

Question Paper

Exam Date & Time: 18-Apr-2022 (10:00 AM - 12:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER BSc. CND / BSc. PFT / BSc. RRT & DT / BSc. AOTT / BSc. CVT / BSc. EMT / BSc. RT DEGREE
EXAMINATION - APRIL 2022
SUBJECT: MCB2103 - MICROBIOLOGY
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) Classify the methods of sterilization. Explain the moist heat sterilization method employing heat above 100°C. Give examples of three articles sterilized using this instrument. (10)
(2+5+3 = 10 marks)
- 2) Explain the pathogenesis and laboratory diagnosis of pneumonia caused by Streptococcus pneumoniae. Add a note on preventive measures (10)
(4+5+1 = 10 marks)

3. Write short notes on:

- 3A) Pathogenesis of cholera (5)
- 3B) Mechanism of type I hypersensitivity reaction (5)
- 3C) Differences between primary and secondary immune response (5)
- 3D) Etiopathogenesis of poliomyelitis (5)

4. Answer the following:

- 4A) Name any TWO fungi causing infections in humans (2)
- 4B) Write TWO causative agents of bacterial meningitis (2)
- 4C) List FOUR seromarkers of acute hepatitis B viral infection (2)
- 4D) Write FOUR virulence factors of Staphylococcus aureus (2)
- 4E) Name TWO etiological agents causing urinary tract infections (2)

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Question Paper

Exam Date & Time: 19-Apr-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. CARDIOVASCULAR TECHNOLOGY DEGREE EXAMINATION - APRIL 2022
SUBJECT: CVT 2101 - ULTRASOUND PHYSICS AND DOPPLER PRINCIPLES
(2020 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Briefly explain the physical principle and clinical utility of pulsed wave Doppler with advantages and limitations. Brief the significance of high pulse repetition frequency imaging (20)
- 2) Explain the working principle and components of a ultrasound transducer with neat labelled diagram and explain the different types of transducers (20)
- 3) Explain the steps in evaluating regurgitate and stenotic valvular lesion using Proximal Isovelocity Surface Area method (10)
- 4) Explain the principle of continuity equation and its applications in detail (10)
- 5A) Draw a neat labelled diagram of suprasternal views (5)
- 5B) Explain Myocardial Performance Index (5)
- 5C) Discuss the applications of Pressure half time (5)
- 5D) Explain the technical limitations of Color Doppler imaging (5)
- 5E) Discuss Reverberations (5)
- 5F) Explain the biological effects of Ultrasound (5)
- 6A) What are the inter relation between frequency of ultrasound probe and the image quality? (2)
- 6B) Write two limitations of Bernoulli's equation (2)
- 6C) Define spatial resolution (2)
- 6D) Write two limitations of tissue harmonic imaging (2)
- 6E) Write the formula for mitral regurgitant volume and regurgitant fraction flow quantification method (2)

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Question Paper

Exam Date & Time: 20-Apr-2022 (10:00 AM - 12:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER BOT / BPT / BSc. MIT / BSc. RRT & DT / BAOTT / BSc. PFT / BSc. CVT / BSc. EMT / BSc. RT
DEGREE EXAMINATION - APRIL 2022
SUBJECT: PAT 2103 - PATHOLOGY
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

Draw diagrams wherever necessary.

- 1A) Define shock. List the types of shock. (4)
(2+2 = 4 marks)
- 1B) Describe the pathogenesis of shock caused by bacterial infection. (6)
- 2A) Define fracture. (2)
- 2B) Describe the process of fracture healing. List the factors influencing fracture repair. (8)
(5+3 = 8 marks)
- 3A) List two causes and describe morphology of a granuloma with a diagram. (5)
- 3B) Describe the basic laboratory investigations and clinical features of hemophilia. (5)
- 3C) Describe the predisposing factors and complications of atherosclerosis. (5)
- 3D) Describe etiology and clinical features of bronchiectasis. (5)
- 4A) Define atrophy and give two examples. (2)
- 4B) Define inflammation. Give an example each for acute and chronic inflammation. (2)
- 4C) Define neoplasia. Give two examples of benign tumors. (2)
- 4D) Mention the etiology and mode of transmission of tuberculosis. (2)
- 4E) Define karyotyping. Name one syndrome due to chromosomal abnormality. (2)

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Question Paper

Exam Date & Time: 21-Apr-2022 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. CARDIOVASCULAR TECHNOLOGY DEGREE EXAMINATION - APRIL 2022
SUBJECT: CVT 2102 - CARDIAC STRESS TESTS
(2020 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Discuss the patient selection for exercise stress test as a screening for Coronary artery disease (20)
- 2) Briefly explain the response of pulmonary and cardiovascular system during exercise stress testing (20)
- 3) Explain the evaluation and clinical applications of positron emission tomography in diagnosis of coronary artery disease (10)
- 4) Explain the normal and abnormal electrocardiographic response during exercise stress testing in detail (10)
- 5A) Explain the abnormal echocardiographic responses in dobutamine stress test (5)
- 5B) Write a short note on potential complications of exercise electrocardiographic testing (5)
- 5C) Explain the protocol and analysis of Single Photon Emission Computed Tomography (5)
- 5D) Explain the interpretation of atropine stress test (5)
- 5E) Discuss the use of calcium channel blockers and vasodilators in exercise stress test (5)
- 5F) Describe the various types of exercise stress test (5)
- 6A) Write two advantages of modified Bruce protocol (2)
- 6B) What is myocardial oxygen uptake? (2)
- 6C) Write the use of aminophylline in dipyridamole stress test (2)
- 6D) List the radiotracers used in nuclear imaging (2)
- 6E) Write two complications of dobutamine stress test (2)

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