

# Question Paper

Exam Date & Time: 16-Mar-2021 (02:30 PM - 04:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.O.T./ B.Sc. P.F.T./ BPT/ B.Sc. M.R.T./B.Sc. RADIOTHERAPY TECHNOLOGY/ B.Sc. C.V.T./B.Sc.  
R.T./B.Sc. M.I.T./B.Sc. RRT&DT/B.Sc. EMT/B.Sc. AOTT DEGREE EXAMINATION - MARCH 2021  
SUBJECT: PATH 201 - PATHOLOGY  
(2016/2016 RV/2019 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) Define anaemia. Describe the clinical features and laboratory diagnosis of nutritional anaemias. (10)  
(2+8 = 10 marks)
- 2A) Define and classify fracture. Describe the process of fracture healing. (5)  
(2+3 = 5 marks)
- 2B) Compare rheumatoid arthritis and osteoarthritis. (5)
- 3A) Describe the features of malignancy and routes of tumour spread. (5)
- 3B) List the types of shock and describe the pathogenesis of any one. (5)
- 3C) List the predisposing factors and complications of atherosclerosis. (5)
- 3D) Compare nephrotic syndrome and nephritic syndrome with suitable examples. (5)
- 4A) List the various types of emphysema. (2)
- 4B) Define cirrhosis of liver. List two causes. (2)
- 4C) List the cardinal features of acute inflammation. (2)
- 4D) List four examples of X-linked diseases. (2)
- 4E) List the various types of necrosis with suitable examples. (2)

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# Question Paper

Exam Date & Time: 18-Mar-2021 (02:30 PM - 04:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.O.T./ B.Sc. P.F.T./BPT/ B.Sc. C.V.T./B.Sc. R.T./ B.Sc. M.I.T./B.Sc. RRT&DT/B.Sc. EMT/B.Sc. AOTT  
DEGREE EXAMINATION - MARCH 2021  
SUBJECT: MICR 201 - MICROBIOLOGY  
(2016/2019 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) With a labelled diagram explain the cell wall of gram positive and gram negative bacteria. (10)  
(5+5 = 10 marks)
- 2) Explain the pathogenesis and laboratory diagnosis of staphylococcal skin infections. (10)  
(5+5 = 10 marks)

3. Write short notes on:

- 3A) Primary and secondary humoral immune response. (5)
- 3B) Autoclave. (5)
- 3C) Investigation of classical PUO. (5)
- 3D) Laboratory diagnosis of hepatitis B virus infection. (5)

4. Answer the following:

- 4A) Morphological classification of fungi. (2)
- 4B) Write two predisposing factors of urinary tract infections. (2)
- 4C) Immuno-prophylaxis of poliomyelitis. (2)
- 4D) Functions of bacterial capsule. (2)
- 4E) Write the principle and one use of direct immunofluorescence test. (2)

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# Question Paper

Exam Date & Time: 22-Mar-2021 (02:30 PM - 04:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. CARDIOVASCULAR TECHNOLOGY DEGREE EXAMINATION - MARCH 2021  
SUBJECT: BCVT 201 - CARDIAC EMBRYOLOGY  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- |     |   |      |
|-----|---|------|
| 1)  | Explain the stages of embryological development of germ layers  | (10) |
| 2)  | Briefly explain the meiosis cell division and its significance. | (10) |
| 3A) | Explain the spermatogenesis                                     | (5)  |
| 3B) | Describe the development Inter ventricular septum.              | (5)  |
| 3C) | Explain the formation of chorionic villi of the placenta.       | (5)  |
| 3D) | Explain the development of vitelline veins and umbilical veins. | (5)  |
| 4A) | Write any <b>FOUR</b> functions of placenta                     | (2)  |
| 4B) | Define decidua.   | (2)  |
| 4C) | Mention the components that form right atrium                   | (2)  |
| 4D) | Define implantation   | (2)  |
| 4E) | Mention the components that form right subclavian artery.       | (2)  |

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# Question Paper

Exam Date & Time: 24-Mar-2021 (02:30 PM - 04:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. CARDIOVASCULAR TECHNOLOGY DEGREE EXAMINATION - MARCH 2021  
SUBJECT: BCVT 203 - ULTRASOUND PHYSICS AND DOPPLER PRINCIPLES  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) Describe tissue harmonic imaging. (10)
- 2) Explain Bernoulli's principle in the assessment of pressure gradient. Give an overview on pressure recovery phenomena. (10)
- 3A) Explain the various imaging modes in echocardiography. (5)
- 3B) Enumerate application of PISA method in mitral stenosis and mitral regurgitation. (5)
- 3C) Explain the doppler assessment of stroke volume. (5)
- 3D) Explain the composition of transducer with neat diagram. (5)
- 4A) Define velocity and wavelength. (2)
- 4B) Write two applications of linear array transducer. (2)
- 4C) What is the use of transducer gel while performing echocardiography? (2)
- 4D) What is doppler shift? (2)
- 4E) Define near field imaging. (2)

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# Question Paper

Exam Date & Time: 26-Mar-2021 (02:30 PM - 04:30 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. (CARDIOVASCULAR TECHNOLOGY) DEGREE EXAMINATION - MARCH 2021  
SUBJECT: BCVT 205 - CARDIAC STRESS TESTS  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

**Answer all the questions.**

**Draw the diagram wherever necessary.**

- |     |  |      |
|-----|--|------|
| 1)  | Explain non coronary indications of exercise treadmill stress test.  | (10) |
| 2)  | What are the four responses of dobutamine stress echo and also explain procedural detail and interpretation of the same. | (10) |
| 3A) | Enumerate the complications of Dobutamine stress echo  | (5)  |
| 3B) | Explain ST-T changes in TMT.   | (5)  |
| 3C) | Describe Procedure and interpretation of Atropine test   | (5)  |
| 3D) | What are the indications of PET scan and how to interpret it?  | (5)  |
| 4A) | Define false positive and true negative test in TMT.   | (2)  |
| 4B) | How to classify chest pain?  | (2)  |
| 4C) | Write any four normal ECG responses in TMT   | (2)  |
| 4D) | Define Duke Score.   | (2)  |
| 4E) | Write any four non coronary causes of ST segment depression.   | (2)  |

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