



**Course title: Pregnancy and Fetal Ultrasound
Test Questions**

Topic: Early Pregnancy Ultrasound Assessment of Multiple Pregnancy

1. The twin pregnancies comprise about _____% of all live births in the United States.
(A): 3
(B): 10
(C): 25
(D): 35

2. Beyond the diagnosis of early multiple pregnancy, ultrasound scan is more than necessary to define which of the following?
(A): chorionicity
(B): amnionicity
(C): gestational age
(D): all of the above

3. A dizygotic pregnancy occurs when an egg is fertilized by one sperm, producing one embryo, which can split any time, more commonly between day 2 and day 13 after fertilization.
(A): True
(B): False

4. For women with regular cycles, the date of the _____ is used to estimate gestational age, taking into account the biological variability and correct the cycle length.
(A): conception
(B): first trimester
(C): last menstrual period
(D): none of the above

5. In the first trimester (before the 14th week of gestation), _____ is the parameter that is used in order to estimate gestational age with 5–7 days of deviation.
(A): last menstrual period
(B): date of the conception
(C): crown-rump length (CRL)
(D): fetal gender

6. In the second trimester, a combination of which of the following parameters is used to define pregnancy dating?
(A): abdominal circumference
(B): femur length
(C): biparietal diameter
(D): all of the above

7. Early and accurate definition of chorionicity and amnionicity has an undeniably determinant role in the management of multiple pregnancies, since chorionicity plays a key role in the appearance of complications.
(A): True
(B): False

8. Which of the following ultrasound findings can help in the detection of chorionicity?
(A): number of observable gestational sacs
(B): number of amniotic sacs within the chorionic cavity
(C): number of yolk sacs
(D): all of the above

9. The number of gestational sacs is the parameter with the highest accuracy to define chorionicity which is extremely close to _____%.
(A): 10
(B): 25

- (C): 45
- (D): 100

10. If a male and a female fetus are identified in the _____, a dichorionic twin pregnancy is the rule.

- (A): late third trimester
- (B): late first or early second trimester
- (C): delivery process
- (D): first week of pregnancy

11. It is recommended that ultrasound monitoring for noncomplicated monochorionic twins should be every _____.

- (A): 7 days
- (B): 15 days
- (C): 3-4 weeks
- (D): 6 months

12. Which of the following parameters are necessary to be evaluated in monochorionic pregnancies follow-up scans?

- (A): Estimated fetal weight and fetal biometry
- (B): Amniotic fluid volume
- (C): Doppler assessment of the umbilical artery
- (D): all of the above

13. The multiple pregnancies are now more frequent than a few years before, due to the artificial reproductive technologies.

- (A): True
- (B): False

Topic: Assessment of Fetal Gestational Age in the First Trimester in Normal and abnormal Pregnancies: Which Sonographic Parameter to Use?

14. The fetal _____ is one of the first structures identifiable early in the human embryos.

- (A): neck
- (B): heart
- (C): foot
- (D): liver

15. The fetal hands and feet would be recognizable as distinct formed structures by 8 weeks of embryological development or _____ weeks by the last menstrual period (LMP) according to a 28 day cycle.

- (A): 1
- (B): 2
- (C): 3
- (D): 10

16. It has been suggested that the ultrasound measurement of the crown-rump length in the embryo or fetus is the most accurate method to establish or confirm gestational age in the first trimester up to 13 + 6 weeks.

- (A): True
- (B): False

17. The use of _____ has been shown to be associated with a reduction in induction of labor for post-term pregnancy.

- (A): fetal blood test result
- (B): routine first trimester ultrasound scan
- (C): maternal genetic test
- (D): gestational diabetes test

18. In the sonographic assessment of fetal gestational age in the first trimester, the use of a combination of fetal parameters such as BPD, HC, AC, and FL is more accurate than _____ at 10-14 weeks gestation in normal pregnancies.

- (A): gestational age assessed by date (GA)
- (B): crown-rump length (CRL)
- (C): head and abdominal circumference

(D): both A and B

Topic: Antenatal Diagnosis of Congenital Anomalies on Ultrasound Screening

19. Congenital fetal anomalies contribute to the global burden of disease in children.

- (A): True
- (B): False

20. According to the _____, the term congenital anomaly includes any morphological, functional, biochemical, or molecular defects that may develop in the embryo and fetus that is present at birth, whether detected at that time or not.

- (A): Centers for Disease Control and Prevention (CDC)
- (B): American Registry for Diagnostic Medical Sonography (ARDMS)
- (C): World Health Organization (WHO)
- (D): none of the above

21. Congenital anomalies occur in _____% of all births and are an important cause of perinatal morbidity and mortality accounting for 20-30% of perinatal deaths.

- (A): 2-3
- (B): 10-15
- (C): 20-30
- (D): 35-45

22. According to one study, frequency of congenital anomalies was more in males than females, with _____ anomalies being the **most** common.

- (A): muscular dystrophies
- (B): central nervous system (CNS)
- (C): digestive system
- (D): integumentary system

23. According to WHO, approximately 94% of all congenital anomalies cannot be associated with a specific cause.

- (A): True
- (B): False

24. Which of the following can cause or increase the incidence of abnormal prenatal development?

- (A): infection
- (B): alcohol
- (C): prenatal vitamins
- (D): both A and B

25. Women with uterine anomalies have also been found to be at risk for particular congenital anomalies.

- (A): True
- (B): False

26. Many congenital anomalies are identified prenatally on usual work up which includes detailed ultrasound and _____.

- (A): pelvic x-ray
- (B): biopsy
- (C): amniocentesis
- (D): none of the above

27. The **most** prominent fetal brain structures from _____ weeks of gestation are the echogenic choroid plexuses which fill the lateral ventricles.

- (A): 7
- (B): 11
- (C): 18
- (D): 24

28. Effective ultrasound screening for CNS anomalies can be carried out by examination of which of the following axial planes through the fetal brain?

- (A): transventricular
- (B): transcerebellar

- (C): midsagittal
- (D): both A and B

29. The _____ is the first functional organ in the embryo.

- (A): thyroid
- (B): heart
- (C): spleen
- (D): liver

30. The congenital heart disease (CHD) is the **most** common birth defect comprising over 30 types of defects, ranging from mild to severe.

- (A): True
- (B): False

31. About _____% of ultrasonographically detectable fetal cardiac defects demonstrate some abnormalities in the four-chamber view.

- (A): 10
- (B): 25
- (C): 48
- (D): 90

32. At 18-23 weeks of gestation, the middle third of the thoracic area at the level of the four-chamber view is occupied by the heart and the remaining two thirds by the _____.

- (A): pancreas
- (B): thyroid glands
- (C): lungs
- (D): stomach

33. The fetal liver is larger with the bigger left lobe than the right lobe due to its greater supply of _____.

- (A): fat
- (B): water retention
- (C): oxygenated blood
- (D): bile

34. The kidneys are visualized on sonography from as early as two weeks of gestation and in all cases from twelve weeks.

- (A): True
- (B): False

35. A ratio of femur length to foot length of less than _____ and femur length–abdominal circumference ratio of less than 0.16 suggest a skeletal dysplasia.

- (A): 0.9
- (B): 9
- (C): 19
- (D): 29

Topic: Fetal Craniospinal Malformations: Etiology and Diagnosis

36. Today, _____ is a gold-standard diagnostic method for diagnosing fetal developmental disorders.

- (A): Ultrasound
- (B): Radiography
- (C): Nuclear medicine
- (D): Computed Tomography

37. Neural tube defects are the second most common structural-developmental malformations in fetus.

- (A): True
- (B): False

38. _____ develops due to an abnormality in the closure of the neural tube caudally from the cranium.

- (A): Hydrocephalus
- (B): Meningitis
- (C): Spina bifida
- (D): none of the above

39. It has been clinically demonstrated that _____ supplementation significantly reduces the incidence of neural tube defects during the first trimester of pregnancy.

- (A): omega 3
- (B): vitamin c
- (C): niacin
- (D): folic acid

40. Fetuses of untreated diabetic mothers are also more prone to neural tube defects, as elevated blood glucose levels lead to misfolded proteins, their accumulation and apoptosis of cells through non-enzymatic glycosylation.

- (A): True
- (B): False

41. Hydrocephalus develops due to a progressive increase or impaired absorption of _____ and its pathomechanism can be either obstructive or communicating.

- (A): calcium
- (B): intraventricular cerebrospinal fluid (CSF)
- (C): electrolytes
- (D): deoxygenated blood

42. In addition to ultrasound, if ventriculomegaly or hydrocephalus is suspected, a _____ scan may be useful, as it is a more accurate and reliable way of showing the development of brain structures and their possible malformations than ultrasound.

- (A): Digital radiography
- (B): Magnetic Resonance Imaging (MRI)
- (C): Computed Tomography
- (D): Nuclear Medicine

43. The _____ is one of the five major cerebral commissures and is one of the largest white matter-containing tracts in the brain.

- (A): hypothalamus
- (B): pituitary gland
- (C): corpus callosum
- (D): spinal cord

44. Holoprosencephaly is a midline malformation of the cranium and thorax.

- (A): True
- (B): False

45. Microcephaly is a deviation of at least three standard deviations of _____ from the mean for given sex and age at fetal maturity.

- (A): head circumference
- (B): liver size
- (C): soft palate
- (D): none of the above

46. _____ is the **most common** neonatal tumor with a prevalence of 0.027/1000 live births.

- (A): Pilocytic astrocytoma
- (B): Leukemia
- (C): Sacrococcygeal teratoma
- (D): None of the above

47. Iniencephaly in fetus is a complex malformation characterized by the absence of a _____, pronounced cervicothoracic lordosis and spina bifida.

- (A): eyes
- (B): spleen
- (C): appendix
- (D): neck

Topic: Diagnosis of Ectopic Pregnancy

48. Ectopic pregnancy is defined as the implantation of a fertilized egg outside the uterine cavity.

- (A): True
- (B): False

49. Diagnostic tests for ectopic pregnancy include which of the following?

- (A): Urine pregnancy tests
- (B): Serum beta hCG
- (C): Ultrasound
- (D): all of the above

50. The **most** common ectopic site of implantation (97%) is the _____.

- (A): uterus
- (B): fallopian tube
- (C): left ovary
- (D): pelvic cavity

51. A growing ectopic pregnancy in any location can make the tissue vascular, friable, and eventually rupture and result in intra-abdominal bleeding.

- (A): True
- (B): False

52. The typical beta-hCG level in a healthy intrauterine pregnancy on the day of the missed period is _____ IU/L.

- (A): 5 to 10
- (B): 10 to 35
- (C): 40 to 45
- (D): 50 to 100

53. The majority of tubal ectopic pregnancies should be visualized on transvaginal ultrasound.

- (A): True
- (B): False

54. Cervical ectopic pregnancy is diagnosed by which of the following criteria?

- (A): empty uterus and barrel-shaped cervix
- (B): gestational sac is seen below the level of the internal cervical Os
- (C): on color Doppler, blood flow around the gestational sac
- (D): all of the above

55. _____ pregnancy is defined as implantation into the myometrial defect occurring at the site of the previous uterine scar.

- (A): Peritoneal cavity
- (B): Interstitial
- (C): Caesarean scar
- (D): None of the above

56. _____ is a risk factor for interstitial pregnancy.

- (A): Total hysterectomy
- (B): Ipsilateral salpingectomy
- (C): Partial hysterectomy
- (D): None of the above

57. In cornual pregnancy the implantation occurs in the _____ of uterus that may be communicating or non-communicating.

- (A): myometrium
- (B): endometrium
- (C): rudimentary horn
- (D): body

58. _____ is very much useful to confirm the abdominal pregnancy diagnosis and to identify placental implantation because placenta may be implanted over vital structures, such as major blood vessels and bowel.

- (A): MRI
- (B): Ultrasound

- (C): Radiography
- (D): Computed Tomography

Topic: Non-tubal Ectopic Pregnancy: Diagnosis and Management

59. _____ is the leading cause of maternal mortality in the first trimester.

- (A): Gestational diabetes
- (B): Ectopic pregnancy
- (C): Preeclampsia
- (D): High cholesterol

60. Ectopic pregnancy is defined as the implantation of a fertilized ovum outside the normal endometrial lining of the uterine cavity, and it accounts for _____% of all pregnancies.

- (A): 1-2
- (B): 5-10
- (C): 15-25
- (D): 30-38

61. Which of the following risk factors can cause ectopic pregnancy?

- (A): infertility and smoking
- (B): use of intrauterine contraceptive device
- (C): utero exposure to diethylstilbestrol
- (D): all of the above

62. _____ is the first line tool and the gold standard diagnostic apparatus of ectopic pregnancy.

- (A): X-ray
- (B): MRI
- (C): Transvaginal ultrasound (TVUS)
- (D): Computed Tomography

63. The management of extra-tubal ectopic pregnancy depends on which of the following?

- (A): location and size of the gestational sac
- (B): presence of fetal heart beats
- (C): symptoms at presentation
- (D): all of the above

Topic: The Use of Ultrasonography in Conservative Management of Cervical Pregnancy

64. Cervical pregnancy is defined as an implantation of a fertilized ovum in the abdominal canal.

- (A): True
- (B): False

65. Cervical pregnancy is characterized by profuse, even life-threatening _____, which may lead to an emergency hysterectomy.

- (A): cancer
- (B): tumor
- (C): hemorrhage
- (D): none of the above

66. The differential diagnosis of a cervical pregnancy includes which of the following abnormal implantations?

- (A): cesarean scar
- (B): uterine corpus
- (C): abortion in progression pregnancies
- (D): all of the above

67. A cesarean scar pregnancy is a gestation separated from the endometrial cavity and completely surrounded by the myometrium and the fibrous tissue of the scar.

- (A): True
- (B): False

Topic: Hemodynamic Changes during Preterm Birth Treatment

68. The well-being of the fetus depends on the efficiency of its circulatory system and the proper maternal-fetal exchange.

- (A): True
- (B): False

69. On average, maternal cardiac output can increase up to _____% during pregnancy.

- (A): 5-10
- (B): 10-15
- (C): 30-45
- (D): 50-65

70. Oxygenated blood, rich in nutrients, flows through the _____ from the placenta to the portal sinus.

- (A): aorta
- (B): umbilical vein
- (C): femoral artery
- (D): pulmonary vein

71. Doppler examination assessing the vascular flow of the maternal-fetal circulation is an important diagnostic tool in the assessment of the well-being of the fetus.

- (A): True
- (B): False

72. The term _____ describes the quotient of the power lost to the reference power that increases the tissue temperature by 1 °C.

- (A): inverse square law
- (B): hounsfield unit
- (C): anode heat unit
- (D): thermal index

73. Due to incomplete bone calcification, the head of a premature fetus is susceptible to pressure and an excessive pressure with the transducer may indicate the disappearance of the end-diastolic wave in the assessed fetal _____.

- (A): spinal cord
- (B): trachea
- (C): middle cerebral artery
- (D): inferior vena cava

74. Incorrect parameters of the ultrasound device settings may falsify the Doppler measurements.

- (A): True
- (B): False

Topic: Future Uses of Three/Four Dimensional Power Doppler Signal in Fetal Medicine

75. The three dimensional Power Doppler (PD) is based on the ability to register the signal amplitude of the _____, which allows to depict most moving particles in a given Region of Interest (ROI).

- (A): ionizing radiation
- (B): ultrasound wave
- (C): radionuclide
- (D): magnetic proton wave

76. In the past, the standard method for estimating volume flow using sonography consists of multiplying the mean spatial velocity by the _____.

- (A): matrix size
- (B): cathode cooling chart numbers
- (C): luminal cross-sectional area
- (D): anode angle size

77. Despite today's technology advances, the analysis of placental vasculature and its potential relationship to placental dysfunction is still open to research.

- (A): True
- (B): False

78. Which of the following is a challenge for the three dimensional PD going forward?

- (A): lack of skilled professional
- (B): establishing adequate normalization protocol
- (C): lack of financial funding
- (D): none of the above

79. Which of the following are the limitations of 3D PD in Sonography?

- (A): power Doppler signal
- (B): acoustic impedance

- (C): mechanical interference
- (D): all of the above

80. Which of the following paramount boundaries is necessary to consider normalizing the 3D PD signal?

- (A): signal can be altered by tissue impedance
- (B): settings of the machine can sensibly modify the amount of signal registered by the processor
- (C): post-processing software provided by the developers of the Volume Measurement software
- (D): all of the above

81. Three dimensional power Doppler (3D PD), in its current state has no correlation with actual flow measurements since there is no way of involving the time as a magnitude.

- (A): True
- (B): False

Topic: Fetal Yawning

82. Which of the following is an oral sensorimotor function?

- (A): swallowing
- (B): yawning
- (C): digestion
- (D): both A and B

83. All the movements that a newborn is able to produce originate during the fetal phase and are performed throughout the life span.

- (A): True
- (B): False

84. The fetus exhibits a wide range of behaviors starting with slow flexion and extension of the spine and limbs at around _____ weeks gestation.

- (A): 2
- (B): 3
- (C): 4
- (D): 7

85. During ultrasound facial examination, yawning can be seen accidentally.

- (A): True
- (B): False

86. Fetal movements become more regular and coordinated as a result of increased maturation of the _____.

- (A): digestive system
- (B): respiratory system
- (C): nervous system
- (D): urinary system

87. At the beginning of the _____ month of pregnancy, the embryo becomes a fetus with the occurrence of the first oral and pharyngeal motor sequences.

- (A): first
- (B): second
- (C): third
- (D): fourth

88. Yawning indicates harmonious development of both the brainstem and the peripheral neuromuscular function, testifying to the induction of an ultradian rhythm of vigilance.

- (A): True
- (B): False

89. The lack of fetal yawning, frequently simultaneous to the lack of associated swallowing may be a key to predicting _____ dysfunction after birth.

- (A): cardiac
- (B): brainstem
- (C): liver
- (D): thyroid

Topic: Follicle Detection and Ovarian Classification in Digital Ultrasound Images of Ovaries

90. Ultrasound imaging is one of the methods of obtaining images from inside the human body through the use of high ionizing radiation.

(A): True (B): False

91. _____ is the **main** cause for infertility.

- (A): Diabetes
- (B): High blood pressure
- (C): Ovulatory failure or dysfunction
- (D): none of the above

92. A normal ovary consists of _____ follicles from 2mm to 28mm in size.

- (A): 8-10
- (B): 15-20
- (C): 25-30
- (D): 35-44

93. Which of the following hormone triggers ovulation?

- (A): testosterone
- (B): estrogen
- (C): luteinizing hormone (LH)
- (D): pepsin

94. The most common types of ovarian cysts are called _____, which result from a collection of fluid forming around a developing egg.

- (A): dermoid cysts
- (B): functional cysts
- (C): teratomas
- (D): none of the above

95. Which of the following is an ultrasound finding for polycystic ovary?

- (A): enlarged ovaries
- (B): increased number of follicles
- (C): increased density of ovarian stroma
- (D): all of the above

96. The ovary containing 1-2 follicles with size measuring greater than 28mm in size, is a cystic ovary.

(A): True (B): False

Topic: Normal and Abnormal Fetal Face

97. Visualization of normal prominent lips can rule out _____.

- (A): microcephaly
- (B): craniosynostosis
- (C): cleft lip
- (D): none of the above

98. A normal _____ appearance is important to rule out micrognathia or prognathia.

- (A): glabella
- (B): coronal suture
- (C): jaw
- (D): temporal bone

99. Visualization of the curvature of the forehead is important to rule out a _____.

- (A): hypoplasia
- (B): flat forehead
- (C): spina bifida
- (D): none of the above

100. The coronal planes of the fetal face are the most important in the evaluation of the fetal orbits.

(A): True (B): False