoot
 - (C) Deviation of calcaneopedal block
 - (D) Internal torsion
108. Tibiofibular Synostosis (Langenskiöld) is done in :
- (A) Tibial pseudoarthrosis
 - (B) Congenital fibular pseudoarthrosis
 - (C) Congenital angular deformity of leg
 - (D) Congenital vertical talus

109. Type III Pseudoarthrosis tibia described as :
- (A) Pseudoarthrosis with anterior bowing and defect in tibia since birth
 - (B) Pseudoarthrosis develops in congenital cyst
 - (C) Pseudoarthrosis with ant bowing and hour glass constriction
 - (D) Pseudoarthrosis occurs in intraosseous neurofibroma
110. Following is not a treatment option in established congenital pseudoarthrosis of tibia :
- (A) Conservative
 - (B) Bone grafting IM nailing and bone grafting
 - (C) Resection and recon with vascular graft
 - (D) Illizarov
111. Complete hemimelia is an example of :
- (A) Terminal transverse defect
 - (B) Terminal paraxial defect
 - (C) Intercalary transverse
 - (D) Intercalary paraxial
112. Treatment in type 2 tibial hemimelia is :
- (A) Knee disarticulation with prosthetic rehabilitation
 - (B) Tibiofibular synostosis with symes amputation
 - (C) Symes amputation
 - (D) Distal tibiofibular synostosis
113. CDH is not associated with the following condition :
- (A) Congenital torticollis
 - (B) Metatarsus adductus
 - (C) Talipes calcaneovalgus
 - (D) Congenital dislocation of knee
114. Following test is not part of examination of DDH :
- (A) Barlow test
 - (B) Ortolani test
 - (C) Thomas test
 - (D) Trendlenburg gait
115. Following radiological feature is absent in DDH :
- (A) Broken shenton line
 - (B) Femoral epiphyseal location in lower and upper quadrant
 - (C) High acetabular index ($> 30^\circ$)
 - (D) Small and delayed appearance of ossific nucleus
116. Which of the following bone grafts has the poorest mechanical property ?
- (A) Cancellous auto graft
 - (B) Cortical auto graft
 - (C) Cancellous allograft
 - (D) Demineralised bone matrix

117. Which of the following surface modifications done on the implant surface for better fixation of implant is **not** a bone on growth surface ?

- (A) Grit blasted surface
- (B) Hydroxyapatite coated surface
- (C) Highly textured plasma sprayed titanium surface
- (D) Highly porous tantalum surface

118. The ideal position of arthrodesis of hip is :

- (A) 20-30 degrees flexion, 0-5 degrees adduction, 0-15 degrees internal rotation
- (B) 20-30 degrees flexion, 0-5 degrees adduction, 0-15 degrees external rotation
- (C) 20-30 degrees flexion, 0-5 degrees abduction, 0-15 degrees internal rotation
- (D) 20-30 degrees flexion, 0-5 degrees abduction, 0-15 degrees external rotation

119. Which of the following is not a contraindication for total ankle arthroplasty ?

- (A) Ankle instability
- (B) Osteonecrosis talus
- (C) Age less than 65 years
- (D) Angular deformity of 20 degrees at ankle

120. Procedure of choice for a 70 years old individual with rotator cuff arthropathy of shoulder is :

- (A) Reverse shoulder arthroplasty
- (B) Total shoulder arthroplasty
- (C) Hemi arthroplasty shoulder
- (D) Shoulder arthrodesis

121. High leucocyte count of $> 50,000/\text{mm}^3$ with upto 75% neutrophils can be seen in synovial fluid analysis of patient with :

- (A) Juvenile Rheumatoid Arthritis
- (B) Traumatic synovitis
- (C) Acute rheumatic fever
- (D) Toxic synovitis

122. Delayed phase uptake of Tc 99 with no uptake in flow phase and equilibrium phase during three phase bone scan is scan in :

- (A) Osteomyelitis
- (B) Osteoarthritis
- (C) Cellulitis
- (D) Post traumatic conditions

123. The commonest organism causing septic arthritis in children less than 2 years age is :

- (A) Gram negative bacilli
- (B) Neisseria gonorrhoea
- (C) Hemophilus influenza
- (D) Streptococcus epidermidis

124. Which of the following is usually not a diaphyseal lesion ?
- (A) Adamantinoma
 - (B) Fibrous dysplasia
 - (C) Chondroblastoma
 - (D) Ewings sarcoma
125. Which of the following does not usually present itself as multiple lesions ?
- (A) Osteoid Osteoma
 - (B) Hyperparathyroidism
 - (C) Enchondroma
 - (D) Osteochondroma
126. In musculoskeletal tumours of Pelvis, Type II pelvic resections involve resection of :
- (A) Periacetabular region
 - (B) Iliac region
 - (C) Obturator region
 - (D) Sacroiliac region
127. If a metastatic lesion in skeleton is distal to the elbow or knee, which of the following is the most likely primary lesion ?
- (A) Breast
 - (B) Thyroid
 - (C) Lung
 - (D) GI tract
128. Prophylactic fixation of impending pathological fractures is not required if :
- (A) There is bone pain that has not responded to radiation therapy
 - (B) A lesion greater than 1 cm
 - (C) A lesion that has destroyed greater than 50% of the cortex
 - (D) An avulsion fracture of the lesser trochanter
129. According to Boyd's classification of Congenital pseudarthrosis of Tibia, Type II pseudoarthrosis includes :
- (A) Pseudoarthrosis with intra-osseous neurofibroma
 - (B) Cyst in tibia at birth
 - (C) Hour glass constriction of medullary canal at birth
 - (D) Pseudoarthrosis tibia with dysplastic Fibula
130. Complete Phocomelia is a :
- (A) Transverse terminal limb deficiency
 - (B) Paraxial terminal limb deficiency
 - (C) Transverse intercalary limb deficiency
 - (D) Paraxial intercalary limb deficiency
131. A dysplastic acetabulum, absent femoral head short femur and a small, separate ossific tuft can be seen at the proximal end of the femur in which type of proximal focal femoral deficiency ?
- (A) Class A
 - (B) Class B
 - (C) Class C
 - (D) Class D

132. Congenital dysplasia of hip is not associated with which of the following ?
- (A) Congenital Torticollis
 - (B) Metatarsus adductus
 - (C) Talipes Calcaneovalgus
 - (D) Talipes Equinovarus
133. According to Cleary and Omer classification for congenital Radioulnar synostosis, Osseous synostosis with posteriorly dislocated radial head is which type of synostosis ?
- (A) Type I
 - (B) Type II
 - (C) Type III
 - (D) Type IV
134. Which of the following is not usually associated with CDH ?
- (A) Metatarsus adductus
 - (B) Oligohydramnios
 - (C) Torticollis
 - (D) Ventricular septal defect
- Ref : (Lovell And Winter's Paediatric Orthopaedics, 6th edition, Chapter 24 Table 24-1)
135. Best chance of success in treatment of CDH with Pavlik's Harness is :
- (A) < 6 months
 - (B) < 9 months
 - (C) < 12 months
 - (D) < 15 months
136. Commonest age and sex for the development of Perthes disease is :
- (A) 1 to 3 years old girls
 - (B) 1 to 3 years old boys
 - (C) 4 to 10 years old boys
 - (D) 4 to 10 years old girls
137. Fragmentation phase is seen in which radiological stage of Perthes disease ?
- (A) Stage 2
 - (B) Stage 3
 - (C) Stage 1
 - (D) Stage 4
138. Which of these is not the usual patterns of residual deformity of femoral head seen in Perthes disease ?
- (A) Coxa magna
 - (B) Premature physeal arrest
 - (C) Irregular femoral head formation
 - (D) Mortar and pestle
139. Risk of Curve progression in Adolescent idiopathic scoliosis is highest with :
- (A) Risser's 1
 - (B) Risser's 2
 - (C) Risser's 3
 - (D) Risser's 4
140. Pattern of limb involvement in cerebral palsy wherein there is symmetric involvement of both upper and lower limbs with more severe involvement of upper limbs is known as :
- (A) Diplegia
 - (B) Quadriplegia
 - (C) Double Hemiplegia
 - (D) Triplegia

141. Which of the following benign bone tumour almost never produces soft tissue mass ?
 (A) GCT
 (B) ABC
 (C) Desmoplastic fibroma
 (D) Chondromyxoid fibroma
142. Which of the following is a characteristic feature of Marfan's syndrome ?
 (A) Dolichostenomelia
 (B) Chondrodysplasia Punctata
 (C) Cleidocranial Dysplasia
 (D) Myelodysplasia
143. Which of the following is NOT a sex linked muscular dystrophy ?
 (A) Duchenne's muscular dystrophy
 (B) Becker muscular dystrophy
 (C) Emery-Dreifuss dystrophy
 (D) Limb Girdle type muscular dystrophy
144. Iselin disease is :
 (A) Osteochondrosis of the metatarsal head
 (B) Traction epiphysitis of the fifth metatarsal base
 (C) Osteochondrosis of the navicular
 (D) Osteochondrosis of the Capitellum
145. Maximum contribution in increase of length in upper limb is by which of the following physis ?
 (A) Proximal Humerus and Proximal Radius – Ulna
 (B) Distal Humerus and Proximal Radius – Ulna
 (C) Proximal Humerus and Distal Radius – Ulna
 (D) Distal Humerus and Distal Radius – Ulna
146. Which of the following is NOT a classical finding in child abuse ?
 (A) Diaphyseal fracture
 (B) Epiphyseal-metaphyseal fractures
 (C) Scapular fracture
 (D) Sternal fracture
147. Which of the following is not associated with SCFE ?
 (A) Hypothyroidism
 (B) Hyperparathyroidism
 (C) Hypopituitarism
 (D) Chronic renal disease
148. Malignant curve progression in infantile and juvenile scoliosis is when the rate of progression is :
 (A) $>5^{\circ}$ /year
 (B) $>10^{\circ}$ /year
 (C) $>15^{\circ}$ /year
 (D) $>20^{\circ}$ /year
149. Which of the following combination of findings is present in Neuro-fibromatosis ?
 (A) Optic glioma, Lisch nodules, scoliosis
 (B) KF ring, VSD, Spondylolysis
 (C) Subcutaneous lipoma, subungual hematoma, meningomyelocele
 (D) Retinal detachment, mononeuritis multiplex, atlanto axial dislocation

150. L5 nerve root compression results in :
- (A) Loss of sensation in heel
 - (B) Motor weakness in gluteus medius
 - (C) Mute ankle jerk
 - (D) Motor weakness in peroneus longus and brevis
151. Sharp pain carried by which of the following type of nerve fibres :
- (A) A alpha
 - (B) A beta
 - (C) A delta
 - (D) A gamma
152. Which of the following is a feature of neurogenic claudication ?
- (A) Fixed walking distance
 - (B) Painless uphill walking
 - (C) Positive (Painful) bicycle test
 - (D) Loss of hair, shiny skin
153. As per Schneck's classification, ACL and PCL and torn in which grade of knee dislocation ?
- (A) KD-I
 - (B) KD-II
 - (C) KD-III
 - (D) KD-IV
154. Abrasion chondroplasty and microfracture for articular cartilage lesion are not effective if the lesion is :
- (A) 0.5 – 1 cm
 - (B) 1 – 1.5 cm
 - (C) 1.5 – 2 cm
 - (D) 2 – 2.5 cm
155. Which of the following is not a common source of loose bodies in knee joint ?
- (A) Torn Menisci
 - (B) Torn ACL
 - (C) Articular cartilage lesions
 - (D) Osteophytes
156. Quadrilateral space syndrome results due to compression of which of the following ?
- (A) Suprascapular nerve
 - (B) Radial nerve
 - (C) Axillary nerve
 - (D) Thoracodorsal nerve
157. Latarjet procedure is indicated in patients with :
- (A) Glenoid bone loss upto 15% width
 - (B) Multidirectional instability
 - (C) Inverted pear shaped glenoid
 - (D) Recurrent dislocation shoulder associated with rotator cuff tear
158. Which of the following is a feature of chronic exertional compartment syndrome ?
- (A) Symptoms start within 5 min of activity
 - (B) Bilateral affection
 - (C) Cyanosis of affected limb
 - (D) Symptoms continue beyond 60 min after cessation of activity
159. Jumper's knee is :
- (A) Acute Rupture of ligamentum patellae
 - (B) Chronic Rupture of quadriceps tendon
 - (C) Acute Rupture of Anterior cruciate ligament in jumpers
 - (D) Tendinosis of extensor mechanism of knee

160. BMP 3 is responsible for :
- (A) Induction of Bone formation
 - (B) Maintaining joint integrity
 - (C) Promotion of cartilage development
 - (D) Formation of teeth
161. Paradoxical proximal interphalangeal extension on attempted active finger flexion is called lumbrical plus finger. This is a result of enthusiastic repair of lumbricals in which zone of flexor tendon injury ?
- (A) Zone II
 - (B) Zone III
 - (C) Zone IV
 - (D) Zone V
162. Open book injury in pelvic fractures is :
- (A) Tile A2
 - (B) Tile B1
 - (C) Tile B2
 - (D) Tile B3
163. Crescent fracture in pelvic fractures is :
- (A) LC Type 1
 - (B) LC Type 2
 - (C) LC Type 3
 - (D) APC injury
164. Percentage of hip dislocations which are anterior :
- (A) 10-15%
 - (B) 20-25%
 - (C) 25-30%
 - (D) 40%
165. Hip dislocation with fracture of the femoral head superior to the fovea capitis femoris (Pipkin) :
- (A) Type 1
 - (B) Type 2
 - (C) Type 3
 - (D) Type 4
166. As per Pauwells classification for fracture neck femur, angle of the fracture in Type 2 is :
- (A) 30
 - (B) 50
 - (C) 70
 - (D) 90
167. The tip-apex distance used to determine lag screw position within the femoral head in AP and Lat view, should be ideally :
- (A) <20 mm
 - (B) <25 mm
 - (C) <30 mm
 - (D) <35 mm
168. As per Fielding classification of subtrochanteric fractures, Type 1 is :
- (A) At the level of the lesser trochanter
 - (B) <2.5 cm below the lesser trochanter
 - (C) 2.5 to 5 cm below the lesser trochanter
 - (D) >5 cms below lesser trochanter

169. As per Schatzker classification of Tibial Plateau fractures, Medial Condyle tibial fractures are :
 (A) Type 2
 (B) Type 3
 (C) Type 4
 (D) Type 5
170. Ankle injury with a fracture of the proximal third of the fibula :
 (A) Maisonneuve fracture
 (B) Curbstone fracture
 (C) Pronation dorsiflexion fracture
 (D) None of the above
171. Anterior fibular tubercle avulsion fracture by the anterior tibiofibular ligament is seen in :
 (A) LeFort-Wagstaffe fracture
 (B) Maisonneuve fracture
 (C) Curbstone fracture
 (D) All of the above
172. Avulsion of anterior tibial margin by the anterior tibiofibular ligament is seen in :
 (A) Tillaux-Chaput fracture
 (B) Maisonneuve fracture
 (C) Curbstone fracture
 (D) All of the above
173. Normal Bohler angle is :
 (A) 20-40 degree
 (B) 40-50 degree
 (C) 10-15 degree
 (D) Less than 10 degree
174. The normal Gissane angle is :
 (A) 80-90 degree
 (B) 95-105 degree
 (C) 110-120 degree
 (D) 135 degree
175. Sanders classification of calcaneal fractures is based on :
 (A) X rays
 (B) X rays and CT scan
 (C) CT scan
 (D) X rays, CT scan and MRI
176. Aviators astragalus refers to :
 (A) Talar dome fractures
 (B) Talar body fractures
 (C) Talar neck fractures
 (D) Tubercle fractures
177. Talonavicular subluxation or dislocation occurs in Hawkins Type :
 (A) I
 (B) II
 (C) III
 (D) IV
178. Incidence of osteonecrosis in type 4 Hawkins fractures is :
 (A) 0-15%
 (B) 20-30%
 (C) 50-60%
 (D) 100%
179. Nut cracker fracture involves fracture of :
 (A) Calcaneum
 (B) Talus
 (C) Medial cuneiform
 (D) Cuboid
180. Thurston Holland fragment is seen in which type of Paediatric fractures as per Salter Harris Classification ?
 (A) Type I
 (B) Type II
 (C) Type III
 (D) Type IV

181. As per Ogdens classification of Paediatric Physeal injuries Type VIII involves :
- (A) Perichondral ring
 - (B) Metaphysis
 - (C) Epiphysis
 - (D) Diaphysis
182. Greater tuberosity of humerus ossifies at :
- (A) 06 months
 - (B) 1-3 yrs
 - (C) 4-5 yrs
 - (D) 6-7 yrs
183. As per Neer-Horowitz Classification of Proximal Humeral Plate Fractures, Type II fractures have :
- (A) <5 mm displacement
 - (B) Displacement is less than one-third the width of the shaft
 - (C) Displacement is one-third to two-thirds the width of the shaft
 - (D) Displacement is greater than two-thirds the width of the shaft, including total displacement
184. Which of the following ossification centres is the last to appear ?
- (A) Capitellum
 - (B) Radial Head
 - (C) Trochlea
 - (D) Lat epicondyle
185. Angulation of the lateral condylar physeal line with respect to the long axis of the humerus is :
- (A) Metaphyseal diaphyseal angle
 - (B) Humero ulnar angle
 - (C) Baumans angle
 - (D) None of the above
186. Peak incidence of supracondylar fracture humerus is seen in :
- (A) 3-4 yrs
 - (B) 5-8 yrs
 - (C) 8-12 yrs
 - (D) 12-15 yrs
187. Flexion type supracondylar fractures account for :
- (A) 1%
 - (B) 2%
 - (C) 5%
 - (D) 10%
188. Most common nerve injury seen in flexion type supracondylar fracture humerus is :
- (A) Median nerve
 - (B) Posterior interosseous
 - (C) Anterior interosseous
 - (D) Ulnar nerve
189. As per Delberts classification of paediatric fracture neck femur, rate of osteonecrosis is highest in :
- (A) Type I
 - (B) Type II
 - (C) Type III
 - (D) Type IV
190. Paediatric tibial spine fractures are classified by :
- (A) Watson Jones classification
 - (B) Mayer and McKeever classification
 - (C) Ogdens classification
 - (D) All of the above

191. Drill bit used for preparing a thread hole for 4.5 mm cortical screw is :
 (A) 2.5
 (B) 2.7
 (C) 3.2
 (D) 3.5
192. Core diameter of a 4.5 mm cortical stainless steel screw is :
 (A) 3 mm
 (B) 3.2 mm
 (C) 3.5 mm
 (D) 4.5 mm
193. Thread diameter of 6.5 mm cancellous screw is :
 (A) 3.2 mm
 (B) 3.5 mm
 (C) 4.5 mm
 (D) 6.5 mm
194. Thread diameter of a DHS lag screw is :
 (A) 10.5 mm
 (B) 11.5 mm
 (C) 12.5 mm
 (D) 13.5 mm
195. Amongst the following, TB most commonly affects :
 (A) Hip
 (B) Knee
 (C) Ankle
 (D) Shoulder
196. Least common type of osteosarcoma is :
 (A) Periosteal
 (B) Intramedullary
 (C) Parosteal
 (D) High grade surface osteosarcoma
197. Peak age group for Primary Chondrosarcoma is :
 (A) 25 to 45 yrs
 (B) 40-60 yrs
 (C) 60-80 yrs
 (D) < 20 yrs
198. Most common non haematologic primary bone malignancy in children less than 10 yr old is :
 (A) Osteosarcoma
 (B) Chondrosarcoma
 (C) Ewings Sarcoma
 (D) Multiple Myeloma
199. Most common translocation diagnostic of Ewings sarcoma is :
 (A) t(11 ; 22) (q 24 ; q 12)
 (B) t(21 ; 22) (q 22 ; q 12)
 (C) t(07 ; 22) (q 22 ; q 12)
 (D) t(18 ; 24) (q 24 ; q 12)
200. Most common primary malignancy of sacrum is :
 (A) Multiple myeloma
 (B) Chordoma
 (C) Metastasis
 (D) Haemangioma

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