

**VINAYAKA MISSION'S RESEARCH FOUNDATIONS, SALEM**  
(Deemed to be University)

**B. OPTOMETRY DEGREE EXAMINATION – February 2020**  
Second Year

**STATISTICS AND OCCUPATIONAL OPTOMETRY**

Time: Three hours

Maximum: 80 marks

**Use Separate answer books for Part A and Part B**

**PART – A - STATISTICS**

Time: One and half an hour

Maximum: 40 marks

**SECTION – A**

**I. Answer ALL Questions:**

(5 x 1 = 5)

1. Parametric tests are done for \_\_\_\_\_ distribution.
2. In a \_\_\_\_\_ study, the event / outcome has already occurred.
3. The mean, median and mode are \_\_\_\_\_ in a normal distribution.
4. A \_\_\_\_\_ chart is a circular statistical graphic.
5. A \_\_\_\_\_ test measures how expectations compare to actual observed data.

**II. Match the following:**

(5 x 1 = 5)

1. Frequency distribution – subset of the population.
2. Bias – a measure of central tendency.
3. Spearman – systematic error.
4. Mean – Rank Order Correlation.
5. Sample – how often each value occurs.

**SECTION – B**

**III. Write short notes on any TWO of the following:**

(2 x 5 = 10)

1. Find the Median  $\pm$  IQR for the IOP of 10 patients in mm of Hg:  
10,12,11,13,14,16,19,20,11,15
2. Write on measures of central tendency.
3. What is association and causation?
4. Concepts of national health programme.

**SECTION – C**

**IV. Write an essay on any TWO of the following:**

(2 x 10 = 20)

1. Differentiate between prospective and retrospective studies.
2. Write a note on non – parametric tests.
3. Sampling techniques with examples.
4. Write on
  - a. Levels of prevention.
  - b. Screening.

**PART – B – OCCUPATIONAL OPTOMETRY**

Time: One and half an hour

Maximum: 40 marks

**SECTION - A**

I. Answer All questions:

(5 x 1 = 5)

1. A VDU generally has \_\_\_\_\_ characters per line
  - a. 20
  - b. 90
  - c. 80
  - d. 71
2. What is the expected visual acuity legally for a person to be eligible to drive on Indian roads?
  - a. 6/12
  - b. 6/18
  - c. 6/9
  - d. 6/6
3. Hazard is directly proportional to
  - a. Toxicity \* Exposure
  - b. Toxicity \* aversion response
  - c. Exposure \* Time exposed
  - d. Toxicity \* Exposure \* Time exposed
4. A tripartite is
  - a. Employee, employer, employment.
  - b. Employer, employee, employee's family.
  - c. Employee, government, employment.
  - d. Employee, employer, government.
5. What is the mathematical formula to calculate visual acuity required based on detail of the object size of the job?
  - a. Using graphical method.
  - b.  $\tan \text{ visual angle} = \text{size of critical detail} / \text{working distance}$ .
  - c.  $\cos \text{ visual angle} = \text{size of critical detail} / \text{working distance}$ .
  - d.  $31278 / \text{max. height of object in regard}$ .

II. State whether the following statements are **TRUE** or **FALSE**:

(5 x 1 = 5)

1. Relative illuminance ratio for task: immediate background: general background = 10:3:1.
2. When high speed electron impinge on metals, X rays are produced.
3. Eye movements are required for the job wherein the target speeds of above 60 degree per second is achieved.
4. ILO stands for Indian labour organisation.
5. Health education is primary level prevention of occupational diseases.

III. Fill in the blanks:

(5 x 1 = 5)

1. The amount of light given by a lamp for each watt of power consumed is \_\_\_\_\_.
2. The principle of FM 100 hues colour vision test is \_\_\_\_\_.
3. \_\_\_\_\_ PERFORMANCE = ACUITY + SPEED.
4. Occupational disease developed due to exposure to iron is called \_\_\_\_\_.
5. \_\_\_\_\_ glare impairs from seeing details.

**SECTION - B**

IV. Answer any **THREE** of the following: (3 x 5 = 15)

1. What are the factors that affect the visibility of task? Explain them.
2. Write on occupational hygiene and occupational safety.
3. Visual standards for jobs.
4. Salient features of – Factories act & Workmen compensation act.
5. Role of optometrists – promotion of visual health and safety at work places.

**SECTION - C**

V. Discuss in detail on any **ONE** of the following questions: (1 x 10 = 10)

1. Personal protective equipment.
2. What leads to aesthenopia when using visual display units? Explain all factors in detail.

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