

[LC 0413]

APRIL 2013

Sub. Code:3001

FELLOWSHIP IN ULTRASOUND (OBGYN)- DEGREE EXAMINATION

FIRST YEAR

BASIC OF ULTRASOUND

Q.P. Code: 233001

Time: 3 hours

maximum: 100 marks

I. Elaborate on:

(2X20=40)

1. Discuss in detail various types of transducers used for medical imaging?
2. Define artifact? Explain 5 artifacts with examples?

II. Write notes on:

(10X6=60)

1. What is piezo electric effect? How ultrasound waves are produced Explain with diagram?
2. Draw a diagram of transducer and explain in detail its components?
3. Describe gain, depth, focus, frequency and harmonics?
4. Define frequency, amplitude, ultrasound, wavelength and period?
5. Explain about the safety maintenance of ultrasound probe?
6. What are the advantages of thermal and mechanical indices?
7. Define Axial and lateral resolution? What influences them?
8. Explain regression with example?
9. Explain the types of measures of central tendency with examples?
10. What are the advanced imaging techniques used to improve the quality of imaging?

[LE 0414]

APRIL 2014

Sub. Code: 3001

FELLOWSHIP IN ULTRASOUND (OBGYN)

FIRST YEAR

PAPER I – BASIC OF ULTRASOUND

Q.P. Code : 233001

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 20 = 40)

1. Describe in detail the principle, construction and working of ultrasound machine used in medical field?
2. Explain the functions of control knobs in ultrasound machine?

II. Write Short Notes on:

(10 x 6 = 60)

1. Discuss about acoustic shadowing and enhancement with examples?
2. What are the parameters in machine that are helpful to improve the image quality?
3. Describe the components of transducer?
4. What are the types of propagation of ultrasound beam? Give example?
5. Medico legal aspects of antenatal ultrasound?
6. Brief about the safe maintenance of transducers?
7. Describe DICOM configuration?
8. Describe about the biological effects of ultrasound?
9. Explain the variance and standard deviation with examples.
10. Explain correlation coefficient and write 3 of its properties.

[LF 0414]

OCTOBER 2014

Sub. Code: 3001

FELLOWSHIP IN ULTRASOUND (OBGYN)

FIRST YEAR

(Candidate admitted 2013-2014)

PAPER I – BASIC OF ULTRASOUND

Q.P. Code : 233001

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 20 = 40)

1. What is an artefact? Describe in detail the types of artefact with suitable examples.
2. Discuss in detail about Picture Archiving and Communication System (PACS).

II. Write Short Notes on:

(10 x 6 = 60)

1. Explain about correlation and regression with illustrations.
2. Discuss in detail the various types of transducers used for imaging.
3. Describe gain, depth, focus, frequency and harmonics with suitable illustrations.
4. Define amplitude, wavelength, period, acoustic impedance and interface.
5. What are the bioeffects of ultrasound? Explain in detail.
6. Describe the imaging techniques used to improve the quality of imaging.
7. Describe in detail the sterilization methods and maintenance of transducers.
8. Draw the diagram of transducer and describe its components in detail.
9. What is piezo electric effect? How ultrasound waves are produced?
Describe with diagram.
10. Discuss about PC and PNDT Act.

FELLOWSHIP IN ULTRASOUND (OBGYN) EXAMS

FIRST YEAR

(Candidates admitted 2013-2014)

PAPER I – BASIC OF ULTRASOUND

Q.P. Code: 233001

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 20 = 40)

1. Draw and discuss in detail the components of transducer. What are the types of transducers used and its applications?
2. What are the advanced imaging techniques and how are they useful in imaging? Explain in detail.

II. Write notes on:

(10 x 6 = 60)

1. Explain in detail the safety measures for maintenance of ultrasound probe.
2. What is peizo electric effect? How ultrasound waves are produced? Explain.
3. What is thermal index and mechanical index? What are the advantages of thermal and mechanical indices?
4. Define mean, median and mode. Describe with examples.
5. What is resolution? What are the types of resolution and what influences them?
6. Explain correlation and regression with examples.
7. Explain the functions of various knobs in ultrasound equipment.
8. Describe various display modes of ultrasound and its applications.
9. Discuss in detail Network Configuration.
10. Discuss the medicolegal aspects of obstetric ultrasound.

[LH 0413]

OCTOBER 2015

Sub. Code: 3001

FELLOWSHIP IN ULTRASOUND (OBGYN) - DEGREE EXAMINATION

FIRST YEAR

(Candidates admitted 2012-2013 onwards)

PAPER I - BASICS OF ULTRASOUND

Q.P. Code: 233001

Time: Three Hours

Maximum: 100 marks

Answer ALL questions

I. Elaborate on:

(2 x 20 = 40)

1. What is an artifact? Describe various artifacts with examples.
2. What are the different modes of display of Ultrasound and their use in clinical practice?

II. Write notes on:

(10 x 6 = 60)

1. What is pulse echo technique?
2. Explain Harmonics and its application.
3. Explain ALARA principle.
4. Explain range gating.
5. Explain about TGC control.
6. Explain about the safe maintenance of transducer.
7. Explain the appearance of a cyst on ultrasound.
8. What are the methods of display of Doppler shift?
9. What are the read zoom and write zoom?
10. Explain mean, median and mode with examples.

[LI 0416]

APRIL 2016

Sub. Code: 3001

**FELLOWSHIP IN ULTRASOUND (OBGYN) EXAMS
FIRST YEAR
PAPER I – BASIC OF ULTRASOUND**

Q.P. Code :233001

Time : Three hours

Maximum : 100 Marks

I. Elaborate on :

(2 x 20=40)

1. Describe the phenomenon of attenuation and enhancement of sound waves with diagrams, and their use in diagnosis of various types of masses.
2. Describe the knobs commonly used in daily practice to optimize images and the physical principles behind the adjustments.

II. Write notes on:

(10 x 6 = 60)

1. How does one assure fetal safety in medical ultrasound?
2. Describe frequency and how it affects medical imaging.
3. What is professionalism? Describe the important aspects of the same with reference to communication with patients.
4. Describe the uses of correlation techniques in statistics.
5. What are the various modes of ultrasound and what are their fields of use?
6. What are the characteristics of a solid mass and how can one differential this from a mixed echogenic mass?
7. What are forms a, b, c, d, e, f, and g with reference to PCPNDT act? Why are they important?
8. Explain maintenance of an ultrasound transducer.
9. Describe four artefacts in ultrasound and their relevance in diagnostics.
10. What are the methods of display of a Doppler shift?

[LJ 1016]

OCTOBER 2016

Sub. Code: 3001

**FELLOWSHIP IN ULTRASOUND (OBGYN) EXAMS
FIRST YEAR
PAPER I – BASICS OF ULTRASOUND**

Q.P. Code: 233001

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Describe in detail various interaction of ultrasound with tissue.
2. Define artifact. Describe in detail about artifacts in USG imaging.

II. Write notes on:

(10 x 6 = 60)

1. Transducers.
2. Spatial resolution.
3. Define Doppler effect.
4. Various modes of USG.
5. PRF.
6. Mean, mode, median.
7. Ultrasound contrast agents.
8. Coupling agents.
9. Mechanical index and thermal index.
10. USG guided therapeutic procedures.

[LK 0517]

MAY 2017

Sub. Code: 3001

**FELLOWSHIP IN ULTRASOUND (OBGYN) EXAMS
FIRST YEAR
PAPER I – BASICS OF ULTRASOUND**

Q.P. Code: 233001

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. What are the physical effects of sound in tissues? Discuss about Mechanical index and Thermal index.
2. Define artifact. Discuss in detail about USG artifacts and means of preventing them.

II. Write notes on:

(10 x 6 = 60)

1. Consent in ultrasound practice.
2. Safety of ultrasound in obstetrics.
3. Contrast agents in ultrasound.
4. Coupling agents in USG.
5. Attenuation of sound energy in different tissues and their implications.
6. PRF.
7. PCPNDDT act, form a, b, c, d, e, f and g and their importance.
8. USG frequency and its importance.
9. Tissue harmonic imaging.
10. Standard deviation.

[LL 1017]

OCTOBER 2017

Sub. Code: 3001

**FELLOWSHIP IN ULTRASOUND (OBGYN) EXAMS
FIRST YEAR
PAPER I – BASICS OF ULTRASOUND**

Q.P. Code: 233001

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Describe the components of transducer with diagram.
2. Describe the different types of resolution and its significance with examples. How can they be improved?

II. Write notes on:

(10 x 6 = 60)

1. Mechanical index.
2. Refraction and its artifact with example.
3. Attenuation and its prevention.
4. Spatial compounding.
5. Differences between color doppler (CD) and power doppler (PD) flow.
6. Information from spectral waveform.
7. Aliasing, methods of correction and its application.
8. Contrast agents in ultrasound.
9. Correlation and regression.
10. Difference between depth and zoom.

[LM 0518]

MAY 2018

Sub. Code: 3001

**FELLOWSHIP IN ULTRASOUND (OBGYN) EXAMS
FIRST YEAR
PAPER I – BASICS OF ULTRASOUND**

Q.P. Code: 233001

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. What is Doppler shift and how the same is applied in color, power, pulsed wave Doppler?
2. What are the different modes of ultrasound and its applications?

II. Write notes on:

(10 x 6 = 60)

1. Thermal index.
2. Tissue harmonic imaging and its application.
3. Propagation of sound in different tissues and how does it affect the image.
4. Diffuse and specular reflectors.
5. Differences between shadowing and enhancement with examples.
6. PCPNDT form F, form G and form D.
7. Different types of transducers.
8. Mean, mode and median.
9. Optimisation of frame rate.
10. Pre-requisites for endo-vaginal scanning.

[LN 1018]

OCTOBER 2018

Sub. Code: 3001

**FELLOWSHIP IN ULTRASOUND (OBGYN) EXAMS
FIRST YEAR
PAPER I – BASICS OF ULTRASOUND**

Q.P. Code: 233001

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. What is Doppler shift and how the same is applied in colour, power and pulse wave Doppler?
2. Explain in detail different types of transducers.

II. Write notes on:

(10 x 6 = 60)

1. Spectral broadening.
2. Sample width.
3. Aliasing.
4. Thermal index.
5. USG contrast agents.
6. Propagation sound in tissue.
7. Attenuation.
8. Modes of image display.
9. Frame rate.
10. Acoustic shadowing and enhancement.
