

# Question Paper

Exam Date & Time: 19-Feb-2020 (02:00 PM - 04:00 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 DEGREE EXAMINATION - FEBRUARY 2020  
SUBJECT : PATH 201/BMRT 207 - PATHOLOGY  
(2016/2016 RV SCHEME)  
PATHOLOGY [PATH 201 - 2016]

Marks: 50

Duration: 120 mins.

A

Answer all the questions.

- 1) Define leukemia. Describe the clinical features, peripheral smear findings and chromosomal abnormality of chronic myeloid leukaemia. (10)  
(2+3+3+2 = 10 marks)
- 2A) Describe the predisposing factors and clinical features of atherosclerosis. (5)  
(3+2 = 5 marks)
- 2B) Define thrombosis. Describe the factors influencing thrombosis. (5)  
(2+3 = 5 marks)

3) Write short notes on:

- 3A) Differences between benign and malignant tumours (5)
- 3B) Fracture healing (5)
- 3C) Cellular events in acute inflammation (5)
- 3D) Pneumonia (5)

4) Answer the following questions:

- 4A) List the clinical features of an X-linked recessive disorder. (2)
- 4B) Enumerate the characteristic features of nephrotic syndrome. (2)
- 4C) List the types of jaundice with an example of each. (2)
- 4D) List the types of tuberculosis. (2)
- 4E) Name four reversible cellular adaptations with an example of each. (2)

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# Question Paper

Exam Date & Time: 20-Feb-2020 (02:00 PM - 04:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.O.T./BPT/ B.Sc. C.V.T./B.Sc. R.T./ B.Sc. M.I.T./B.Sc. RRT&DT DEGREE EXAMINATION -  
FEBRUARY 2020  
SUBJECT : MICR 201 - MICROBIOLOGY  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) Explain the mechanisms of autoimmunity. List two diseases each involving single and multiple organ or system. (10)  
(6+4 = 10 marks)
- 2) Explain the etio-pathogenesis and laboratory diagnosis of clostridial myonecrosis. (10)  
(1+4+5 = 10 marks)

3) Write short notes on:

- 3A) Laboratory diagnosis of HIV infection (5)
- 3B) Investigation of hospital acquired infections (5)
- 3C) Pathogenesis of influenza virus (5)
- 3D) Laboratory diagnosis of enteric fever (5)

4) Answer the following questions:

- 4A) Prevention of tetanus (2)
- 4B) Laboratory diagnosis of acute rheumatic fever (2)
- 4C) Functions of IgA antibody (2)
- 4D) Classification of sterilization methods (2)
- 4E) Transmission of viral hepatitis (2)

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# Question Paper

Exam Date & Time: 21-Feb-2020 (02:00 PM - 04:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. CARDIOVASCULAR TECHNOLOGY DEGREE EXAMINATION - FEBRUARY 2020  
SUBJECT: BCVT 205 - CARDIAC STRESS TESTS  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- |     |   |      |
|-----|---|------|
| 1)  | Explain indications, protocol, interpretation and assessment of dobutamine stress test. | (10) |
| 2)  | Describe coronary indications for TMT.  | (10) |
| 3A) | Describe thallium stress test.  | (5)  |
| 3B) | Explain Normal and abnormal ECG responses in TMT.                                       | (5)  |
| 3C) | Explain the procedure of dipyridamole stress test.                                      | (5)  |
| 3D) | Explain MUGA scanning.  | (5)  |
| 4A) | Mention Advantages of positron emission tomography (PET) scan.                          | (2)  |
| 4B) | Enumerate SPECT perfusion tracers.  | (2)  |
| 4C) | Mention Four level of angina scale for exercise tolerance test.                         | (2)  |
| 4D) | Define metabolic equivalent.  | (2)  |
| 4E) | Mention end points of TMT.  | (2)  |

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# Question Paper

Exam Date & Time: 22-Feb-2020 (02:00 PM - 04:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. CARDIOVASCULAR TECHNOLOGY DEGREE EXAMINATION - FEBRUARY 2020  
SUBJECT: BCVT 201 - CARDIAC EMBRYOLOGY  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

**Answer all the questions.**

**Draw the diagram wherever necessary.**

- |     |   |      |
|-----|---|------|
| 1)  | Explain development of inter atrial septum and its anomalies. | (10) |
| 2)  | Explain the stages of Meiosis in detail.                      | (10) |
| 3A) | Explain formation of heart tube.                              | (5)  |
| 3B) | Explain formation of left atrium.                             | (5)  |
| 3C) | Describe Oogenesis.   | (5)  |
| 3D) | Explain formation of carotid arteries.                        | (5)  |
| 4A) | Define mitosis.   | (2)  |
| 4B) | What are the anomalies of inter ventricular septum?           | (2)  |
| 4C) | Define fertilization.   | (2)  |
| 4D) | Define morula.  | (2)  |
| 4E) | Define fate of cardinal vein.                                 | (2)  |

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# Question Paper

Exam Date & Time: 24-Feb-2020 (02:00 PM - 04:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. CARDIOVASCULAR TECHNOLOGY DEGREE EXAMINATION - FEBRUARY 2020  
SUBJECT: BCVT 203 - ULTRASOUND PHYSICS AND DOPPLER PRINCIPLES  
(2016 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) Describe the continuity equation and Proximal isovelocity surface area in detail with an example. (10)
- 2) Draw a labelled diagram of sine wave and explain its components. Explain the physical principles of ultrasound and its interaction with tissue in detail. (10)
- 3A) Briefly describe color flow imaging and the Doppler artifacts. (5)
- 3B) Explain Pulse wave and continuous wave Doppler with examples. (5)
- 3C) Write a short note on Tissue Harmonic Imaging. (5)
- 3D) What are the biological effects of ultrasound? Briefly mention ethical and social issues during diagnostic tests. (5)
- 4A) How do you calculate Stroke volume and Cardiac Output by Echo? (2)
- 4B) What is PRF and Nyquist limit? Give their relation. (2)
- 4C) What is Pressure Half Time? Give two clinical applications. (2)
- 4D) What is piezoelectric effect? Give two examples for piezoelectric crystal. (2)
- 4E) How do you increase the focal zone and near field area? (2)

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