超音波測驗

Ultrasonography

2017年8月27日 星期日

1. 除題意不清楚或是圖片有問題，禁止詢問與試題有關的問題。
2. 應答時禁止使用任何文件。
3. 請在電腦答案卡上圈選作答

項　目	**填寫內容：**
姓名	您的中文與英文姓名
試題名稱	US Test
項目	不用填寫
科目	不用填寫
受試者識別代碼	您的准考證號碼 **17XXX** 將您選定之數字的圓圈塗滿。
科目代碼	不用填寫
地點代碼	不用填寫
作答方式	本測驗共有90題問題。請使用1到90作答欄位。 請將測驗卷Q1的答案於Answer Choices1填入答案卷。 Q2 = Answer Choices2，Q3 = Answer Choices3…….Q90 = Answer Choices 90。

US 2017

Q1.Which of the following is the correct description about the frequencies of ultrasonic waves?

(A)>2KHz

(B)>10KHz

(C)>20KHz

(D)>100KHz

(E)>200KHz

Q2.Which of the following is the wrong description about an advantage of ultrasonography?

(A) There is no radiation exposure, which is harmless to the human body.

(B) Cost is low compared with CT and MRI. And there is in portability

(C) It is possible to observe in real-time

(D) It is possible to blood flow measured by Doppler method

(E) It is possible to observe any part of the whole body

Q3.Which of the following is the wrong description about an disadvantage of ultrasonography ?

(A) Air

(B) Bone

(C) blind spot

(D) ultra-high-speed blood flow measurement

(E) examiner ability

Q4. Which of the following is correct of characteristic ultrasound?

(A) The more wavelength is longer, the more attenuation gets large

(B) The speed of sound is different with medium and temperature

(C) Frequency is product for sound speed and wavelength

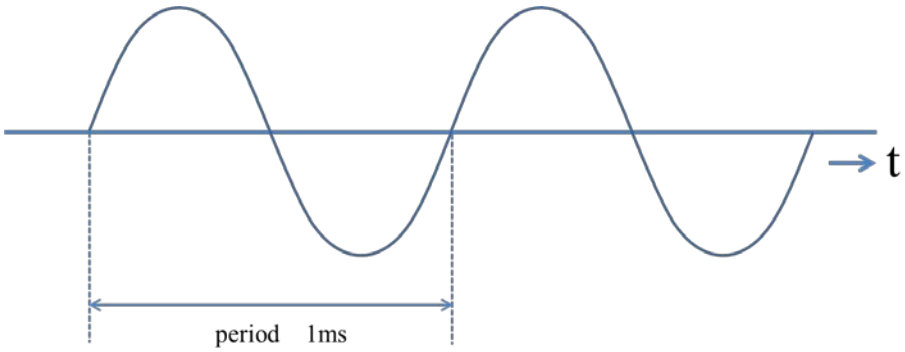
(D) Acoustic impedance is inverse proportion to the sound speed of the medium

(E) It attenuates at the interface where the difference in acoustic impedance is large

Q5. The ultrasonic device is based on the assumption that sound velocity is constant. Nearest speed, Choose from the following.

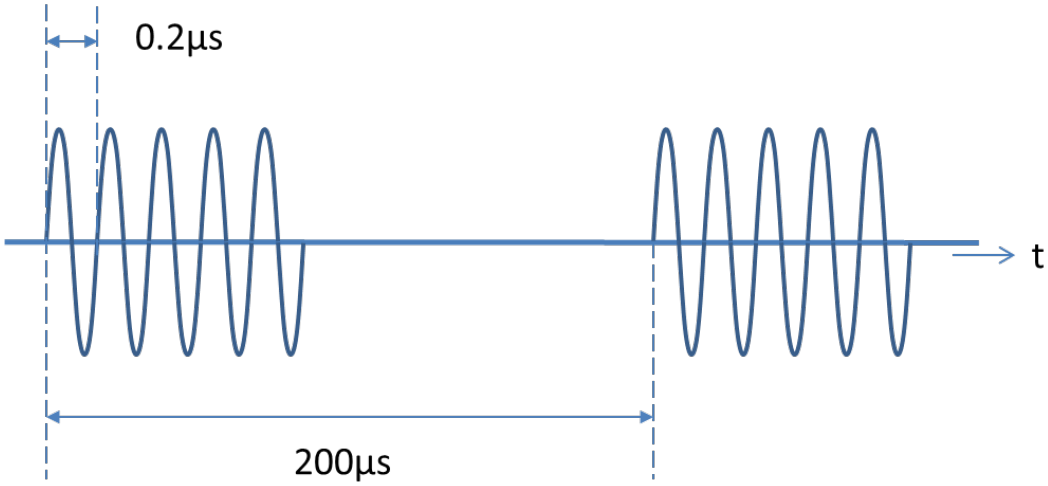
(A) 1230m/s
(B) 1330m/s
(C) 1530m/s
(D) 1630m/s
(E) 1730m/s

Q6. Which of the following is the correct value about frequency of the display of the waveform?



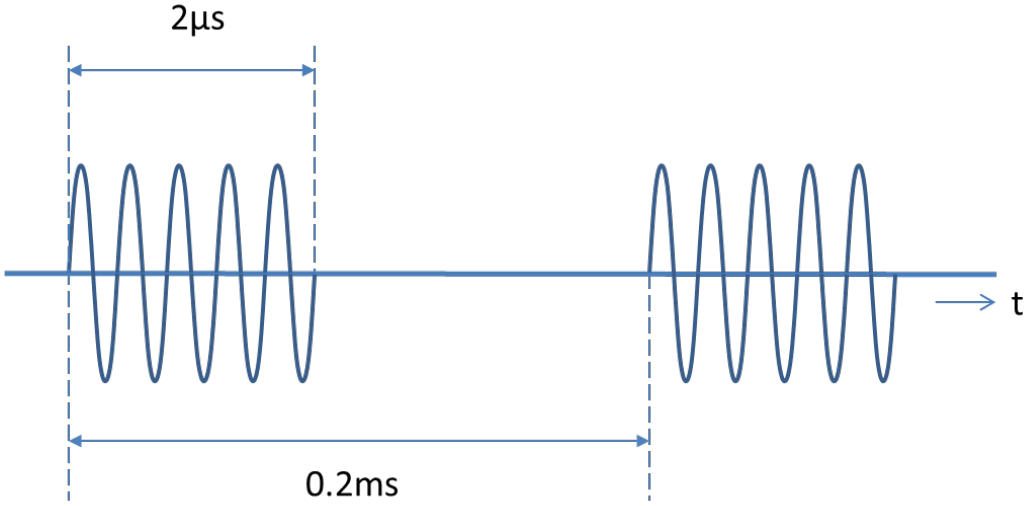
(A) 10Hz
(B) 100Hz
(C) 1,000Hz
(D) 10,000Hz
(E) 100KHz

Q7.Which of the following is the correct value about the pulse repetition frequency of the display of the waveform?



(A) 1KHz
(B) 5KHz
(C) 10KHz
(D) 50KHz
(E) 5MHz

Q8. Which of the following is the correct value about the center frequency of the display of the waveform?



(A) 1MHz
(B) 10MHz
(C) 5MHz
(D) 10MHz
(E) 50MHz

Q9. The wavelength of the acoustic wave propagating in a medium of sound velocity 1500 m / s was 0.5 mm. Which of the following is the correct value as the frequency of the sound waves?

(A) 0.15MHz
(B) 0.3MHz
(C) 1.5MHz
(D) 3MHz
(E) 15MHz

Q10. Which of the following is the wrong value at the speed of sound that propagates in the body tissue?

(A) bone 1,480m / s
(B) fat 1,450m /s
(C) kidney 1,560m / s
(D) blood 1,570m / s
(E) water 1,480m / s

Q11. Which of the following is the correct value in the magnitude relation of the speed of sound in the body?

(A) bone> muscle> fat
(B) bone> fat> muscle
(C) fat> bone> muscle
(D) muscle> fat> bone
(E) muscle> bone> fat

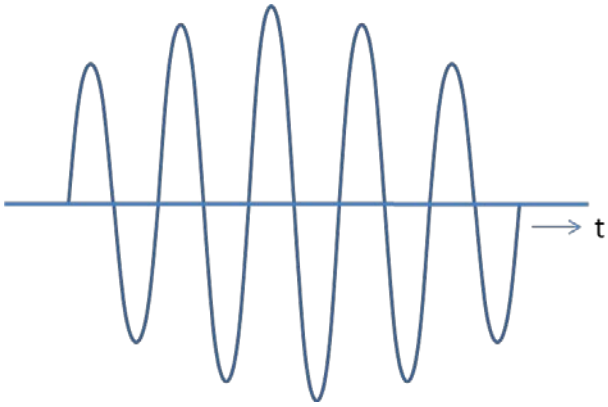
Q12. Which of the following is the correct value in the magnitude relation of the attenuation coefficient in the body?

(A) soft tissue> bone> blood
(B) bone> blood> soft tissue
(C) bone> soft tissue> blood
(D) blood> soft tissue> bone
(E) blood> bone> soft tissue

Q13. At a frequency of 3.5MHz, the attenuation in the depth of 1cm is 2.8dB. Which of the following is the correct attenuation at a frequency of 5MHz?

(A) 0.28dB
(B) 2.8dB
(C) 0.4dB
(D) 4.0dB
(E) 40dB

Q14. Which of the following is the correct distance resolution of 5MHz in the display of the waveform ?



(A) about 0.015mm
(B) about 0. 075mm
(C) about 0.15mm
(D) about 0.75mm
(E) about 1.5mm

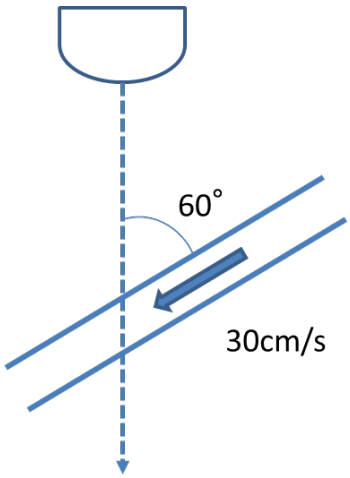
Q15. There is an observation apparatus capable of up to depth 8cm at the center frequency 3.5MHz. Which of the following is the correct value in observation depth at 5MHz? Decay rate is a 1db / cm · MHz?

(A) about 4.0cm
(B) about 4.5cm
(C) about 5.0cm
(D) about 5.5cm
(E) about 6.0cm

Q16. A pulse repetition frequency of the device was set to 3KHz. Which of the following is the correct depth of field?. However, the speed of sound in the body is defined as the 1500m / s.

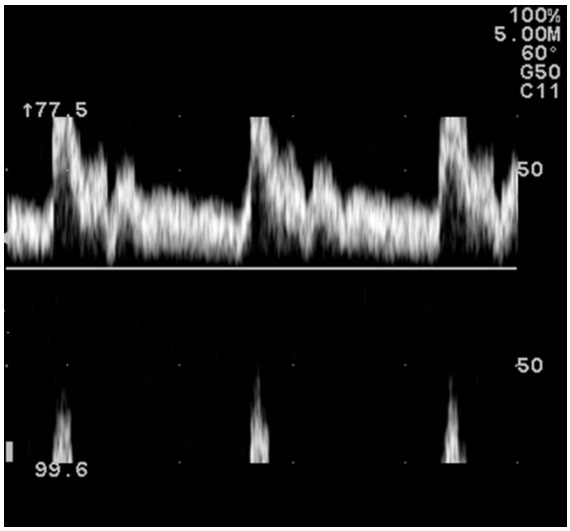
(A) 5cm
(B) 10cm
(C) 20cm
(D) 25cm
(E) 50cm

Q17. The flow of blood is flowing in the 30cm / s. The center frequency is set to 3MHz. Which of the following is the correct as the Doppler shift frequency? However, the speed of sound is defined as the 1500m / s.



(A) 0.2KHz
(B) 0.3KHz
(C) 0.4KHz
(D) 0.5KHz
(E) 0.6KHz

Q18. At Doppler examination showed the Doppler waveform (image). Choose this phenomenon from the following.

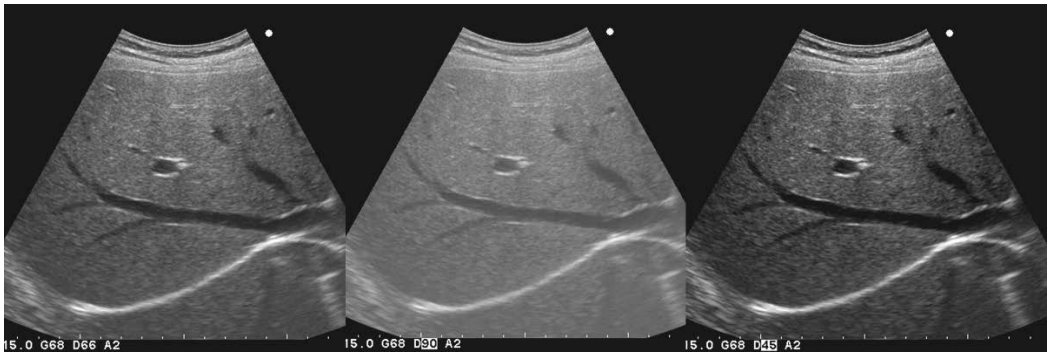


(A) mirror effect
(B) side lobe
(C) main lobe
(D) aliasing
(E) multiple reflection

Q19. The following image, Choose what you did adjustment of the device.

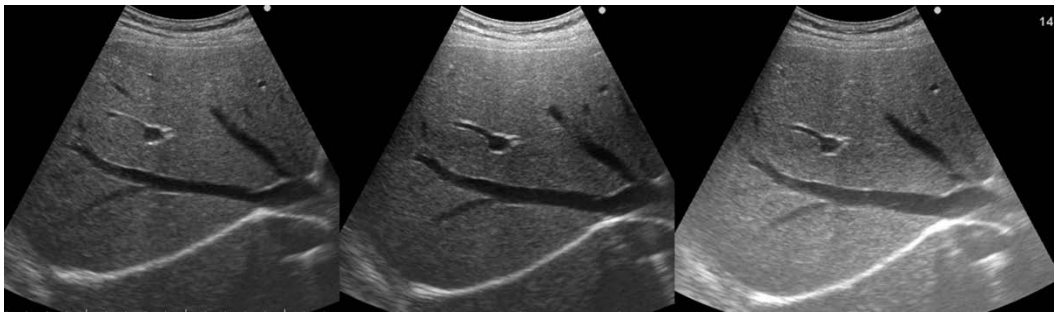
(A) gain
(B) center frequency
(C) STC (sensitivity time control), TGC (time gain control)
(D) dynamic range
(E) focus

Q 20. The following image, Choose what you did adjustment of the device.



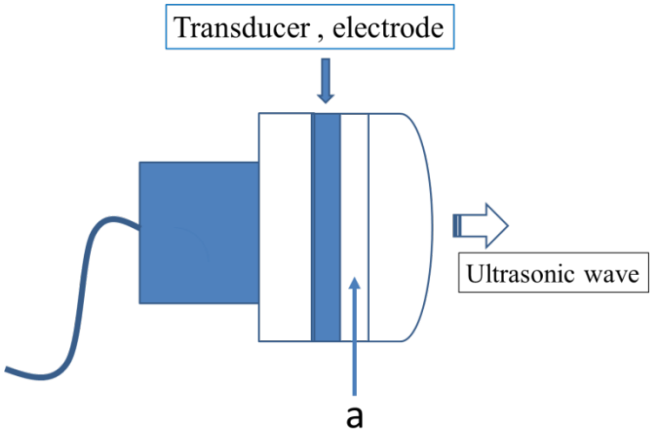
(A) gain
(B) center frequency
(C) STC (sensitivity time control), TGC (time gain control)
(D) dynamic range
(E) focus

Q21. The following image, Choose what you did adjustment of the device.



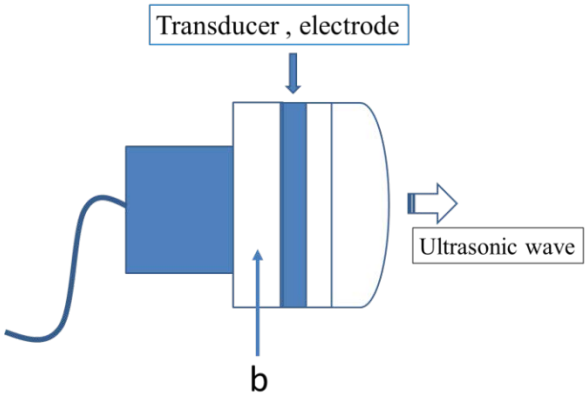
(A) gain
(B) center frequency
(C) STC (sensitivity time control), TGC (time gain control)
(D) dynamic range
(E) focus

Q22. Figure shows the structure of a probe (non-semiconductor type). Choose from the following about the structure a.



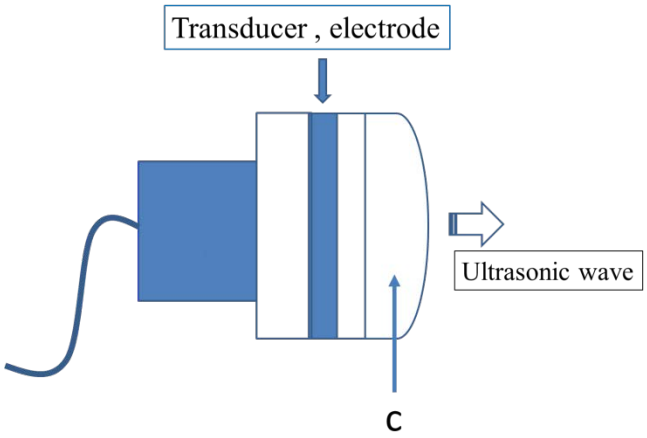
(A) backing material
(B) acoustic lens
(C) attachment
(D) acoustic matching layer
(E) digital scan converter

Q23. Figure shows the structure of a probe (non-semiconductor type). Choose from the following about the structure b.



(A) backing material
(B) acoustic lens
(C) attachment
(D) acoustic matching layer
(E) digital scan converter

Q24. Figure shows the structure of a probe (non-semiconductor type). Choose from the following about the structure c.



(A) backing material
(B) acoustic lens
(C) attachment
(D) acoustic matching layer
(E) digital scan converter

Q25. Which of the artifacts occur in color Doppler?
(A) Chemical shift
(B) Aliasing
(C) Beam hardening
(D) Ring Artifacts
(E) Halation

Q26. Which of the following is the wrong in the characteristics of the pulsed Doppler?
(A) Transmission and reception can be performed in the same element.
(B) Intermittently to transmit and receive in one direction.
(C) There is position information (such as any of the depth can measure the flow of a particular site).
(D) can respond to the measurement of the high flow rate.
(E) can real-time display superimposed on the B-mode image.

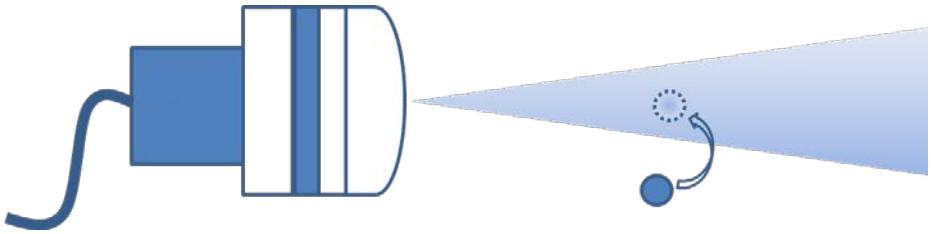
Q27. Which of the following is the wrong in the characteristics of the continuous wave Doppler?

(A) transmission and reception can be performed in the same element.
(B) intermittently to transmit and receive in one direction.
(C) there is a position information (such as any of the depth can measure the flow of a particular site).
(D) can respond to the measurement of the high flow rate.
(E) can real-time display superimposed on the B-mode image.

Q28. Which of the following is the wrong in the characteristics of the color flow mapping?

(A) Transmission and reception can be performed in the same element.
(B) Intermittently to transmit and receive in one direction.
(C) There is not position information (such as any of the depth cannot measure the flow of a particular site).
(D) can respond to the measurement of the high flow rate.
(E) can real-time display superimposed on the B-mode image.

Q29. Choose what the artifacts are shown in the figure below.



(A) grating lobe
(B) side lobe
(C) main lobe
(D) mirror effect
(E) multiple reflection

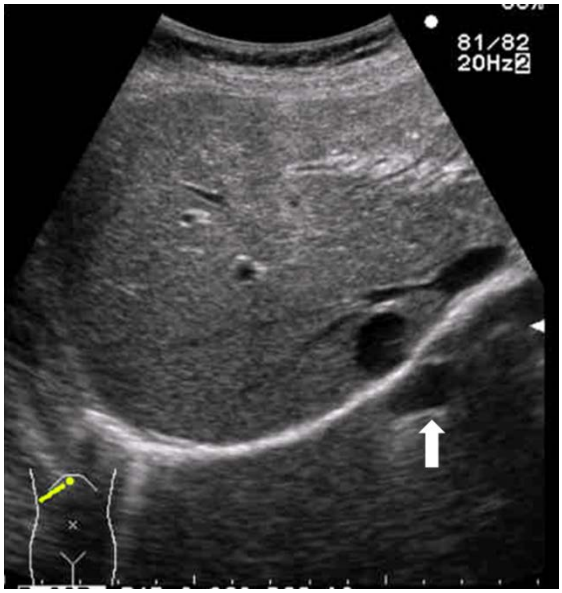
Q30. Choose what the artifacts are shown in the figure below.

(A) grating lobe
(B) side lobe
(C) main lobe
(D) mirror effect
(E) multiple reflection

Q31. Choose what the artifacts are shown in the figure below.

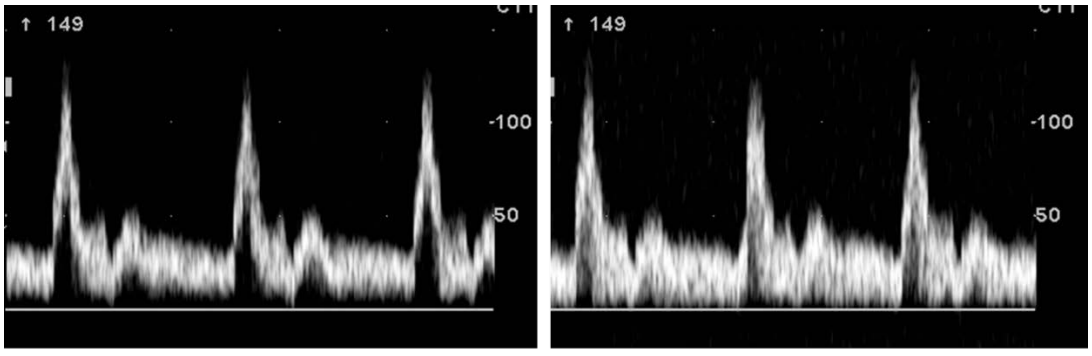
(A) grating lobe
(B) side lobe
(C) main lobe
(D) mirror effect
(E) multiple reflection

Q32. Choose what the artifacts are shown in the figure below.

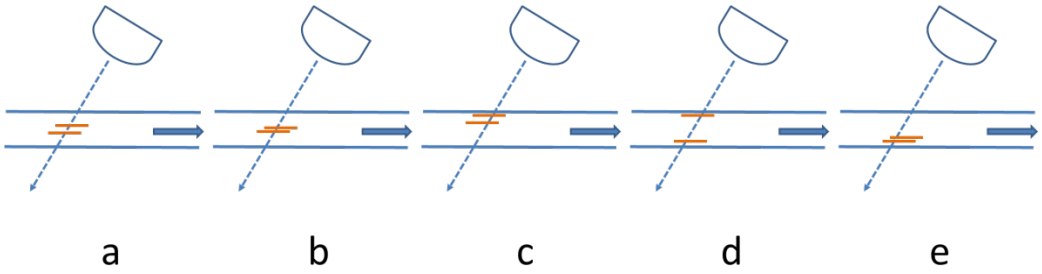


(A) grating lobe
(B) side lobe
(C) main lobe
(D) mirror effect
(E) multiple reflection

Q33. The image A is an appropriate doppler waveform. Which of the following is the setting of Sample volume for image B?

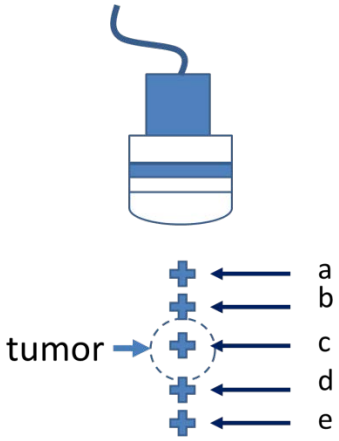


A B



(A) a
(B) b
(C) c
(D) d
(E) e

Q34. Which of following point is an appropriate focus point?

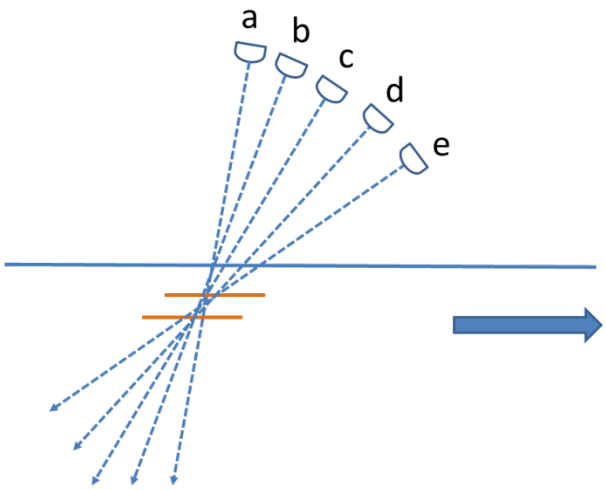


(A) a
(B) b
(C) c
(D) d
(E) e

Q35. By harmonic imaging effect, which of following is relieved?

(A) grating lobe
(B) side lobe
(C) main lobe
(D) mirror effect
(E) multiple reflection

Q36. About angle correction of doppler, which point of probe do you get the smallest error?



(A) a
(B) b
(C) c
(D) d
(E) e

Q37. Which of following is the correct sentence about pulse propagation?

(A) The more frequency is high, the more a wavelength gets longer.
(B) At the pulse wave with the same frequency, the more pulse length gets shorter, the more bandwidth becomes narrower.
(C) The more frequency of pulse wave is high, the more attenuation gets less.
(D) At a pulse wave of low frequency, an amplitude is small.
(E) At a pulse wave of low frequency, an amplitude is big.

Q38. Which of the following, posterior echo enhancement is less likely to occur.

(A) mucus
(B) blood
(C) water
(D) air
(E) abscess

Q39. When it is able to observe to depth of 15 cm, what times transmit and receive is it able to get per 1 sec? The speed of sound within an organism is 1500 m/s.

(A) 100 times
(B) 500 times
(C) 1000 times
(D) 5000 times
(E) 10000 times

Q 40. Choose the correct one for the ultrasound device.

(A) Acoustic lens uses glass
(B) The acoustic impedance is affected by the density of a substance
(C) the speed of sound in the same substance change with frequency
(D) High frequency probe (transducer) can get the fine imaging of deep part.
(E) MI is an abbreviation for maximum index

Q 41.When an ultrasound image (B mode) gets dark as a deep part, which of following is appropriate adjustment of ultrasound machine?

(A) gain
(B) STC
(C) frame rate
(D) contrast
(E) acoustic power

Q 42. Which of following is correct method of getting frame rate higher?

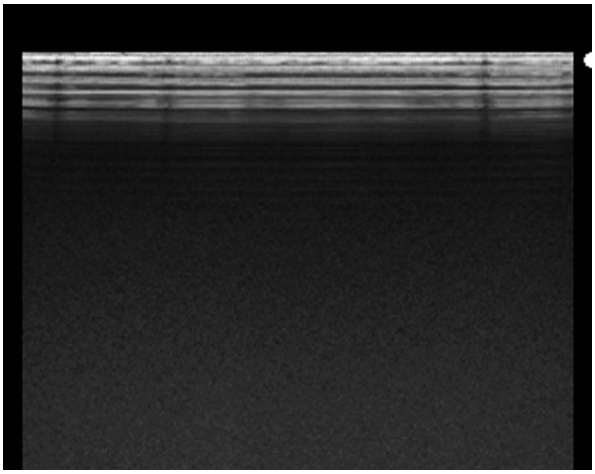
(A) It increases repetition frequency.
(B) It increases line density.
(C) It makes observation depth shallow.
(D) It makes field of view widely..
(E) It increases transmit frequency.

Q 43. With color doppler method, Which of following is correct adjustment for coloration by motion artifact?

(A) frame rate
(B) gain
(C) STC

(D) MTI filter
(E) acoustic power

Q 44. The image is monitor image of linear probe. Which of following is correct reason of breakdown?



(A) One part of monitor device won’t turn on.
(B) One part of probe is destroyed.
(C) STC
(D) receiving circuit
(E) artifact

Q 45. Which of following is the main reason of using jelly in ultrasound examination?
(A) For protection from the generation of heat from probe
(B) For increasing the sensitivity
(C) For deadening the vibrations
(D) For clearing the air gap between probe and patient surface
(E) For decreasing the surface roughness

Q46. Which of the following materials (A to D) is the unnecessary material for start-up inspection? A. power cord B. probe C. monitor D.jelly
(A) A
(B) B
(C) C

(D) D

(E) There is NOT the unnecessary material in A to D.

Q47. With cardiac ultrasonography, which method is appropriate method of blood flow measurement for high grade stenosis of valve?

(A) pulsed wave Doppler

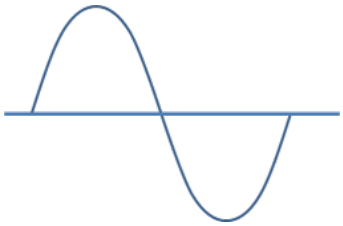
(B) continuous wave Doppler

(C) color Doppler

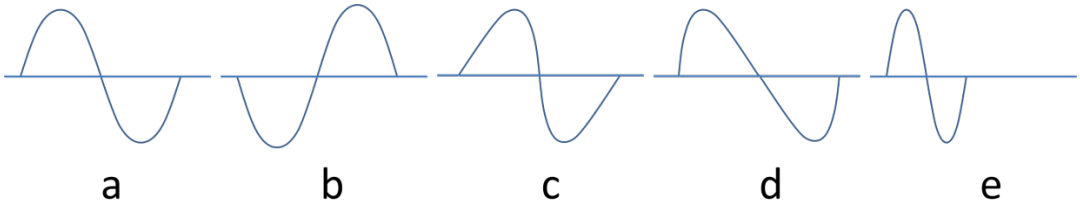
(D) power Doppler

(E) M-mode

Q48. Which waveform is with the highest similar receiving waveform from the transmitter waveform?



Transmitter waveform



(A) a

(B) b

(C) c

(D) d

(E) e

Q49. Using color Doppler with vascular ultrasonography, it gets mosaic echo in center of vascular. Which of following is correct?

(A) An establishment of color gain is high.

(B) The incident angle of ultrasound with the direction of blood flow is similar to 90°

(C) A velocity in center of vascular is late.
(D) It is noise.
(E) It springs up a turbulent flow.

Q50. Which of following does it have high ability to absorb?
(A) calculs
(B) bone
(C) air
(D) metal
(E) calcification

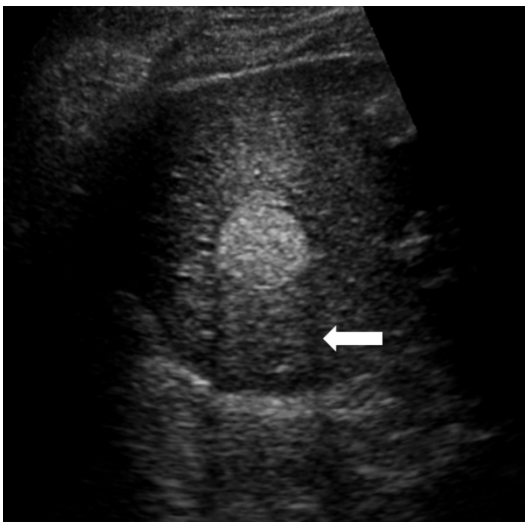
Q51. Which tumor is easy to get lateral shadow?
(A) A margin of tumor is flat, and it has coat.
(B) A margin of tumor is flat, and it doesn’t have coat.
(C) A margin of tumor is irregular, and it doesn’t have coat.
(D) A hard tumor
(E) A soft tumor

Q52. Which of following is correct for second harmonic of 4MHz?
(A) 2MHz
(B) 4MHz
(C) 6MHz
(D) 8MHz
(E) 16MHz

Q53. Which of following is NOT correct factor influencing to ultrasound heat effect?
(A) transmission output (acoustic power)
(B) pulsed repetition frequency (PRF)
(C) pulse range
(D) gain
(E) examination time

Q54. In this image, what is the black shadow (indicated by the white arrow)?

(A) posterior echo enhancement
(B) boundary shadow
(C) surrounding echo
(D) lateral shadow
(E) marginal echo

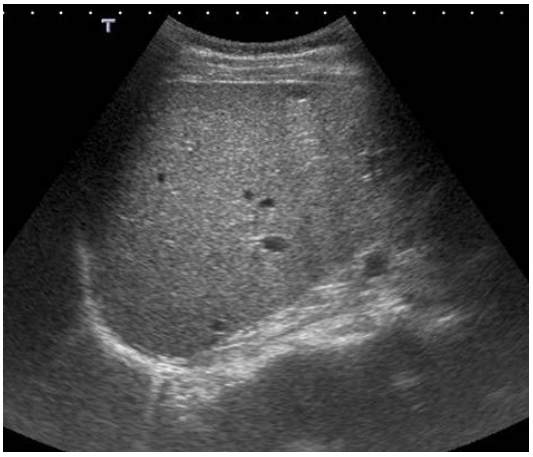


Q 55. Choose the incorrect combination.

(A) metastatic liver cancer ---------- bull's eye sign
(B) hepatocellular carcinoma ---------- cluster sign
(C) hepatic hemangioma ---------- chameleon sign
(D) liver cirrhosis ---------- mesh pattern
(E) obstructive jaundice ------- parallel channel sign

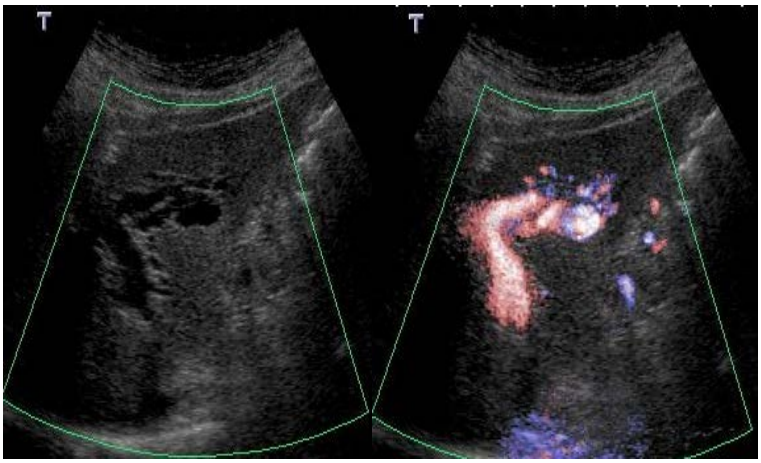
Q56．Which of the following image correct description?

(A) normal
(B) hemangioma
(C) cyst
(D) Pleural effusion
(E) free air



Q57．Which of the following image correct description?

(A) liver cyst
(B) hepatic aneurysm
(C) PV shunt
(D) obstructive jaundice
(E) portal hypertension

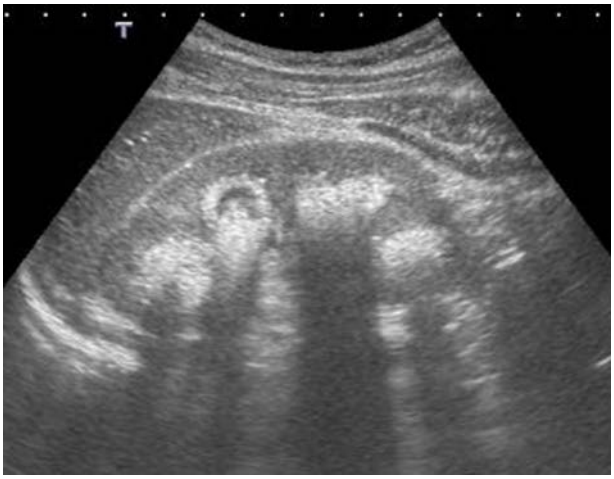


Q58．Which of the following image correct description?

(A) cholecystolithiasis
(B) ureter stone
(C) kidney stone
(D) adenomyomatosis
(E) bladder stone

Q59 . The following ultrasound image shows the kidney. Which of the following correct description?

(A) Hypercholesterolemia
(B) hypercalcemia
(C) hypoalbuminemia
(D) hyperkalemia
(E) hyperuricemia



Q60. Ultrasound image shows a midline horizontal scanning. What do you doubt as disease?

(A) horseshoe kidney
(B) malignant lymphoma
(C) Takayasu’s arteritis

(D) pancreatic cancer

(E) colon cancer

Q61．Which of the following correct description?

(A) low incidence of liver cancer

(B) liver abscesses suspected

(C) adrenal tumor suspected

(D) ascites is seen

(E) there is alcoholic and non-alcoholic

Q62．Which of the following not correct description?

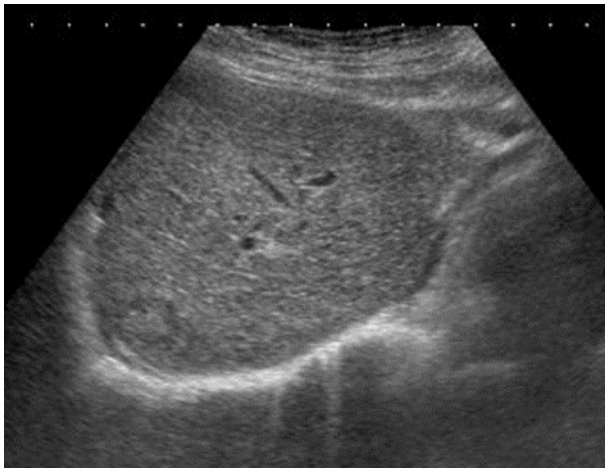
(A) hepatic cell carcinoma suspected

(B) ascites is seen

(C) diffuse liver disease susupected

(D) there are multiple tumor

(E) expansion of intahepatic biliary duct is not



Q63．For a typical ultrasound findings of cirrhosis of the liver. Choose a description that is wrong.

(A) atrophy of the right hepatic lobe and swelling the left hepatic lobe
(B) narrowing of the hepatic vein
(C) swelling of the gallbladder
(D) splenomegaly
(E) uneven irregularity of the surface of the liver

Q64．In acute hepatitis, choose those that are not typical ultrasound findings.

(A) hepatomegaly
(B) thickening of the gallbladder wall
(C) splenomegaly
(D) reduction of the liver parenchyma echo level
(E) A large amount of ascites

Q65．In fatty liver , Choose those that are not typical ultrasound findings.

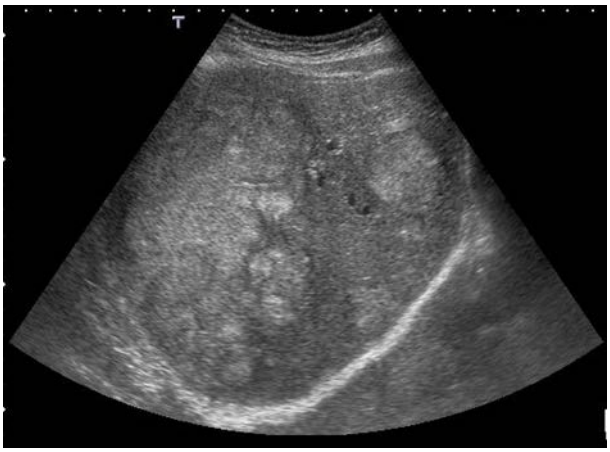
(A) Bright liver
(B) ultrasound beam is attenuated posteriorly
(C) intrahepatic vascular is not clarity
(D) hepato - renal echo contrast
(E) thickening of gallbladder wall

Q66．Choose the most not likely disease.

(A) pancreas head cancer
(B) extrahepatic bile duct stone
(C) primary sclerosing cholangitis
(D) cholangiocarcinoma
(E) mucinous cystadenocarcinoma of the pancreas

Q 67．Ultrasound image shows right lobe the liver. Choose the most likely disease.

(A) sarcoidosis of the liver
(B) multiple hepatic hemangioma
(C) hepatocellular carcinoma
(D) metastatic liver cancer
(E) liver abscess



Q68．Which of the following image is correct description?

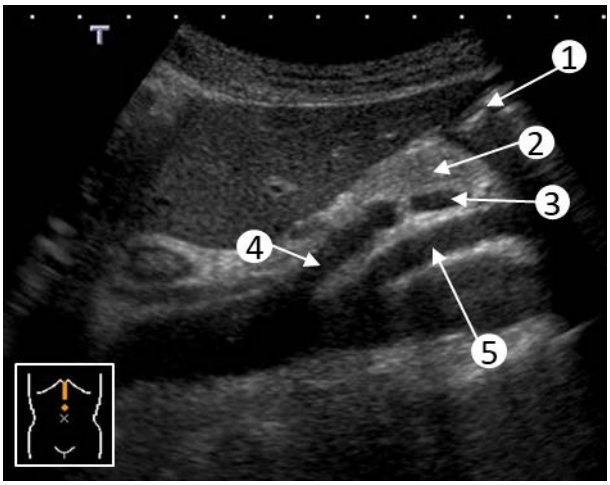
(A) transverse colon

(B) stomach

(C) left renal vein

(D) celiac artery

(E) left renal artery



Q69．Which of following image is correct description?

(A) normal liver

(B) congestive hepatopathy

(C) left heart failure

(D) Budd-Chiari　syndrome

(E) thickening of the gallbladder wall

Q 70．Which of following image is correct description?

(A) nutcracker syndrome

(B) congestive hepatopathy

(C) abdominal aortic aneurysm

(D) pancreatitis

(E) primary sclerosing cholamgitis

Q 71．Ultrasound image shows right kidney. Choose the correct one.

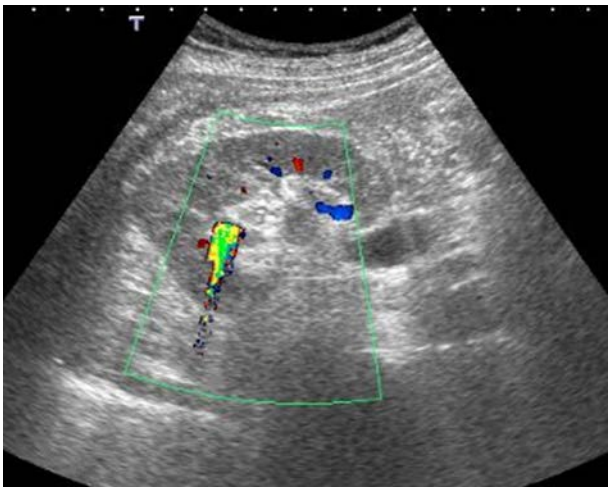
(A) renal stone

(B) renal cancer

(C) renal aneurysm

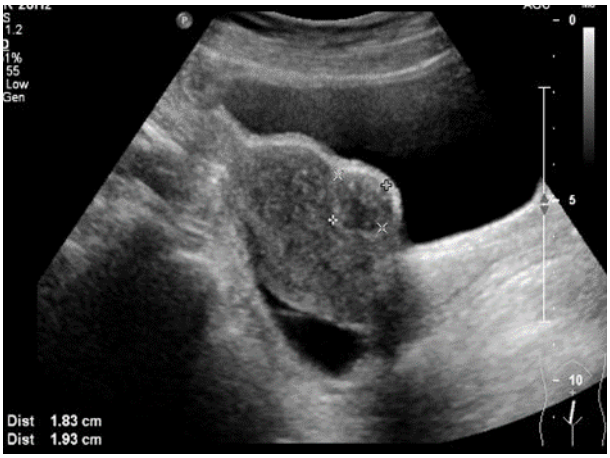
(D) renal cyst

(E) renal injury



Q 72．Ultrasound images show the median vertical scanning. Choose the correct sentence from the following.

(A) colon cancer is seen
(B) bladder tumor is seen
(C) myoma of uterus is seen
(D) ascites is not seen
(E) prostatic hyperplasia

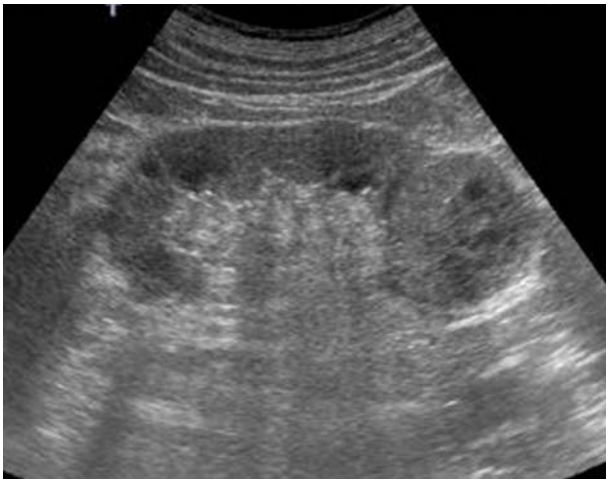


Q73．As ultrasound findings in the uterus and ovaries, Choose the wrong sentence from the following.

(A) myoma of the uterus and uterine sarcoma is often difficult differential diagnosis
(B) in uterus bicornis, there is a case of a single kidney
(C) myoma uterus of the are often depicted as a cystic mass
(D) in ovarian torsion, enlarged ovary is seen
(E) as the primary focus of metastatic ovarian cancer, often stomach cancer and colon cancer

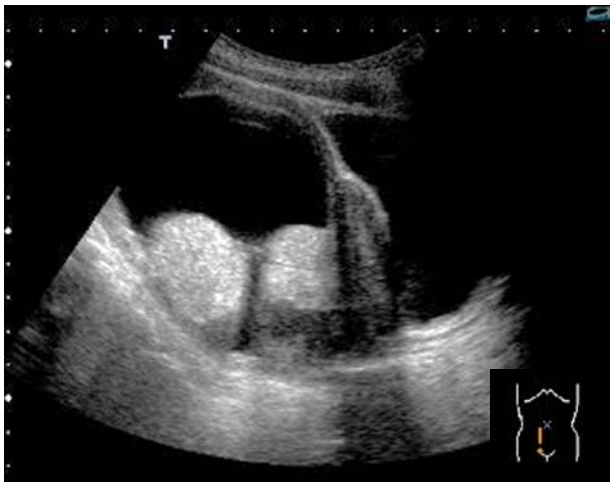
Q74．Ultrasound images show the right kidney, Choose the correct sentence from the following.

(A) Acknowledge tumor in the upper pole of kidney
(B) Tumor with cystic change
(C) Tumor with calcification
(D) Tumor is in the renal pelvis
(E) Renal cell carcinoma and oncocytoma is differentiable diagnosis by ultrasound

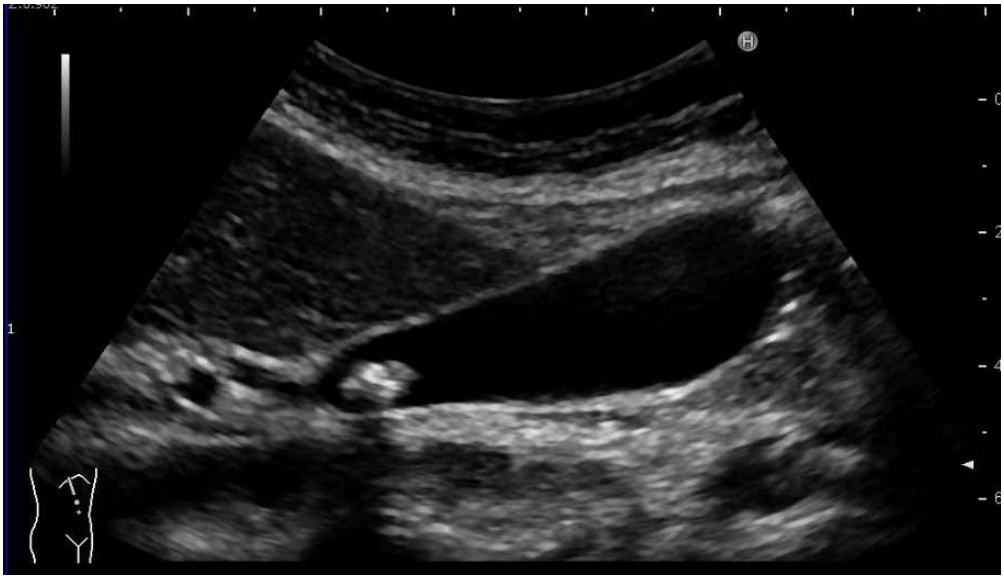


Q 75．Ultrasound image show the median vertical. Choose the incorrect one.

(A) Ovarian torsion suspected
(B) hyperechoic lesion in tumor is a hair ball.
(C) Evaluation of Doppler is necessary
(D) Spontaneous site is right ovary
(E) ascites is not seen



Q76. The following ultrasound image shows the gallbladder. Which of the following is not correct description?



(A) Stone is seen in the gallbladder.
(B) Stones are depicted accompanied by acoustic shadow
(C) There is no thickening on the gallbladder wall.
(D) Mass lesion seen in the gallbladder.
(E) Debris (biliary sludge) is not found in the gallbladder.

Q77. The following image shows the gallbladder. Which of the following is correct description?

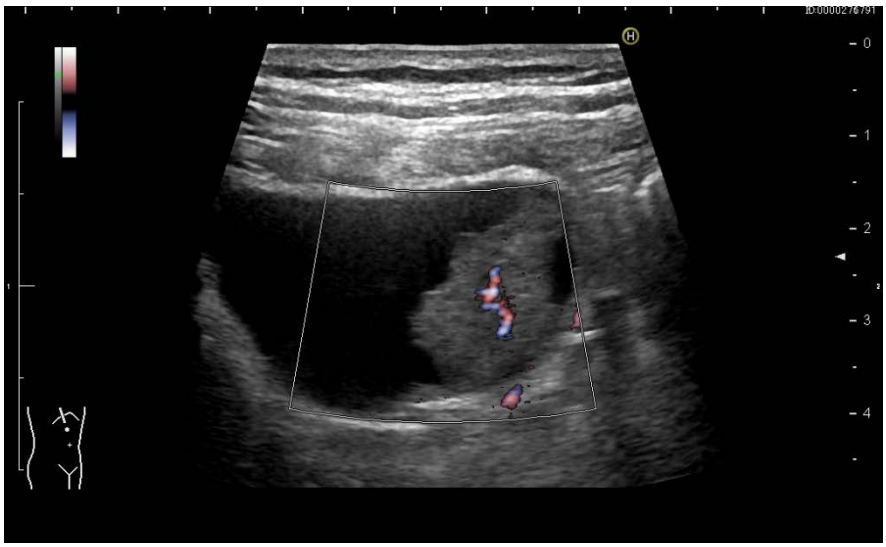
(A) There is no abnormal findings in the gall bladder .
(B) It is not necessary to check the mobility by a change in posture.

(C) Acknowledge the hyperechoic lesion in the gallbladder .

(D) Evaluation of Doppler is not necessary .

(E) Gallbladder cholesterol polyps are always seen stems .

Q78. The following ultrasound image shows the gall bladder. Choose the most likely disease.



(A) Acute cholecystitis

(B) Cholelithiasis .

(C) Gall bladder cancer

(D) Gallbladder adenomyosis

(E) Biliary sluge

Q79. The following ultrasound image shows the gallbladder. Which of the following is not correct description?

(A) Gallbladder has been enlarged
(B) Gallbladder wall has thickened
(C) Seen sludge in the gallbladder
(D) It is necessary to check the mobility of sluge by a change in posture.
(E) Acute cholecystitis is a negative.

Q80. The following image shows the gallbladder .Which of the following is not correct description?

(A) Acknowledge the comet -like echo in the gallbladder body to bottom .
(B) Acknowledge the localized wall thickening in gallbladder body to bottom .
(C) Acknowledge the low echo in thickened body to bottom .

(D) Low echo of the body to bottom is hyperplasia of Rokitanski-Aschoff sinus (RAS) with the surrounding smooth muscle (fibrous muscle tissue) can be considered .

(E) RAS is not in normal gallbladder mucosa .

Q 81. Choose the disease with the low frequency as the cause of cholangiectasis.

(A) Bile duct stone

(B) Gallbladder adenomyosis

(C) Cholangiocarcinoma

(D) Malfusion of pancreaticobiliary ducts

(E) Intraductal papillary neoplasmof bile duct(IPNB)

Q82. The following image that depicted the pancreas . Which of the following is not correct description?

(A) Acknowledge the swelling of pancreas.

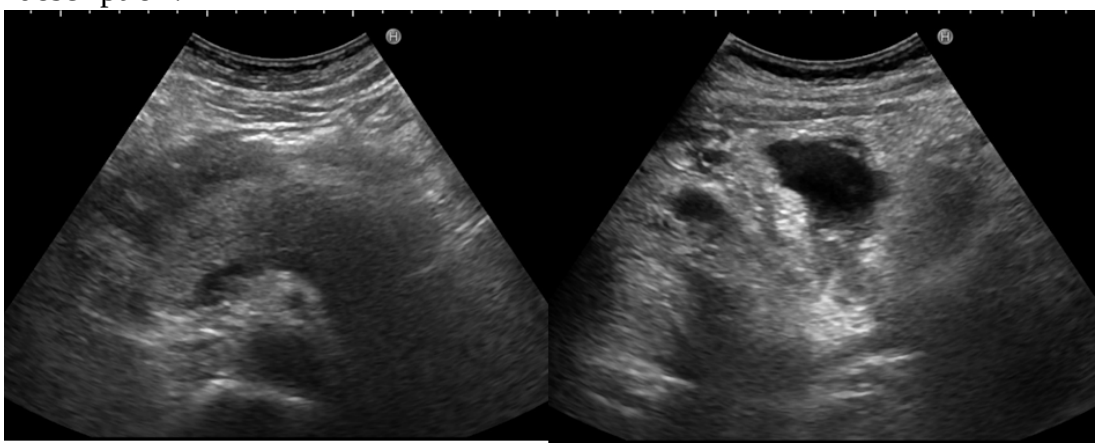
(B) There is not main pancreatic ductal dilation

(C) Diffuse pancreatic cancer is suspected.

(D) Autoimmune pancreatitis is suspected.

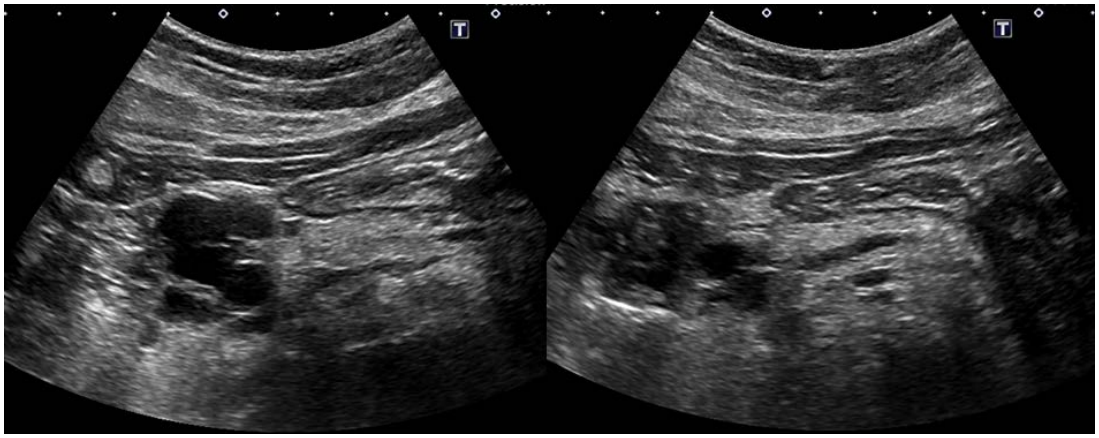
(E) Measurement of IgG4 is not effective.

Q83. The following image shows the pancreas．Which of the following is not correct description?



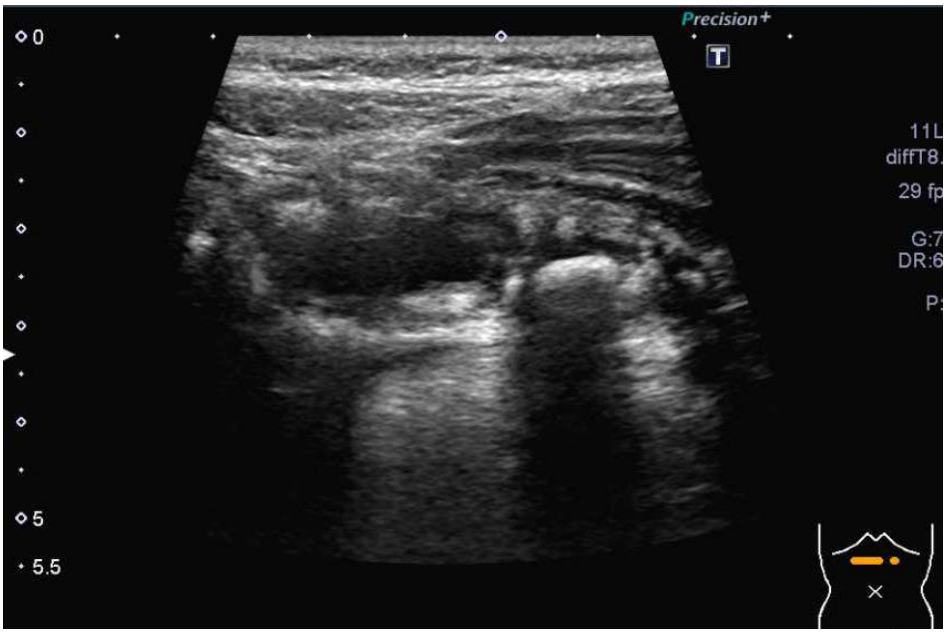
(A) The pancreas is swelling.
(B) Brightness of the pancreas is a hypo echoic
(C) Liquid is not recognized around the pancreas.
(D) The contour of the pancreas is not clear.
(E) Suspected Chronic pancreatitis

Q84. The following image shows the pancreas．Which of the following is not correct description?



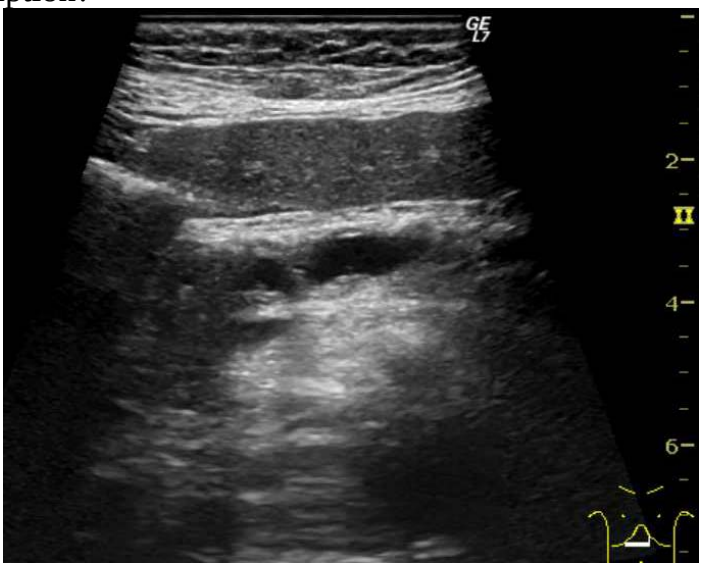
(A) Pseudocyst
(B) Serous cystic neoplasm（SCN）
(C) Mucinous cystic neoplasm（MCN）
(D) Main ductal type IPMN
(E) Branch ductal type IPMN

Q85. The following image shows the pancreas ． Which of the following is not correct description?



(A) There is an extension to the main pancreatic duct.
(B) Pancreatic parenchyma there is atrophy .
(C) Acknowledge the stones in the main pancreatic duct .
(D) Chronic pancreatitis is a negative .
(E) Acknowledge the calcification in the pancreatic parenchyma .

Q86. The following image shows the pancreas ． Which of the following is not correct description?



(A) Acknowledge a neoplastic lesion in the head of the pancreas.
(B) Neoplastic lesions are hypoechoic .
(C) Tumor boundary is clear.
(D) Invasive pancreatic cancer may be considered.
(E) In the case of invasive pancreatic cancer it is necessary to check the infiltration of perivascular.

Q87. Which is wrong as the cause of splenomegaly?
(A) Malignant lymphoma
(B) Leukemia
(C) Ageing
(D) Cirrhosis hepatis
(E) Hemolytic anemia

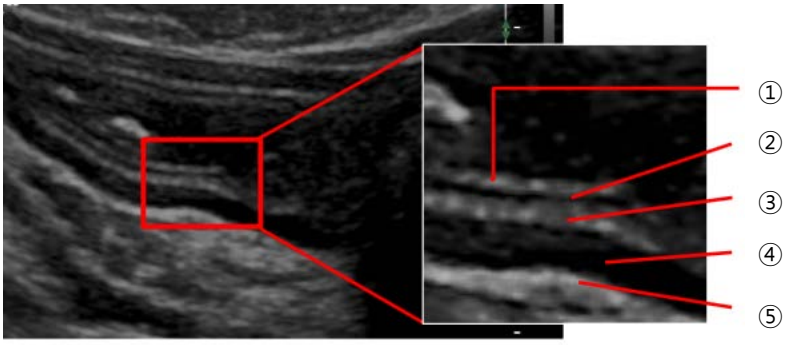
Q88．The following image shows the spleen．Which of the following is correct description?

(A) Splenic cyst
(B) Splenic abscess
(C) Splenic hematoma
(D) Splenic Hemangioma.
(E) Spleen malignant lymphoma

Q89. Choose the disease with the low frequency as the cause of epigastricgia.

(A) Acute cholecystitis
(B) Gastric ulcer
(C) Duodenal ulcer
(D) Appendicitis
(E) Renal carcinoma

Q 90. The following image shows gastrointestinal tract Which of the following image is correct description?



(A) mucous membrane
(B) muscularis mucosa
(C) Submucosa
(D) subserosa
(E) muscularis propria