

Question Paper

Exam Date & Time: 01-Jun-2019 (02:00 PM - 05:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER BASLP/ B.Sc. MRT/ B.Sc. M.I.T./ B.Sc. M.L.T./ B.Sc. RRT&DT / B.Sc. E.S.S. DEGREE EXAMINATION - MAY/JUNE 2019

SUBJECT : BASIC STATISTICS (BASLP 306)/ BIostatistics (BMRT 306/STAT 402)/ BIostatistics & RESEARCH METHODOLOGY (STAT 402) (2016 SCHEME)

Saturday, June 01, 2019 (14.00 - 17.00)

Marks: 100

Duration: 180 mins.

Answer the following question:

1) Describe quantitative variables with examples. (5)

2) Differentiate between the following:

2A) Nominal scale vs ordinal scale (4)

2B) Sampling errors vs non-sampling errors (4)

3) Briefly explain the following:

3A) Systematic sampling (4)

3B) Theoretical and empirical research (4)

3C) Health research triangle (4)

Answer the following questions:

4) What is sampling? What are the advantages and disadvantages of sampling? (1+4 = 5 marks) (5)

5) The data given below represents the distribution of 50 people according to their socio economic status (10)

SOCIO ECONOMIC STATUS	NUMBER OF PEOPLE
Low	20
Medium	10
High	20

Present the above data diagrammatically using a

a) Simple bar diagram

b) Pie diagram

(5+5 = 10 marks)

6A) Write a short note on 'use and applications of sample median'. (4)

6B) The following data represent the blood cholesterol levels of 16 first-year students at a particular (10)

college.

213 174 193 196 220 183 194 200 192 200 200 199 178 183 188

Report the value of the range, mode and interquartile range.

- 7) The CD4 T cell counts ($\times 10^6 / l$) at base line for 10 - HIV positive subjects are as follows: (6)
230 210 313 173 158 103 181 115 301 216
Calculate variance.
- 8) Age at time of onset of a disease is approximately normally distributed with mean 12 years and standard deviation of 3 years. In a sample of 500 individuals with the disease, how many will be : (6)
a) Less than 9 years
b) Between 9 and 12 years
c) Above 15 years
(2+2+2 = 6 marks)
- 9) Enumerate the properties of correlation with the help of scatter diagrams. (8)
- 10) With the help of an example explain dependent and independent variables used in simple linear regression. Give the relationship between correlation coefficient and coefficient of determination in simple linear regression. (5)
- 11) **Define the following:**
- 11A) Crude birth rate (2)
- 11B) General fertility rate (2)
- 11C) Incidence rate (2)
- Answer all the questions.**
- 12) What is demography? Explain notification of diseases as a source of demographic data. (5)
- 13) Describe case report and cross sectional study designs with their strengths and limitations. (10)

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Question Paper

Exam Date & Time: 06-Jun-2019 (02:00 PM - 04:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - MAY/JUNE 2019
SUBJECT: BMIT 304 - RADIOLOGICAL PROCEDURES AND PATIENT CARE (PART II)
(2016 SCHEME)
Thursday, June 06, 2019 (14.00 - 16.00)

Marks: 50

Duration: 120 mins.

Answer all the questions.

- 1) Explain the anatomy of cerebral blood supply. Describe the cerebral angiography procedure in detail. (10)
- 2) Explain indications, contraindications, preparation, procedure and filmings of single contrast barium enema. (10)
- 3A) Explain procedure and filmings of sialography. (5)
- 3B) Explain Tunnel method. (5)
- 3C) Explain techniques and radiation protection in pediatric radiography. (5)
- 3D) Explain view taken to visualize the Scotty dog sign. (5)
- 4A) Types of Guide wires (2)
- 4B) Differences between Methyl Cellulose DC Enteroclysis and Air DC Enteroclysis (2)
- 4C) Sonosalpingography (2)
- 4D) Name the embolization agents used for Intracranial aneurysms and Intracranial arterio-venous malformation. (2)
- 4E) Indications of Wagging jaw method and fuchs method (2)

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Question Paper

Exam Date & Time: 17-Jun-2019 (02:00 PM - 04:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - MAY/JUNE 2019
SUBJECT: BMIT 306 - RECENT TRENDS IN COMPUTED TOMOGRAPHY
(2016 SCHEME)
Monday, June 17, 2019 (14.00 - 16.00)

Marks: 50

Duration: 120 mins.

Answer all the questions.

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|-----|--------------------------------------------------------------------------------------------------|------|
| 1) | Discuss briefly the principle, instrumentation, data acquisition and clinical application of CT. | (10) |
| 2) | Discuss briefly the factors affecting the patient's dose. | (10) |
| 3A) | Dual source x-ray tubes | (5) |
| 3B) | PACS | (5) |
| 3C) | Protocol for LOWER LIMB angiography | (5) |
| 3D) | CT perfusion | (5) |
| 4A) | Comparison between SSCT and MDCT | (2) |
| 4B) | Effective dose | (2) |
| 4C) | Beam hardening artefact | (2) |
| 4D) | Dose length product | (2) |
| 4E) | CT number | (2) |

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Question Paper

Exam Date & Time: 13-Jun-2019 (02:00 PM - 04:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SIXTH SEMESTER B.Sc. MEDICAL IMAGING TECHNOLOGY DEGREE EXAMINATION - MAY/JUNE 2019
SUBJECT: BMIT 308 - RECENT TRENDS IN MAGNETIC RESONANCE IMAGING
(2016 SCHEME)

Thursday, June 13, 2019 (14.00 - 16.00)

Answer all the questions.

Draw suitable diagrams wherever required.

Marks: 50

Duration: 120 mins.

Major Questions:

- 1) Explain time of flight phenomenon and its compensation techniques. (10)
- 2) Explain inversion recovery sequences and its clinical applications. (10)

3) Short Answers:

- 3A) Explain the effect of strong magnetic field on hydrogen nucleus inside the human body during MRI examination. (4)
- 3B) Write a short note on spin echo. (4)
- 3C) Define SNR. How TR affect SNR? (4)
- 3D) Write a short note on trace diffusion weighted images and ADC map. (4)
- 3E) Write a note on cross-excitation and cross talk. (4)

4) Very Short Answers:

- 4A) Define NEX. (2)
- 4B) Define spin-spin relaxation. (2)
- 4C) List two methods to select slice thickness of MRI image. (2)
- 4D) Define Nyquist theorem. (2)
- 4E) Mention the effect of size of image matrix on spatial resolution and scan time. (2)

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