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MANIPAL UNIVERSITY

FIRST YEAR MOT/M.Sc. MLT/M.Sc. RT (NR)/MASTER OF OPTOMETRY/M.Sc. MIT/ M.Sc. ECHOCARDIOGRAPHY & (2012 PT)/MSc. CARDIAC CATHETERIZATION AND INTERVENTIONAL TECHNOLOGY DEGREE EXAMINATION – JUNE 2014

SUBJECT: ADVANCED BIOSTATISTICS & RESEARCH METHODOLOGY/BIOSTATISTICS/RESEARCH METHDOLOGY & BIOSTATISTICS/EPIDEMIOLOGY & BIOSTATISTICS

Tuesday, June 03, 2014

Time: 10:00 – 13:00 Hrs.   Max. Marks: 80

✍   **Answer ALL the questions.**

1A.   Define the various measures of dispersion.

1B.   Distinguish between sampling and non-sampling errors.

(5+5 = 10 marks)

2A.   Write a short note on binomial distribution.

2B.   Define sampling distribution and standard error. A sample of 40 liver cirrhosis subjects were selected and the mean serum potassium level was observed to be 5.4 mEq/L with standard deviation of 1.8 mEq/L. Find the 99% confidence interval for mean serum potassium level among liver cirrhosis subjects. (The standard normal table value for 99% confidence level is 2.58).

(5+ (2+3) = 10 marks)

3A.   Define type I error, type II error, Level of significance, Power and P value.

3B.   What do you mean by non-parametric tests? What are the advantages and disadvantages of non-parametric tests over parametric tests?

(5+5 = 10 marks)

4.   Twenty four experimental animals with vitamin D deficiency were divided equally into two groups. Group 1 received treatment consisting of a diet that provided vitamin D. The second group was not given any treatment. At the end of the experimental period, serum calcium levels were measured with the following results.

Group	Mean (mg/100ml)	Standard deviation (mg/100ml)
Treated	11.1	1.5
Untreated	7.8	2.0

4A.   Name the statistical test used to test whether mean serum calcium levels differs significantly between the two groups.

4B.   Write the null hypothesis and alternate hypothesis for the above test.

4C.   What are the assumptions for this test?

4D.   Compute the test statistic value.

4E.   Briefly explain how do you take a decision about the acceptance or rejection of null hypothesis?

(1+1+2+4+2 = 10 marks)

5A. A study was planned to find the prevalence of overweight among people in the age group of 40 to 50 years in an urban community. What is the minimum sample size required for the study if the absolute margin of error is fixed at 3% and confidence level of 95%? A similar study conducted three years before in the same population reported the prevalence of overweight as 18%. (The standard normal table for 95% confidence level is 1.96).

5B. What do you mean by blinding in RCTs? Briefly explain the various types of blinding.

(5+5 = 10 marks)

6. With the help of a flow chart explain the design of a case control study. Define the measure of strength of association between exposure and event in a case control study. Enumerate the advantages and disadvantages in a case control study.

(4+2+4 = 10 marks)

7A. In order to assess the validity of a diagnostic test, it was applied on 250 individuals with disease and 600 without disease. The test resulted in a positive diagnosis for 200 out of those with disease and 100 of those without disease. Construct appropriate 2 × 2 table and calculate sensitivity, specificity, positive predictive value and negative predictive value of the test.

7B. Write a short note on survival analysis.

(5+5 = 10 marks)

8. Explain the structure of a research protocol.

(10 marks)

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FIRST YEAR MASTER OF OPTOMETRY DEGREE EXAMINATION – JUNE 2014
SUBJECT: PAPER – I: ADVANCED CONTACT LENS STUDIES – I

Thursday, June 05, 2014

Time: 10:00 – 11:30 Hrs.

Maximum Marks: 40

✎ **Attempt questions as instructed & draw diagrams and flowcharts wherever necessary.**

1. **Answer the following questions:**

1A. Describe sources of oxygen for cornea during open and closed eye condition?
Briefly explain the following:
   i)   EOP   ii)   Oxygen flux

(1+2½+2½ = 6 marks)

1B. Write in detail about different clinical test you would like to perform to investigate dry eye. Write briefly about your lens of choice and care regime for a border line dry eye patient who is symptomatic at times but wanted to use contact lens. (Write with example)

(3+3 = 6 marks)

1C. Write in detail about different disinfectants and lubricating agents used in MPS for soft contact lenses. Write your answer with example. Name few protein removers with example.

(4+2 = 6 marks)

1D. Suppose you are appointed as a contact lens consultant in a renowned hospital and you are given responsibility to enhance contact lens practice. Write your plan of action in detail.

(6 marks)

1E. Write in detail about fitting criteria for a flat, optimum & steep fit soft contact lens.
Mention role for following parameters on soft contact lens fitting:
   i)   Sagittal height   ii)   Center thickness

(4+2 = 6 marks)

✎ **Answer in detail:**

2. Write in detail about following contact lens complication and mention of plan of management:
2A. CLPU
2B. CLPC

(5+5 = 10 marks)

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FIRST YEAR MASTER OF OPTOMETRY DEGREE EXAMINATION – JUNE 2014

SUBJECT: PAPER – II: LOW VISION AND REHABILITATION

Saturday, June 07, 2014

Time: 10:00 – 11:30 Hrs.   Maximum Marks: 40

✍ **Answer all the questions.**

1. **Write notes on:**

1A. WHO data on vision impairment 2010

1B. Emotional reactions to vision loss

1C. Guidelines for clear print accessibility for visually impaired

(3+4+3 = 10 marks)

2. Describe the low vision evaluation for a patient with bitemporal hemianopia. What would be your line of management?

(5+5 = 10 marks)

3. Discuss retinopathy of prematurity under the following headings:

3A. Clinical features

3B. Early interventions & Low vision management

(5+5 = 10 marks)

4. Describe the various educational approaches for children with vision impairment. Write a note on the types of assistive devices used by the blind persons.

(6+4 = 10 marks)

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FIRST YEAR MASTER OF OPTOMETRY DEGREE EXAMINATION – JUNE 2014

SUBJECT: PAPER – III: PAEDIATRIC OPTOMETRY

Tuesday, June 10, 2014

Time: 10:00 – 11:30 Hrs.   Maximum Marks: 40

- ✍ **Answer ALL the questions:**
- ✍ **Draw diagrams or flowcharts wherever necessary.**

1. Brief on Classification of ROP and complications associated with it. List the management options.

2. Write on the ocular features of:
   i)   Juvenile Rheumatoid Arthritis
   ii) Marfan's Syndrome

3. Any four differential diagnoses that you would look for in a child presented with esodeviation at 2 years of age. Justify your answer with clinical features and management options outlined

4. Clinical features of Post trauma vision Syndrome. Write on the recent articles on preschool vision screenings and their recommendations.

5. Brief on eight differential diagnosis of watering in childhood with reasons to support it.

                                                                    (8 marks × 5 = 40 marks)

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FIRST YEAR MASTER OF OPTOMETRY DEGREE EXAMINATION – JUNE 2014

SUBJECT: PAPER – IV: OCCUPATIONAL OPTOMETRY & PUBLIC HEALTH OPTOMETRY

Thursday, June 12, 2014

Time: 10:00 – 11:30 Hrs.   Maximum Marks: 40

✍ **Answer the following questions:**

1. Write a note on Ophthalmic Anthropometry.

                                                            (10 marks)

2. Define Computer Vision Syndrome. Write on its symptom analysis.

                                                       (5+5 = 10 marks)

3. Write on the on the benefits/compensation provided for people with poor vision.

                                                            (10 marks)

4. What is NPCB? Write the brief history. Write a note on the revised strategy and various administration levels of NPCB.

                                                     (1+3+6 = 10 marks)

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