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Specialized Topics in Areas of Radiologic Sciences

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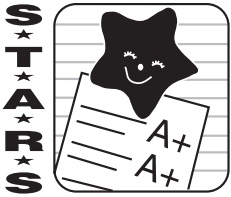
Radiographic Pathology for Technologists

by

James D. Mace & Nina Kowalczyk

5th edition

**Prepared by: Carolyn J. Frigmanski, M.A., B.S.R.T. ®
Founder, S.T.A.R.S.**



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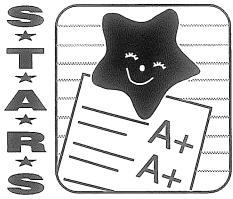
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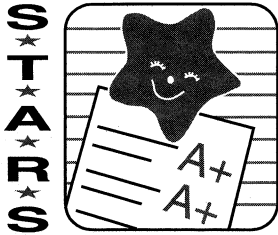
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Title: **Radiographic Pathology for Technologists** by James D. Mace & Nina Kowalczyk

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Chapter 1

1. The term used to describe a patient's perception of a disease is called a
 - a. sign
 - b. syndrome
 - c. symptom
 - d. manifestation
2. The term used to describe diseases that have no identifiable causative factor is
 - a. idiopathic
 - b. iatrogenic
 - c. nosocomial
 - d. asymptomatic
3. The number of deaths caused by a particular disease averaged over a population is called
 - a. morbidity
 - b. mortality
 - c. etiology
 - d. lethality
4. The most frequent cause for hospitalization in the United States is
 - a. trauma
 - b. cancer
 - c. lung disorders
 - d. heart disease
5. Avoiding radiation exposure particularly during the early terms of pregnancy can reduce the likelihood of
 - a. hereditary disease
 - b. congenital defects
 - c. metabolic disease
 - d. degenerative disease
6. An example of an autoimmune disorder is
 - a. leukemia
 - b. tuberculosis
 - c. rheumatoid arthritis
 - d. cystic fibrosis
7. One of the resultant reactions to cell necrosis is
 - a. capillary constriction
 - b. attraction of leukocytes
 - c. decreased capillary permeability
 - d. leukopenia
8. The removal of dead cells and materials in the healing process is called
 - a. debridement
 - b. tissue regeneration
 - c. virulence
 - d. cellular necrosis

9. The most common disturbance of fluid balance is

- a. homeostasis
- b. hypersecretion
- c. dehydration
- d. glandular underactivity

10. The type of tumor that remains localized and is generally noninvasive is a

- a. sarcoma
- b. malignant neoplasm
- c. carcinoma
- d. benign neoplasm

11. In the TNM system of cancer staging, the N represents

- a. noninvasive
- b. lymph node involvement
- c. nonmalignant
- d. new neoplastic tissue

Chapter 2

12. The bone cell responsible for bone formation is the

- a. osteocyte
- b. osteoclast
- c. osteoblast
- d. trabeculae

13. The type of joint located between the vertebral bodies is classified as

- a. amphiarthrodial
- b. synarthrodial
- c. diarthrodial
- d. fibrous

14. The imaging modality that provides superior contrast resolution in soft tissue detail is

- a. conventional radiographs
- b. computerized tomography (CT)
- c. magnetic resonance imaging (MRI)
- d. bone mineral densitometry

15. The imaging modality that provides excellent display of bony margins or trabecular patterns in tumors is

- a. conventional radiographs
- b. bone mineral densitometry (CT)
- c. magnetic resonance imaging (MRI)
- d. spiral or helical computerized tomography

16. The skeletal imaging modality to look at the entire body at one time in a convenient fashion is

- a. conventional radiography
- b. nuclear medicine
- c. magnetic resonance imaging (MRI)
- d. spiral or helical computerized tomography

17. Brittle bone disease is a synonym for

- a. osteogenesis imperfecta
- b. rickets
- c. osteoporosis
- d. achondroplasia

18. Incomplete closure of the vertebral canal is called

- a. spinal stenosis
- b. scoliosis
- c. spina bifida
- d. spinal subluxation

19. In osteomyelitis, bone necrosis occurs within

- a. 10 - 14 days
- b. minutes of the infection
- c. 2 - 3 weeks
- d. 24 - 48 hours

20. Radiographic demonstration of a “worm-eaten” appearance in bone is indicative of

- a. tuberculosis
- b. osteomyelitis
- c. severe arthritis
- d. osteopetrosis

21. Rheumatoid arthritis occurs most commonly in

- a. men ages 30 - 40 years
- b. women ages 50 - 60 years
- c. women ages 30 - 40 years
- d. men ages 50 - 60 years

22. “Bamboo spine” is a descriptive term used in the radiographic demonstration of

- a. scoliosis
- b. ankylosing spondylitis
- c. pyogenic arthritis
- d. spina bifida

23. A cystic swelling that develops in connection with a tendon sheath is commonly called a

- a. bursa
- b. gout
- c. tenosynovitis
- d. ganglion

24. The imaging modality of choice in diagnosing osteopetrosis is

- a. radiographs
- b. computed tomography (CT)
- c. magnetic resonance imaging (MRI)
- d. nuclear medicine

25. The imaging modality of choice in diagnosing joint structures is

- a. radiographs
- b. computed tomography (CT)
- c. magnetic resonance imaging (MRI)
- d. nuclear medicine

26. The imaging modality of choice in diagnosing giant cell tumors is

- a. radiographs
- b. computed tomography (CT)
- c. magnetic resonance imaging (MRI)
- d. nuclear medicine

27. Osteoarthritis is the type of pathology categorized as

- a. additive
- b. additive (healing)
- c. subtractive (early)
- d. subtractive

28. The most common imaging modality utilized to assess low back pain is

- a. conventional radiographs
- b. bone mineral densitometry
- c. magnetic resonance imaging (MRI)
- d. spiral computerized tomography (CT)

29. Spondylolisthesis occurs most frequently at the vertebral junction of

- a. C1 - C2
- b. L5 - S1
- c. T12 - L1
- d. L3 - L4

30. The anatomic component of the Scotty dog called the "ear" is the

- a. inferior articular process
- b. pedicle
- c. lamina
- d. superior articular process

31. Half of all osteosarcomas appear in the

- a. humerus & shoulder girdle
- b. vertebral column
- c. distal femur & proximal tibia
- d. pelvis & proximal femur

32. A benign bone tumor that affects men more so than women is called a(an)

- a. osteochondroma
- b. endochondroma
- c. osteoma
- d. chondrosarcoma

33. An area of radiolucency with well-defined margins occurring in children ages 3 - 14 years is a

- a. osteochondroma
- b. simple bone cyst
- c. chondrosarcoma
- d. osteosarcoma

34. The type of tumor that radiographically demonstrates a lytic lesion called a nidus is the

- a. osteochondroma
- b. endochondroma
- c. chondrosarcoma
- d. osteoid osteoma

35. One of the malignancies of the skeletal system that may be radiation induced is the

- a. osteochondroma
- b. endochondroma
- c. osteosarcoma
- d. osteoid osteoma

36. The tumor that arises from the medullary canal in children ages 5 - 15 years is called

- a. Ewing's tumor
- b. chondrosarcoma
- c. osteoma
- d. endochondroma

37. The principal signs of skeletal metastasis are

- a. fever & pain
- b. pain & pathologic fractures
- c. fractures & swelling
- d. swelling & painful joints

38. Follow up on the progress of metastasis and therapy involves

- a. conventional radiographs
- b. bone mineral densitometry
- c. magnetic resonance imaging (MRI)
- d. bone scans

Chapter 3

39. Organs located in the middle mediastinum include the

- a. heart, esophagus & trachea
- b. trachea, thymus & thyroid glands
- c. heart, spine & abdominal aorta
- d. great vessels & left ventricle

40. Any condition in the chest which increases aeration requires

- a. an increase in exposure factors
- b. no change in exposure factors
- c. a decrease in exposure factors
- d. an additional expiration film

41. A “sail sign” on pediatric chest radiographs is indicative of

- a. an enlarged thymus gland
- b. airway obstruction
- c. a mediastinal mass
- d. an enlarged thyroid gland

42. Lymph nodes measuring more than 1 cm in size on a CT image may be considered

- a. benign
- b. malignant
- c. normal
- d. below average size

43. A properly positioned endotracheal tube (ET) is located

- a. above the carina
- b. below the carina
- c. above the vocal cords
- d. in the right main stem bronchus

44. Improper position of a central venous pressure (CVP) line can induce

- a. a pneumothorax
- b. respiratory hemorrhage
- c. a stroke
- d. respiratory failure

45. The “ground glass” appearance of the lungs in a pre-term infant is indicative of

- a. a pneumothorax
- b. congestive heart failure
- c. subcutaneous emphysema
- d. respiratory distress syndrome

46. Tuberculous scars may be demonstrated radiographically in the

- a. apex of one or both lungs
- b. costophrenic angles
- c. anterior mediastinum
- d. posterior mediastinum

47. One of the top 5 most common causes of death in the United States is

- a. tuberculosis
- b. emphysema
- c. chronic obstructive pulmonary disease (COPD)
- d. pulmonary embolism

48. The disease classification for the inhalation of foreign inorganic dust particles is called

- a. inflammatory
- b. pneumonconiosis
- c. degenerative
- d. neoplastic

49. Pleural effusion is best demonstrated radiographically on

- a. an upright PA view
- b. an apical AP projection
- c. supine AP projection
- d. an upright lateral projection

50. The most common fatal primary malignancy in the United States for people aged 45 to 70 years is

- a. bronchogenic carcinoma
- b. squamous cell carcinoma
- c. pulmonary metastasis
- d. melanoma

Chapter 4

51. The double fold of peritoneum that attaches the duodenum, stomach and transverse colon is called

- a. the lesser omentum
- b. the mesentery
- c. the greater omentum
- d. the fascia

52. The C-loop is part of the

- a. jejunum
- b. ileum
- c. duodenum
- d. ascending colon

53. In an adult, the kidneys are about the length of

- a. three vertebrae
- b. two and a half vertebrae
- c. one and a half vertebrae
- d. four vertebrae

54. The contrast medium of choice when a perforated bowel is suspected is

- a. water-soluble
- b. air
- c. barium sulfate
- d. radiolucent

55. The drug used to reduce peristaltic activity is

- a. Motrin
- b. epinephrine
- c. benadryl
- d. glucagon

56. A small bowel study is typically completed in

- a. 1 to 2 hours
- b. 2 to 3 hours
- c. 4 to 5 hours
- d. 3 to 6 hours

57. The accepted imaging modality for following the progress of GI malignancies is

- a. upper GI series
- b. conventional abdomen series
- c. computerized tomography (CT)
- d. magnetic resonance imaging (MRI)

58. Radioactive urea is used in nuclear medicine imaging in the evaluation of

- a. gastric ulcers
- b. perforation
- c. hiatal hernias
- d. obstruction

59. A common type of double-lumen decompression tube is the

- a. Levin
- b. Dobhoff
- c. Miller-Abbott
- d. Cantor

60. Infants with esophageal atresia are at risk for

- a. gastric ulcers
- b. aspiration pneumonia
- c. obstruction
- d. perforation

61. A frequent complication for infants with colonic atresia is

- a. obstruction
- b. diarrhea
- c. perforation
- d. fistula formation

62. Hirschsprung's disease is also known as

- a. congenital megacolon
- b. imperforate anus
- c. malrotation
- d. pyloric stenosis

63. Chocolate, alcohol and coffee consumption should be avoided by patients experiencing

- a. gastric ulcers
- b. gastroenteritis
- c. gastroesophageal reflux (GERD)
- d. peptic ulcers

64. Gastroenteritis may result from consuming foods contaminated with

- a. Salmonella
- b. Helicobacter pylori
- c. insectides
- d. Escherichia coli

65. Crohn's disease typically affects young adults of both sexes between the ages of

- a. 12 and 18 years
- b. 14 and 24 years
- c. 15 and 20 years
- d. 16 and 21 years

66. A "cobble-stone" radiographic appearance and string sign are classic findings of

- a. esophageal stricture
- b. ulcerative colitis
- c. megacolon
- d. regional enteritis (Chron's disease)

67. A bowel disorder of unknown etiology occurring more commonly in Jewish persons is

- a. ulcerative colitis
- b. ruptured appendix
- c. gastroesophageal reflux (GERD)
- d. diverticulosis

68. A worm-like defect in a column of barium in the esophagus is indicative of

- a. reflux
- b. polyps
- c. varices
- d. esophagitis

69. A telescoping of a bowel loop into a distal segment by peristalsis is called

- a. intussusception
- b. ileus
- c. volvulus
- d. malrotation

70. The type of diverticulum found at the pharyngoesophageal junction is called

- a. Meckel's
- b. Zenker's
- c. traction
- d. mechanical

71. The malignancy that commonly arises at the gastroesophageal junction is

- a. an adenocarcinoma
- b. a leiomyoma
- c. a sarcoma
- d. a squamous cell carcinoma

72. Most gastric cancers develop in the

- a. body
- b. fundus
- c. pylorus
- d. cardiac orifice

73. The second most common cause of cancer mortality in the United States is found in the

- a. stomach
- b. small bowel
- c. esophagus
- d. colon

Chapter 5

74. The hepatobiliary organ that functions as both an exocrine and endocrine gland is the

- a. liver
- b. pancreas
- c. gall bladder
- d. spleen

75. The radiologic study performed by a gastroenterologist visualizing the hepatobiliary system and main pancreatic duct is called

- a. a percutaneous transhepatic cholangiogram
- b. an operative cholangiogram
- c. an endoscopic retrograde cholangiopancreatogram
- d. T-tube cholangiogram

76. The third leading cause of death in the United States in individuals between the ages of 45 to 65 is

- a. cirrhosis
- b. pancreatic tumors
- c. gastric cancer
- d. ulcerative colitis

77. The type of hepatitis that accounts for 80% of the infections after blood transfusions is

- a. A
- b. D
- c. B
- d. C

78. Cholelithiasis can be identified by ultrasound by the presence of

- a. a radiopacity
- b. an echogenic focus
- c. a radiolucency
- d. a lack of transmission

79. The medical term for a port-wine superficial birthmark is

- a. hepatoma
- b. adenoma
- c. hemangioma
- d. hematoma

80. A common site for metastasis in the hepatobiliary system is the

- a. liver
- b. pancreas
- c. gall bladder
- d. biliary ducts

81. A rapidly growing, fatal carcinoma that occurs more often in black men than white men is

- a. located in the liver
- b. found in the gall bladder
- c. found in the biliary ducts
- d. located in the pancreas

Chapter 6

82. The volume of blood the kidneys filter and reabsorb daily is

- a. 50 to 75 liters
- b. 180 liters
- c. 2 to 3 liters
- d. 100 to 150 liters

83. The statistical rate of death for patients experiencing an allergic reaction to contrast agents is

- a. 1 of 40,000
- b. 1 of 100,000
- c. 1 of 20,000
- d. 1 of 400,000

84. The majority of all urinary tract calculi are found at the

- a. major calyces
- b. orifice of the urinary bladder
- c. vesicoureteral junction
- d. proximal ureters

85. The imaging modality of choice in following kidney transplantation patients is

- a. conventional radiography
- b. computerized tomography (CT)
- c. magnetic resonance imaging (MRI)
- d. ultrasound

86. Urine collection bags must remain lower than the patient's bladder to prevent

- a. spillage
- b. antegrade flow
- c. reflux
- d. the formation of a calculus

87. The most commonly occurring fusion anomaly of the kidney is

- a. a horseshoe
- b. renal agenesis
- c. hypoplasia
- d. crossed ectopy

88. A filling defect described as a "cobra head" appearance is indicative of

- a. a urethrocele
- b. a ureterocele
- c. hydronephrosis
- d. ureteral diverticulum

89. An estimated 50% of patients diagnosed with renal hypertension have
- a. malrotation
 - b. hydronephrosis
 - c. pyelonephritis
 - d. polycystic kidney disease
90. The number of all women who experience a urinary tract infection at least once in their lifetime is
- a. 35%
 - b. 75%
 - c. 50%
 - d. less than 25%
91. The retention of urea in the blood is called
- a. hematuria
 - b. renal retention
 - c. uremia
 - d. hypertension
92. A malignant renal tumor predominately found in children is called
- a. renal carcinoma
 - b. Wilm's
 - c. adenocarcinoma
 - d. renal sarcoma

Chapter 7

93. Cerebral spinal fluid is produced by the
- a. choroid plexus
 - b. third ventricle
 - c. foramen of Magendie
 - d. dura mater
94. The imaging modality utilized to confirm brain death is
- a. ultrasound
 - b. computed tomography
 - c. magnetic resonance imaging
 - d. radionuclide brain scan
95. Excessive amounts of cerebral spinal fluid in the ventricles of the brain is identified as
- a. meningocele
 - b. hydrocephalus
 - c. meningitis
 - d. encephalitis
96. The anatomic portion of an intervertebral disc that herniates is called the
- a. annulus fibrosis
 - b. dura mater
 - c. nucleus pulposus
 - d. spinal nerve
97. A chronic and progressive debilitating disease of the central nervous system most commonly affecting individuals 20 to 40 years in age is called
- a. spondylosis
 - b. cerebrovascular accident
 - c. ischemic stroke
 - d. multiple sclerosis
98. A star-shaped neuroglial cell containing many branching extensions is called
- a. an astrocytoma
 - b. a meningioma
 - c. a medulloblastoma
 - d. an ependyoma
99. The most common type of primary spinal neoplasm is
- a. an astrocytoma
 - b. a meningioma
 - c. a medulloblastoma
 - d. an ependyoma

Chapter 8

100. The anatomic pacemaker of the heart is the

- a. left ventricle
- b. sinoatrial node
- c. atrial-ventricular node
- d. bicuspid valve

101. The minimum kVp for chest radiography is

- a. 120
- b. 80
- c. 100
- d. 150+

102. The procedure in which a patient swallows a flexible probe containing a transducer is called

- a. transesophageal echocardiography
- b. M-mode echocardiography
- c. 2-D echocardiography
- d. Doppler imaging

103. The most widely used nuclear cardiology exam for post bypass and angioplasty patients is a

- a. gated cardiac blood pool scan
- b. ventilation scan
- c. positron emission tomography (PET) scan
- d. myocardial perfusion scan

104. The use of a high-intensity anticoagulant dripped over a period of hours is utilized in

- a. thrombolysis
- b. percutaneous transluminal angioplasty
- c. embolization
- d. cardiac catheterization

105. Approximately 80% of infants born before 28 weeks of gestation may possess

- a. coarctation of the aorta
- b. patent ductus arteriosus
- c. ventricular septal defects
- d. ductus arteriosus

106. The most common cause of chronic valve disease in the heart is

- a. rubella
- b. chicken pox
- c. rheumatic fever
- d. mumps

107. Hypertension in the pulmonary artery and enlargement of the right ventricle is suggestive of

- a. congestive heart failure
- b. valvular stenosis
- c. atrial septal defect
- d. cor pulmonale

108. The medical term for hardening of the arteries is

- a. atherosclerosis
- b. ischemia
- c. thrombosis
- d. plaque formation

109. The majority of aortic aneurysms occur

- a. in the aortic arch
- b. above the celiac axis
- c. below the level of the renal arteries
- d. in the descending aorta

110. Thrombus formation generally occurs in

- a. deep thigh veins
- b. deep calf veins
- c. cerebral veins
- d. pulmonary veins

Chapter 9

111. The life span of an erythrocyte is

- a. 120 days
- b. 10 days
- c. 2 weeks
- d. 3 months

112. The universal blood donor type is

- a. AB
- b. A
- c. O
- d. B

113. The cell type that can adversely affect the success of tissue grafts and organ transplants is the

- a. leukocyte
- b. T cell
- c. erythrocyte
- d. lymphocyte

114. The preferred imaging exam for diagnosing bone marrow diseases is

- a. lymphangiography
- b. magnetic resonance imaging
- c. nuclear medicine perfusion scans
- d. ultrasound

115. The single most important factor in controlling infection is considered to be

- a. wearing total body protective apparel
- b. wearing a gown and mask
- c. proper handwashing
- d. using isolation rooms at all times

116. The reduction of opportunistic infections and deaths among AIDS patients is attributed to

- a. highly active antiretroviral therapy (HAART)
- b. frequent testing and screening
- c. genetic engineering
- d. minimizing sexual encounters

117. The most common malignancy in AIDS patients is

- a. bronchial carcinoma
- b. skin cancer
- c. lymphadenoma
- d. Kaposi's sarcoma

118. The neoplastic disease involving the overproduction of white blood cells is called

- a. pernicious anemia
- b. leukemia
- c. leukopenia
- d. myeloma

119. The cells associated with Hodgkin's disease are known as

- a. leukocytes
- b. pneumococcal bacteria
- c. Reed-Sternberg
- d. T-cells

Chapter 10

120. The transition of glandular breast tissue into adipose tissue in women is called
- a. fat suppression
 - b. adipose conversion
 - c. tissue transition
 - d. involutional change
121. An abnormal growth pattern of epithelial cells around the neck of the uterus is called
- a. pelvic inflammatory disease
 - b. ovarian cysts
 - c. dysplasia
 - d. teratoma
122. The most common benign tumor of the female genital system is called a
- a. teratoma
 - b. fibroadenoma
 - c. leiomyoma (uterine fibroid)
 - d. lipoma
123. Women and men are at increased risk for developing breast cancer if they carry a gene known as
- a. BRCA1
 - b. BRCA2
 - c. CA1
 - d. BRCA
124. The most common site for an ectopic pregnancy occurs in the
- a. abdominal cavity
 - b. cervix
 - c. ovary
 - d. fallopian tube
125. The medical term for undescended testicles is
- a. cryptorchidism
 - b. dysplasia
 - c. agenesis
 - d. testicular torsion
126. Skeletal metastases from prostate cancer occurs in approximately ____% of the cases.
- a. 50
 - b. 75
 - c. 85
 - d. 90
127. At least 40% of malignant testicular tumors are known as
- a. seminomas
 - b. teratomas
 - c. choriocarcinomas
 - d. adenocarcinomas

Chapter 11

128. The “master” endocrine gland is known as _____ gland.
- a. pineal
 - b. adrenal
 - c. pituitary
 - d. thyroid
129. The most common form of osteoporosis is
- a. postmenopausal
 - b. idiopathic
 - c. juvenile
 - d. premenopausal

130. Conventional radiographs can identify osteoporosis when bone loss involves _____% of its original mass.

- a. 10 – 30% b. 30 – 50% c. 40 – 60% d. 60 – 80%

131. Rickets results in children who experience a deficiency in vitamin

- a. A b. B c. C d. D

Chapter 12

132. In the United States, trauma is the most common cause of death for people between the ages of

- a. 16 and 35 years c. 1 and 44 years
b. 21 and 45 years d. 30 and 50 years

133. The trauma level status that requires 24/7 coverage by versatile radiographers performing a wide variety of procedures is

- a. I b. II c. III d. IV

134. The most frequent vertebral fracture is the _____ fracture.

- a. compound c. comminuted
b. compression d. impacted

135. A subdural hematoma is located between the

- a. dura mater and the skull c. dura mater and the arachnoid layer
b. brain stem and dura mater d. dura mater and pia mater

136. A fracture that does not heal within the normal period of time is referred to as

- a. malunion c. nonunion
b. provisional union d. delayed union

137. The best radiographic projection to utilize for demonstration of a blow out fracture is the

- a. AP c. lateral
b. parietoacanthal (modified Water's method) d. verticosubmental (Schuller)

138. Seizure disorders and electric shock are causes of _____ dislocations.

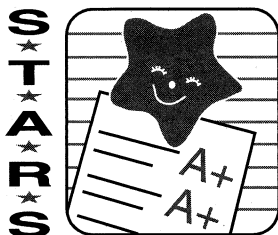
- a. hip b. knee c. shoulder d. lumbar vertebrae

139. The mortality rate associated with shaken baby syndrome resulting in death is _____%.

- a. 25%+ b. 40%+ c. 50%+ d. 65%+

140. In performing lateral decubitus radiographs of the abdomen, the patient should lie on their left side for at least _____ minutes.

- a. 5 b. 20 c. 15 d. 10



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Please place your lettered selection for each question in the respective box and return ***ONLY this post test sheet to S.T.A.R.S.***

1.	11.	21.	31.	41.	51.	61.
2.	12.	22.	32.	42.	52.	62.
3.	13.	23.	33.	43.	53.	63.
4.	14.	24.	34.	44.	54.	64.
5.	15.	25.	35.	45.	55.	65.
6.	16.	26.	36.	46.	56.	66.
7.	17.	27.	37.	47.	57.	67.
8.	18.	28.	38.	48.	58.	68.
9.	19.	29.	39.	49.	59.	69.
10.	20.	30.	40.	50.	60.	70.

Please continue on the reverse side.

Answer Sheet for:

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Nina Kowalczyk**

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71.	81.	91.	101.	111.	121.	131.
72.	82.	92.	102.	112.	122.	132.
73.	83.	93.	103.	113.	123.	133.
74.	84.	94.	104.	114.	124.	134.
75.	85.	95.	105.	115.	125.	135.
76.	86.	96.	106.	116.	126.	136.
77.	87.	97.	107.	117.	127.	137.
78.	88.	98.	108.	118.	128.	138.
79.	89.	99.	109.	119.	129.	139.
80.	90.	100.	110.	120.	130.	140.