

# Mammo 2019

1. In the Phantom image assessment, what is the score of the specks?

- a) 2.5                      b) 3.0                      c) 3.5                      d) 4.0                      e) 4.5

2. Which is requiring 3 month follow up in quality control?

- a) Radiation field check  
b) Clinical Image evaluation  
c) Measurement of average dose in mammary gland  
d) Compression device check  
e) Standard phantom test

3. Which of the following statement is correct for focal spot?

- a) Use a large focus in standard mammography.  
b) In magnification, 0.3mm focus is used.  
c) It is the actual area where the electrons collide against the target.  
d) Use a large focus to maintain spatial resolution.  
e) Use a large focus to minimize geographic unsharpness.

4. Which of the following description is correct about the Mammography dose index?

- a) Mammal thickness, components, and X-quality are considered.  
b) The maximum dose of mammary gland tissue is a useful measuring criterion rather than the average dose.  
c) If a grid is not used, it should not exceed 0.2rad.  
d) The incident dose is the amount of radiation dose measured directly above the compression paddles.  
e) Most of the radiation dose used during the examination is absorbed from the skin, and the skin entrance dose is used as an indicator.

5. Which of the following is not relevant to 'Exposure dose'?

- a) kVp
- b) SID
- c) Grid ratio
- d) Focal spot size
- e) The thickness of breast

6. Which statement is correct for target?

- a) 15-30 keV characteristic lines is effective
- b) Mo target is used for high density breast.
- c) Mo,W,Be targets are used.
- d) 20keV characteristic lines of the lower limit is used for fatty breast.
- e) Target is determined by melting temperature and the characteristic emission energy.

7. Which is correct statement for SID?

- a) It is related to geometric unsharpness
- b) Mammography devise of SID is 100cm
- c) as the SID increases, penumbra also increase.
- d) In case of long SID, exposure time should be reduced.
- e) In case of long SID, tube current (mA) must be increased

8. Which one is correct description about the following image?

- a) It's a tumor with bad prognosis.
- b) It appears to have calcification aspect which is usually shown in malignant tumor.
- c) This kind of tumor is mostly due to the low sensitivity of Estrogen.
- d) This is the shape of the calcification in the case of regression.
- e) It appears to have a tumor with irregular margins in US image.

9. In Digital mammography, what kind of equipment digitizes X-rays using a 'photic simulation phosphorescence plate' as a detector?

- a) CR
- b) CAD
- c) CCD detector
- d) TFT method of a-Si
- e) TFT method of a-Se

10. What is true about tube voltage?

- a) The allowable error is in less than 5% in the domestic standard
- b) The available range is 25~28kVp for a rhodium target
- c) It is an important exposure factor for an image resolution
- d) The available range is usually 22~35kVp in mammography
- e) It should be increased the exposure time than kVp in a thick and high density breast tissue

11. The lymph nodes located between the pectoral muscles are called?

- a) Axillary nodes
- b) Rotter's nodes
- c) Parasternal node
- d) Intrapectoral nodes
- e) Infraclavicular nodes

12. Which of the following statement is correct for geometric unsharpness?

- a) The inspection cycle of resolution quality assurance is 6 month.
- b) The resolution of DR should more than 11 lp/mm
- c) The smaller focusing size, the smaller the penumbra.
- d) As the distance between object-film increases, the penumbra increase.
- e) As the distance between focus-film increases, the penumbra increase.

13. Which of following is related with glass cover of X-ray tube and cooling oil?

- a) Inherent filtration
- b) Additional filtration
- c) Compensation filtration
- d) External filtration
- e) Internal filtration

14. Which of the following is the most using spot size for Mammography?

- a) 0.01mm
- b) 0.03mm
- c) 0.10mm
- d) 0.20mm
- e) 0.30mm

15. Which of the following is correct about relationship between Kilovoltage(kV) and Half-value layer(HVL)?

- a) If the kV increased, the HVL thickness is increase.
- b) If the kV increased, the HVL thickness is decrease.
- c) If the kV increased kV twice, the HVL thickness is increase twice.
- d) If the kV increased kV twice, the HVL thickness is increase Squar
- e) If the kV increased kV twice, the HVL thickness is reduced by half.

16. Which of the following is the correct combine Anode/Filter for increasing the contrast?

- a) W/Ag
- b) Rh/Rh
- c) Mo/Rh
- d) Mo/Mo
- e) Rh/Mo

17. Why should be the chest wall located by Cathode of X-ray tube in Mammography?

- a) Focal spot rating
- b) Anode heel effect
- c) Line focus principle
- d) Filament heating unit
- e) Anode target material

18. Which of the following is not correct about 'MTF'?

- a) The criteria for assessing MTF is not less than 2~4lp/mm.
- b) It is a qualitative factor of the quality of digital images.
- c) The degradation of image quality due to the diffusion of light results in a decrease in MTF.
- d) Because the images with high MTF have obvious noise on it, it's difficult to recognize the objects.
- e) The presence of an MTF that exceeds the effective measurement range indicates a high sharpness.

19. What is the meaning of change continuous density value to a positive number?

- a) Sampling
- b) Quantization
- c) spot processing
- c) Image compression
- d) Image reconstruction

20. In followings, which one is the artery that comes from 'pectoralis minor muscle' and provides blood to the rear part of breast?

- a) Axillary artery
- b) intercostal artery
- c) Subclavian artery
- d) acromiothoracic artery
- e) internal mammary artery

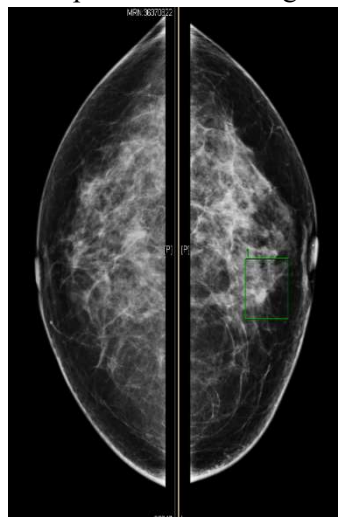
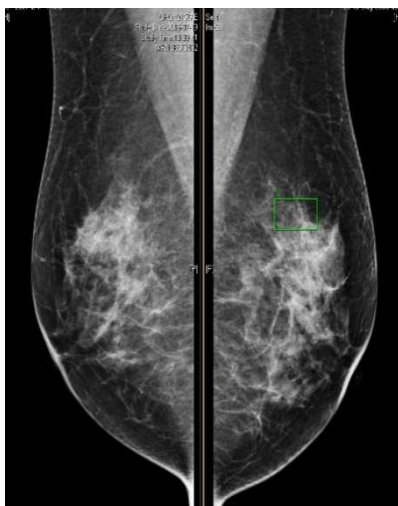
21. What is the largest vein in breast?

- a) Azygos Vein
- b) Axillary Vein
- c) Intercostal Vein
- d) subscapular vein
- e) Internal Mammary Vein

22. Where is the most frequent portion for the most of breast disease?

- a) lobule
- b) areola
- c) ductule
- d) lymph system
- e) terminal duct lobular unit

23. Which one is the correct direction for the patient when doing 'Localization'?



- A) Infero-superior direction
- B) Internal to External direction
- C) External to Internal direction
- D) Supero-inferior direction
- E) External to Internal Oblique direction

24. Which of the following description is correct about epithelial tissue?

- a) The epithelial tissue consists of three layers.
- b) Most breast diseases occur in the epithelial layer
- c) It consists of a circumferential shaped basilar membranes and a complete myoepithelial cell layer.
- d) Among the breast tissue, myoepithelium layer and basilar membrane are least affected by hormones.
- e) It is located inside the basilar membrane and is a kind of 'station' layer to regenerate circular shaped cells.

25. Which one is the correct description of the breast parenchyma?

- a) It upholds the grandular tissues.
- b) It includes vessels, lymphnodes, nerves.
- c) It composed with 10 ~ 15 lobules.
- d) It spreads out widely through the surface to periphery.
- e) Hormone has influence on it, and has periodic change.

26. Which one is the benign tumor common for woman in range under 30 years old?

- A) Papilloma
- B) Fibroadenoma
- C) Phyllodes tumor
- D) Medullary Carcinoma
- E) Atypical Ductal Hyperplasia

27. What kind of breast disease is frequently accompanied with calcification?

- A) Phyllodes Tumor
- B) Mucinous carcinoma
- C) Medullary carcinoma
- D) Ductal carcinoma in situ
- E) Invasive lobular carcinoma

28. Where is the primary portion that frequently arises breast cancer for man?

- A) Upper outer quadrant
- B) Upper inner quadrant
- C) Lower outer quadrant
- D) Lower inner quadrant
- E) Nearby Subareola

29. Which one is correct about the hyperplasia of epithelial cell?
- a) This refers to an over-extension of the skin's mammary gland.
  - b) There is no probability to occur the infiltrative breast cancer.
  - c) This means that calcified – hematoma caused by trauma.
  - d) As a part of a proliferative breast disease, it is an over growth of the mammary duct or lobular cell.
  - e) As a part of a proliferative breast disease, it is an over growth of the Pectoralis major or lobular cell.

30. . Which disease is revealed in following image? Following is the changed shape of duct



- a) Metastatic carcinoma
- b) Inflammatory Carcinoma
- c) Invasive Ductal carcinoma
- d) Atypical Ductal hyperplasia
- e) Invasive lobular carcinoma

31. Which of the following statement is correct about sonographic features of breast?

- a) Subcutaneous fat exhibits a hyperechoic
- b) It is basically consist of skin, subcutaneous fat, ducts
- c) Posterior echoes are divided into homogeneous and heterogeneous
- d) Distance-length ratio 0.7 is applied to distinguish between benign and malignancy
- e) Pectoral muscle exhibits hyperechoic on the rib and run perpendicular to the skin.

32. Which one is not the expression about the shape in BI-RADS?

- a) microlobulate
- b) round
- c) oval
- d) lobular
- e) irregular

33. Which of the following is correct about Breast cancer?

- a) Viscous cancer is growing rapidly.
- b) Papillocarcinoma is a common cancer and is accompanied by micro-calcification.
- c) Breast intraepithelial carcinoma has less calcification and is rarely touched.
- d) Infiltrative breast lobular cancer accounts for about 5% of all kinds of infiltrative breast cancer.
- e) If it doesn't pass through the basilar membrane of lactiferous ducts, it's called as 'Ductal carcinoma in situ(DCIS)' or 'Infiltrative breast duct cancer'.

34. Which of the following description is correct about absorption discrepancy of X-ray in breast tissue?

- a) Small breast has much larger attenuation than big breast.
- b) X-ray absorption decreases if the density of breast is high.
- c) Penetration rate of thin breast tissue is higher than thick one.
- d) Absorption rate would increase more in menopause patient than young patient.
- e) Object contrast would be decreased by using high atomic number so that it can increase the photoelectric effect

35. In the Breast TNM fractionation, which stage would have 4cm tumor, and 3 metastatic lymphnodes, and no metastasis to other organ?

- a) T2N4M0
- b) T2N1M0
- c) T3N2M0
- d) T3N3M0
- e) T4N3M1



36. Which of the following is correct for the Galactocele?

- a) Calcification of the shell-shaped
- b) Traumatic breast disease
- c) Benign cyst contain of the lactation
- d) Mammary cystic hyperplasia contain of the lactation
- e) Hyperplasia disease arise in TDLU.

37. Which of the following factor doesn't have to be marked on the Mammography image?

- a) Inspector information
- b) Radiation irradiation condition
- c) Patient numver
- d) Name and gender
- e) Left and Right marks and name of the projection

38. Which is the correct way to mark an abbreviation?

- a) Cleavage projection- R AT
- b) Axillary tail projection- R CV
- c) Tangential projection- R CC RL
- d) Medioloateral oblique projection- R LMO
- e) Implant displacement projection-R CC ID

39. Which of the following is the correct criterion in order to pass the test using standard phantom?

- a) More than 4 fibrin, 4 group of calcification, 2 tumefaction
- b) More than 4 fibrin, 3 group of calcification, 2 tumefaction
- c) More than 4 fibrin, 3 group of calcification, 3 tumefaction
- d) More than 3 fibrin, 3 group of calcification, 2 tumefaction
- e) More than 3 fibrin, 2 group of calcification, 2 tumefaction

40. Which of the following statements is not a indicant for a Magnification projection?

- a) To analyse the marginal of the masses
- b) To measure the shape and number of microcalcification
- c) To see the part less visible in a basic methode
- d) If microcalcification is located close to skin
- e) To distinguish that blood vessel, steatonecrosis fat necrosis or secretion of calcification in microcalcification

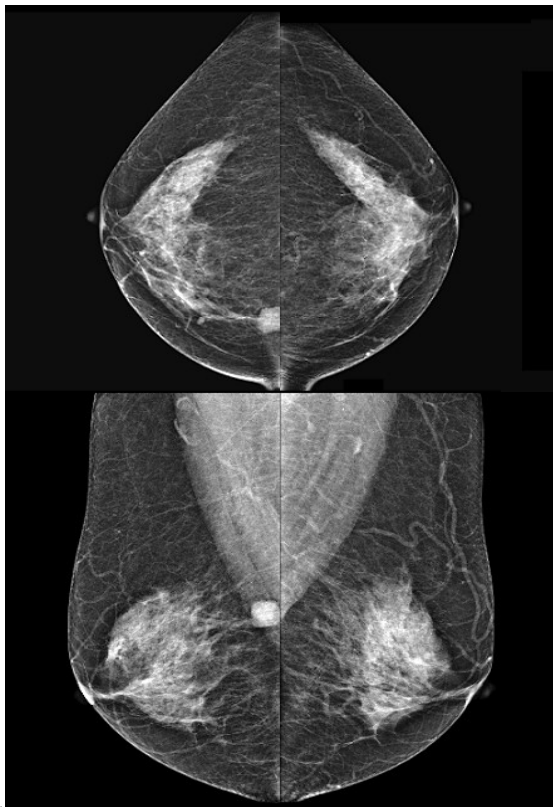
41. Regarding breast x-ray, which of the following is correct?

- a) it is performed by screening exam in patient with nipple discharge
- b) It is suitable for early detection of breast cancer, microcalcification
- c) It is suitable exam for patients with dense breast or lactating.
- d) it is suitable for reproducing lesions near chest wall
- e) Patient before the age of 35 also undergo mammography before breast ultrasound.

42. In case of Radiation Therapy for Breast cancer, tangential beam technique is commonly used. Which of the following is the main reason?

- a) Palpable mass
- b) Nipple eczema
- c) Skin calcification
- d) Nipple discharge
- e) Focal asymmetry

43. Which description is correct about following images?



- a) Structural distortion is observed.
- b) These are local asymmetric images.
- c) A lesion is observed in areas where breast cancer easily occurs.
- d) For additional US imaging, direction of 9 to 12 o'clock should be examined.
- e) Additional mammography (Valley view) can be performed in order to assess lesions.

44. Which of following description is not correct about Mediolateral oblique(MLO) projection?

- a) Inferior wrinkle of breast should be completely open.
- b) According to patient, the angle of tube can be changed
- c) All fibroglandular tissue should be included.
- d) In case of a patient who underwent the BCS, pectoralis major should be excluded.
- e) In case of giant breast, should try to prevent the 'sagging'.

45. In Craniocaudal(CC) View, which one is the subtract point among the image evaluation?

- a) Pectoralis major is included.
- b) Medial tissue of breast is included
- c) Retromammary fat has been included a lot.
- d) In the center of the breast, the outline of the nipple is observed laterally.
- e) Compare to the MLO image, the difference in length between the rear of the papilla is at least 1cm.

46. In MLO projection, which angle is most appropriate if the patient has short waist and fat – wide breast?

- a) 45°
- b) 55°
- c) 60°
- d) 65°
- e) 70°

47. In Supero-inferior projection, which part of the structure is difficult to express?

- a) Upper
- b) Lower
- c) Medial
- d) Lateral
- e) Subareola

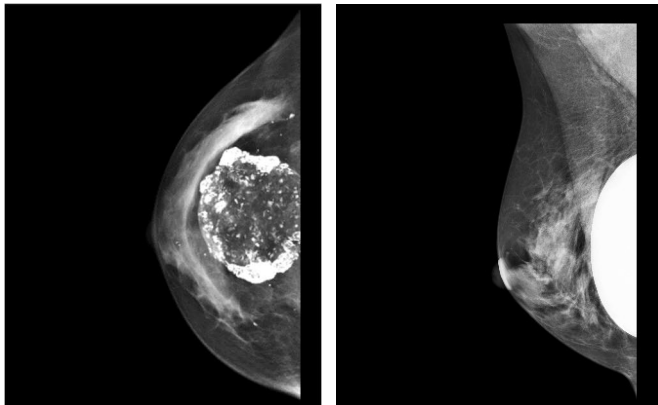
48. In CC view, if the lesion is located in medial part of papilla, how does it look like? (Compare to the aspect of MLO view)

- a) It seems much smaller.
- b) It seems much bigger.
- c) It is located much lower
- d) It is located much higher.
- e) It seems to be closer to the epidermis.

49. Which of the following statements is wrong about purpose of Roll View?

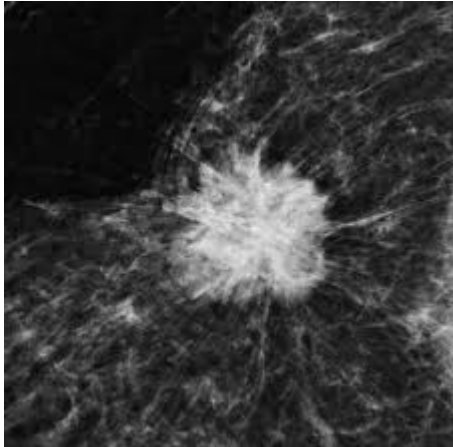
- a) The high density tissue can be seen widely
- b) It is for checking the unclear and abnormal tissue
- c) It applies if lesion tissues must be seen for divided them accurately
- d) It applies if a lesion can be touched but can't be seen in left and right breast image
- e) It applies for an accurate diagnosis if it can be confirmed a lesion by only one method

50. Which of the following description is true about the point of sameness in those two images below?



- a) There's a malignant mass in breast
- b) There's a massive calcification
- c) It needs Biopsy
- d) This patient has gotten breast augmentation
- e) AEC is applied when doing mammography.

51. Which statement is correct about following images?



- a) It is well-defined mass
- b) It is a lesion requiring 6month follow up
- c) It is potentially malignant lesion above 4a BI-RADS category
- d) It is most common lesion among the palpable mass in 20-30 women
- e) It is a benign mass consisting of mammary gland tissue, fat and fibrous tissue.

52. What factors are associated with the metastasis of malignant breast diseases?

- a) Feeding
- b) Lymphatic duct
- c) Flow of blood
- d) Variation of fat tissue
- e) Changes in the size of breast

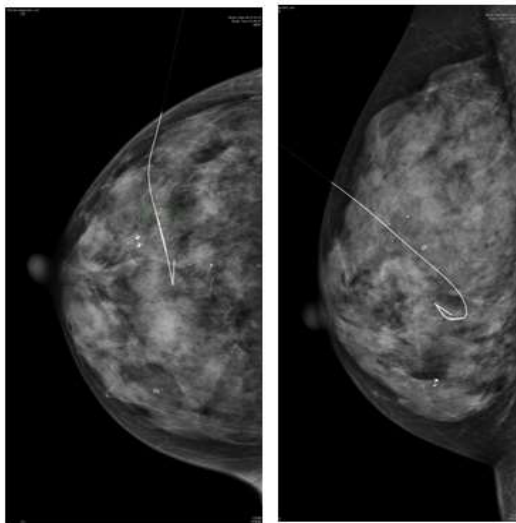
53. When the breast divide into four parts, where is the lowest incidence of breast cancer?

- a) Upper Outer Quadrant
- b) Upper Inner Quadrant
- c) Lower Outer Quadrant
- d) Lower Inner Quadrant
- e) Around areola

54. Which one is not a direct sign of breast cancer?

- a) Skin hypertrophy
- b) Pulled nipple
- c) Expanded mammary duct
- d) Structural deformity
- e) Palpable mass

55. Which of the following statement is correct?



- a) this is a procedure corresponding to a palpable mass.
- b) this is mainly performed mainly with CC and MLO view
- c) Compression is applied the same as usual when taking A,B images
- d) this has advantage of minimizing tissue removal
- e) Approach the needle according to operation posture rather than the location of lesion.

56. Which of the following is the correct description about the mammography?

- a) In the case of a woman under 25 years old, the MLO is solely applied.
- b) Most of the exam for re – checking (Follow up) is carried out in terms of 1 ~ 3 months.
- c) In case of a pregnancy or lactogenesis with obvious clinical issue, mammography is firstly applied.
- d) Taking mammography is encouraged 7 days after period.
- e) Due to the improvement of US equipment, Sonography is applied more than mammography.

57. Which of the following description is correct about 'fibroadenoma'?

- a) It occurs in the unit of end-tube of breast lobules.
- b) It occurs in large mammary duct, including lactiferous sinuses.
- c) Hemoid or mucous-liquid lactate secretion is observed.
- d) It is a cancer that is restricted to the inside of mammary duct and does not infiltrate into the surrounding tissue.
- e) The size changes during the Menstrual cycle, and there is no change in the period of pregnancy or breastfeeding.

58. What is the clinical stage if the tumor size is exceeded 5cm with NO lymph node metastasis?

- a) Stage 0
- b) Stage 1
- c) Stage 2
- d) Stage 3
- e) Stage 4

59. What is the earliest signs of breast cancer in mammography?

- a) Expansion of mammary duct
- b) Skin hypertrophy
- c) Nipple retraction
- d) Micro calcification
- e) Asymmetric size

60. Which of the following is the correct description about a mammotom biopsy?

- a) It can remove the lesion regardless of its size.
- b) It usually applied for the lesion that belongs to ACR-BI-RADS category 3.
- c) It is a triangulation that calculates the location of lesion in 3-dimensions.
- d) By using equipment with principle of vacuumsuction, malignant lesion can be removed.
- e) Using 14 gauge needle, take the tissue by shooting more than 4~5 times.

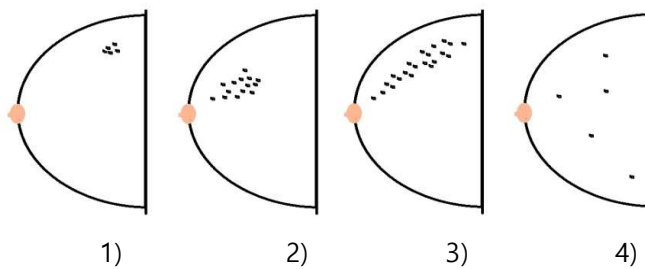
61. What kind of therapy can selectively control(suppress) the specific gene?

- A) Targeted Therapy
- B) Thermal therapy
- C) Radiation Therapy
- D) Antihormone Therapy
- E) Chemotherapy

62. Where is the primary portion that frequently arises breast cancer for man?

- a) Upper outer quadrant
- b) Upper inner quadrant
- c) Lower outer quadrant
- d) Lower inner quadrant
- e) Nearby Subareola

63. In the case of distribution of calcification in breast, which of the following is the correct order that has high possibility of benign – malignant?



- a) 1 – 2 – 3 – 4
- b) 1 – 3 – 2 – 4
- c) 2 – 3 – 1 – 4
- d) 4 – 2 – 1 – 3
- e) 4 – 3 – 2 – 1



64. Which of the following description is correct about the marked portion in the image?

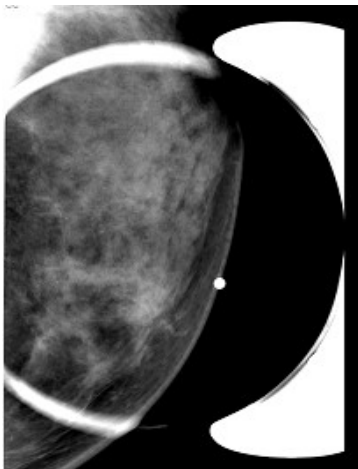


- a) It is related with the obesity level of the patient.
- b) It is caused by less retrogression.
- c) It occurs from malignant or inflammatory diseases.
- d) It is caused by excessive growth of the breast tissue.
- e) It is a rare phenomenon caused by a lack of protein.

65. Which of the following is correct description regarding breast MRI?

- a) Benign lesion can be enhanced by contrast and it can be misconceived to tumor.
- b) It is very effective for 50% of patient who has DCIS disease.
- c) Micro calcification can be missed.
- d) It can appraise the reactivity of cancer in chemotherapy.
- e) All above are correct.

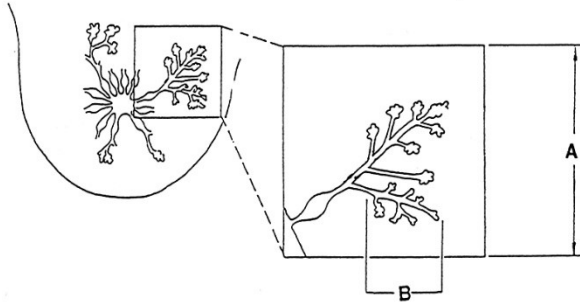
66. Which of the following is not correct about the image?



- a) It can magnify an object 2 times.
- b) Taken with Small focus
- c) 5:1 Grid must be used.

- d) Able to know the shape and number of calcareous lesion.
- e) Air-gap technique is applied.

67. . In the following image, what is the anatomical terms of A and B?



- a) A=Lobe, B=Lobule
- b) A=Areola, B=Lobe
- c) A=Main duct, B=Ductules
- d) A=Duct orifice, B=Ductules
- e) A=Lobule, B= Ductules

68. In the Mammal tumor assessment criteria, which of the following is considered malignant?

- a) Irregular
- b) Homogeneous
- c) Microlobulated
- d) Well-circumscribed
- e) Wide scatter calcification

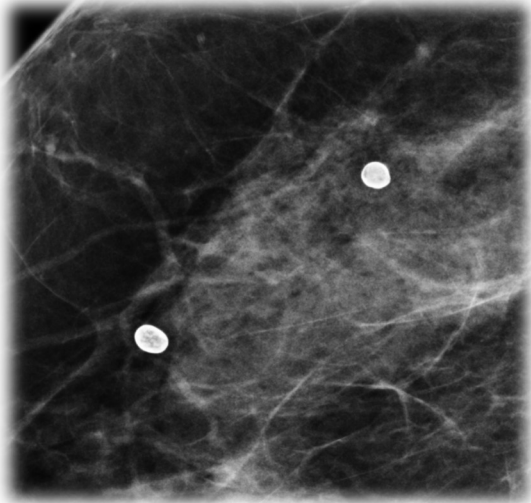
69. Which of the following statements is true about structural distortion?

- a) It is an opinion for positive mass
- b) It is appeared shape of circular or eggshape
- c) Normal structure evanesces as being seen mass
- d) It can be seen by being overlapped the breast tissue and founded in both
- e) It is indicated local collapse or changing of mammary gland parenchyma edge

70. Which of the following statements applies intermediate concern of calcification?

- a) Macrocalcifications
- b) amorphous
- c) Calcification of bars
- d) Coarse and thick
- e) fine pleomorphic

71. What is the BI-RADS Category of lesion?



- a) Category 1
- b) Category 2
- c) Category 3
- d) Category 4
- e) Category 5

72. Which of the following description is not correct about the standard abbreviation?

- a) Caudocranial projection is abbreviated as 'FB'
- b) Spot compression projection is abbreviated as 'SC'
- c) Lateromedial oblique projection is abbreviated as 'LMO'.
- d) Exaggerated Craniocaudal projection is abbreviated as 'XCCL'.
- e) Axillary tail projection is abbreviated as 'AT'.

73. Which of the following description is correct about 'Quality control'?

- a) The inspection cycle of the clinical video evaluation is 6 months.
- b) The re-exam rate should be kept lower than 3%.
- c) The average dose of the mammary gland should not exceed 3mGy.
- d) Radiation field inspection should not exceed 5% of 'SID' by difference between X-ray irradiation field and photorealistic field.
- e) In the accuracy measurement of the tube voltage, the preset kVp value and average measured value should be within 5%.

74. Which one is the correct description about biopsy using the following equipment?



- a) Using antithrombotic doesn't disturb the operation
- b) It can be applied in case of thin breast.
- c) It is useful for the patient who cannot hold their position.
- d) It is useful for the biopsy of calcification located in the wall of the chest.
- e) It is useful for the biopsy of micro calcification that is not revealed in US.

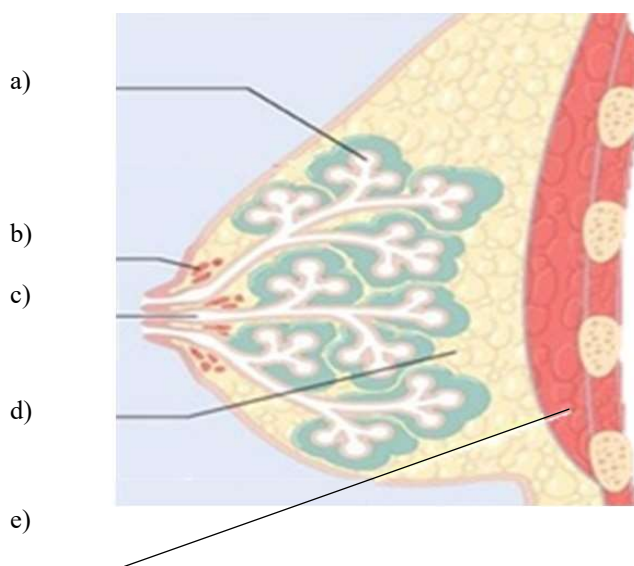
75. Which of the following statement is correct for physiologic breast change?

- a) During the growing period, estrogen and progesterone are sharply decrease.
- b) During adolescence, breast growth progresses slowly.
- c) During puberty, the breast is affected by the hypothalamus and posterior pituitary gland.
- d) Until 3-4 days after birth, mammary milk is secreted largely as estrogen and progesterone are rapidly increased.
- e) It is called secondary areola that the color of the nipple and areola becomes dark and the diameter is increases.

76. Which of the following description is correct about 'Geometric unsharpness'?

- a) Using small focal size increases the probability of unsharpness.
- b) If the distance between the subject and the image receptor is shortened, the unsharpness probably increases.
- c) The unsharpness appears to be smaller on the negative side than on the positive side of the X-ray tube.
- d) Even if the size of effective focus is same, the rotation anode X-ray tube appears to be larger than the fixed anode X-ray tube.
- e) The longer the distance between focus and film, the greater the penumbra area.

77. The following illustration below, which area associated with pajet's disease?



78. Which of the following description is correct about fine needle aspiration?

- a) 11 G or 14 G are routinely used.
- b) There's less possibility to transfer along the route of the fine needle.
- c) Cancer cells do not come out easily than benign ones.
- d) It is easy to inspect and has high pathological precision since it can obtain a lot of samples.
- e) It's enforceable for all kinds of lesions and it can distinguish the location of invasive cancer.

79. In ductogram, which of the following is correct order in which contrast medium is filled?

- a) lactiferous sinuses - divided branches – areal branches -terminal lobule unit – terminal branches
- b) lactiferous sinuses - terminal lobule unit - divided branches – areal branches – terminal branches
- c) lactiferous sinuses – divided branches – terminal branches – areal branches – terminal lobule unit
- d) lactiferous sinuses – areal branches - divided branches – terminal branches – terminal lobule

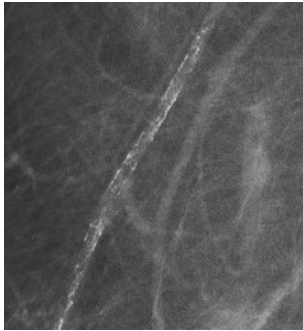
unit

- e) lactiferous sinuses – divided branches – areal branches – terminal branches – terminal lobule unit

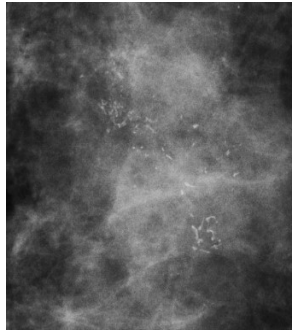
80. In normal US image, which of the following is correct in the order from surface to the inner part?

- a) Skin, rib, fibroglandular tissue, muscle, lung
- b) Skin, fibroglandular tissue, subcutaneous fat, muscle, rib, lung
- c) Skin, subcutaneous fat, fibroglandular tissue, muscle, rib, lung
- d) Skin, subcutaneous fat, rib, fibroglandular tissue, muscle, lung
- e) Skin, rib, subcutaneous fat, fibroglandular tissue, muscle, lung

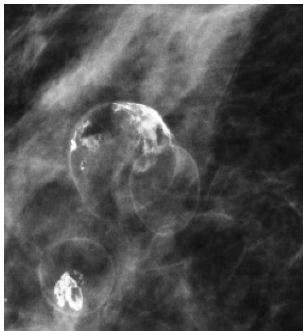
81. Which of the following image is malicious?



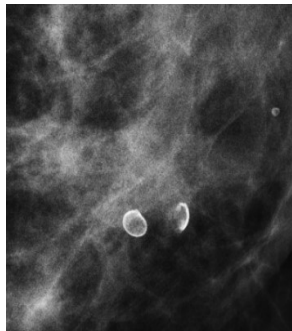
a)



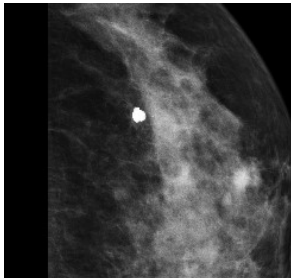
b)



c)



d)



e)

82. Which is correct statement for tomosynthesis?

- a) Positive prediction value is decrease.
- b) As the retake rate is increases, the exposure dose increases.
- c) The margin of the mass can be seen more clearly and faint lesions can also be found.
- d) It is method to acquire 4-D breast image by obtaining several cross sections from various angle.
- e) Overlapping of the breast tissue is increased compared with general mammography

83. Which of the following statement is correct for CAD?

- a) False negative rate is increases.
- b) Recall rate is reduced.
- c) Time and manpower, costs are increased.
- d) double reading is impossible.
- e) It is possible for second opinion.

84. What organ has lowest risk?

- a) Bone
- b) Liver
- c) Brain
- d) Lung
- e) Ovary

85. When using 'AEC', which of the following is not selected automatically?

- a) Target
- b) Filter
- c) Tube Voltage
- d) Tube Current
- e) Exposure time

86. Which of the following is correct about Compression?

- a) The inspection cycle of the breast compression device is 1 year.
- b) Pressure intensity is within 24 ~ 45 pounds.
- c) The thickness of the compressors should be 4mm or higher, and it should also be safe and solid.
- d) Increased distance between subject and image receptor surface improves resolution.
- e) Pressure increases geometric unsharpness by minimizing the subject-film distance

87. What is the sign of malignancy in dynamic contrast enhancement graph in breast MRI?

- a) If there is no contrast enhancement
- b) In case of late early enhancement
- c) In case of the center is enhanced in first
- d) In the early stage of rapid enhancement, the signal intensity decrease after the peak.
- e) When the signal intensity continuously increase from the early image to the delayed image.

88. Which of the following statement is correct for digital mammography?

- a) There is no artifacts.
- b) It has high spatial resolution
- c) Characteristic curve of imaging receptor is linear
- d) It is difficult to reduce or eliminate the noise of the imaging receptor.
- e) The signal to noise ratio is so low that it is difficult to find lesions in dense breast.

89. Which of the following is correct about the Point processing?

- a) This image processing method produces new pixel values by using the surrounding pixel values.
- b) This method is used to obtain images from a change in wavelength of X-ray that penetrates human tissue.
- c) This processing method is mainly used when changing the position or size of the images.
- d) To change the size value of the pixel itself, 'Look Up Table' is typically used.
- e) This method is used for the effects of image enhancement, image smoothing, and edge detection

90. Which of the following is NOT correct about the BSE (Breast Self Exam)?

- a) After finishing menstruation every month
- b) Compare to change of the nipples shape
- c) Using 2nd, 3rd and 4th fingers touchable in clockwise
- d) Every month check after ovariectomy or becoming menopause naturally
- e) if there is a abnormal nipple discharge after squeezing the breast.