

Entrance Examinations – 2023
Ph.D. Health Sciences (Optometry)

Duration : 2 hours

Max. Marks : 70

Hall Ticket No.

Read the following instructions carefully before answering the questions :

Instructions

1. Write your Hall Ticket No. in the OMR Answer Sheet given to you. Also, write your Hall Ticket No. in the space provided above.
2. This Question paper consists of two parts : **Part – A** and **Part – B** with 35 Questions in each **Part**. OMR Answer sheet will be provided separately.
3. Each question carries **One mark** and there is **no negative marking**.
4. Answers are to be marked on the OMR Answer Sheet following the instructions provided thereon.
5. Please handover the **OMR Answer Sheet** at the end of the examination to the Invigilator. You may take the Question Paper after the examinations is over.
6. No additional sheet will be provided. Rough work can be done in the Question paper itself.
7. The question paper contains thirteen (13) pages including this page.

ENTRANCE EXAMINATIONS - 2023

(Ph.D. Admissions June 2023)

PhD Health Sciences (Optometry)

Part A (Research Methodology)

1. The probability of having disease when the screening test is positive is called:
 - A. Sensitivity
 - B. Specificity
 - C. Positive Predictive Value
 - D. Negative Predictive Value

2. A review of the evidence on a clearly formulated question that uses valid and explicit methods to identify, select and critically appraise relevant primary research, and to extract and analyze data from the studies that are included in the review is called:
 - A. Annotated Bibliography
 - B. Evidence Gap Analysis
 - C. Systematic Reviews
 - D. Metanalysis

3. 95% Confidence Intervals looks at an estimate which is a:
 - A. Point estimate with a fixed probability
 - B. Varied estimate with a varying probability
 - C. Point estimate but varying probability
 - D. Valid estimate with no probability

4. The meaning of a gold standard test is:
 - A. The diagnostic test or benchmark that is the best available under reasonable conditions.
 - B. The accepted standard decided by experts.
 - C. Cannot be changed in any circumstances
 - D. The diagnostic test or benchmark that is established under controlled conditions only.

5. Implementation research uses:
 - A. Quantitative methods
 - B. Qualitative Methods
 - C. Multi-modal Methods
 - D. Exploratory Methods

6. All of the following are ethical principles except?
 - A. Justice
 - B. Self-respect
 - C. Beneficence
 - D. Privacy

7. A doctor is required to study the incidence of silicosis in a stone cutting industry, which study design should he choose:
- Longitudinal
 - Cross-sectional
 - Ecological surveys
 - Case reports
8. Smoking leads to oesophageal carcinoma. Coffee intake has its effect on smoking and also oesophageal carcinoma. This factor can distort the results of the study which intends to prove an association between smoking and oesophageal cancer. This effect of this factor is known as:
- Confounding
 - Multiple causation
 - One to one relationship
 - Dose response relation
9. The proportion of the disease in a population that would be eliminated if the risk factor is eliminated is determined by:
- Relative risk
 - Absolute risk
 - Attributable fraction
 - Odds ratio
10. While investigating a point source epidemic it was found that 120 students ate five different foods (meat burgers, fried fish, steak, and rice and fruit salad. The relative risk was calculated for all those five foods. It was concluded that fish was not responsible for this epidemic. The relative risk of fish is:
- 0.7
 - 1.2
 - 1.7
 - 3.0
11. All of the following are systematic techniques except
- Social Mapping
 - Free Listing
 - Pile sorting
 - Rating scales
12. The technique used to visually identify and analyze two sets of opposing forces affecting a problem situation so as to plan a positive change is.
- Trend analysis
 - Social Mapping
 - Force Field analysis
 - Spider diagram

13. What is one of the main disadvantages of using the covert role in ethnography?
- A. It can be hard to gain access to the social group
 - B. The problem of reactivity: people may change their behaviour if they know they are being observed
 - C. It is usually too time consuming and expensive to be a realistic option
 - D. It is difficult to take notes without arousing suspicion.
14. What is meant by the term "reactive effect"?
- A. Research subjects may have a bad reaction to the drugs they are given
 - B. If people know they are being observed, they may change their behaviour
 - C. Researchers sometimes react to their informants' behaviour with horror
 - D. The categories on an observation schedule may not be mutually exclusive
15. What is meant by the term "theoretical saturation"?
- A. Deciding on a theory and then testing it repeatedly
 - B. The problem of having used too many theories in one's data analysis
 - C. A state of frustration caused by having used every possible statistical test without finding any significant results
 - D. The point at which a concept is so well developed that no further data collection is necessary
16. In qualitative research, sampling that involves selecting diverse cases is referred to as:
- A. Typical-case sampling
 - B. Critical-case sampling
 - C. Intensity sampling
 - D. Maximum variation sampling
17. What is the role of the moderator in a focus group?
- A. To ask leading questions and dominate the discussion
 - B. To stimulate discussion and keep the conversation on track
 - C. To sit away from the group and observe their behaviour
 - D. To evaluate the group's performance on a particular task
18. People belonging to the armed forces and police force are usually subjected to:
- A. Screening
 - B. Case Finding
 - C. Periodic Health Examination
 - D. Opportunistic screening
19. A _____ in analytical chemistry or biomedicine is a method of data plotting used in analyzing the agreement between two different assays.
- A. Kaplan Meir Analysis
 - B. Bland Altman Plot
 - C. Cox Proportional Hazards Model
 - D. Spearman's correlation

20. Which one among the following is a parametric test?
- A. z-test
 - B. Sign Test
 - C. Run Test for Randomness
 - D. Kruskal-Willis Test
21. The scatter plot is used to display
- A. Causality
 - B. Power
 - C. Correlation
 - D. Type II error
22. The type of research design proposes present to the future is known as?
- A. Cross sectional design
 - B. Retrospective design
 - C. Prospective design
 - D. Longitudinal design
23. Graphical representation of data where a curve is obtained by joining the midpoints of the top of the rectangles in a histogram by a straight line is called as?
- A. Frequency polygon
 - B. Bar diagram
 - C. Ogive
 - D. Line diagram
24. Which among the following most commonly associated with a lack of informed consent?
- A. In-depth interviewing
 - B. Covert observation
 - C. Structured interviewing
 - D. Qualitative content analysis
25. Giving vitamin B12 to patients with vitamin B12 deficiency can improve strength, but little is known about any influence it may have on the ordinary weakness of aging. We selected 40 men 70 years of age and greater from a Diabetic treatment clinic and randomly assigned them to receive either vitamin 12 or identical placebo. Muscle strength of the quadriceps, measured with an isokinetic dynamometer after 6 months of treatment, was similar in the two groups. What type sturdy design is this.
- A. Case control study
 - B. Cohort study
 - C. Case series study
 - D. Interventional study

26. Consider the following general research questions for a case control study. What is the relationship between depression and obesity among college students? Following is the appropriate specific refined research question for the above general vague research question.
- A. Are obese are more likely than non-obese among college students to have depression?
 - B. Is obesity associated with depression?
 - C. What is the prevalence of depression among college students?
 - D. What is the incidence of depression among the obese college students?
27. The research question is, "What is the prevalence of alcohol and drug use among persons who attend rock concerts?" investigator anticipated that few women would attend the concert. As each patron entered the theatre, she is asked to throw a die. Men who throw an odd number and women who throw an even number are selected. following is the sampling scheme for selecting individuals to fill out a brief questionnaire.
- A. Simple random sampling
 - B. Stratified random sampling.
 - C. Systematic random sampling
 - D. convenient sampling
28. Classify the following variables as nominal, ordinal, continuous, and ordered discrete.
- A. Body weight (obese/not obese), Depression (none, mild, moderate, severe), Age, Education (highest year of schooling)
 - B. Education (highest year of schooling), Depression (none, mild, moderate, severe), Body weight (obese/not obese), Age,
 - C. Body weight (obese/not obese), Depression (none, mild, moderate, severe), Education (highest year of schooling), Age
 - D. Education (highest year of schooling), Depression (none, mild, moderate, severe), Age, Body weight (obese/not obese)
29. The research question is, "Does body weight at age 1 year predict the number of drop-in clinic visits during the following year?" The investigator plans a prospective cohort study, measuring body weight using an infant scale. A problems noted during pretesting.is that the scale seems to give variable results; weighing the 10-pound reference weight 20 times gives a mean of 10.01 ± 1.00 (standard deviation) pounds. Is this a problem due to lack of
- A. Accuracy
 - B. Precision
 - C. A& B
 - D. None of the above
30. Which of the following is likely to be an example of a Type II error?
- A. A randomized trial finds that subjects treated with a new analgesic medication. had greater mean declines in their pain scores during a study than did those treated with placebo ($P = 0.03$).
 - B. A 10-year study reports that 110 subjects who smoke do not have a greater incidence of lung cancer than 294 non-smokers ($P = 0.31$).
 - C. A&B

- D. None of the above
31. What is the "ecological fallacy"?
- A. The assumption that secondary data analysis can be carried out at home.
 - B. The mistake of observing people in their natural setting
 - C. The error of making inferences about individual behaviour from aggregate data
 - D. The myth that it is easy to research environmentalist action group.
32. A deductive theory is one that:
- A. Allows theory to emerge out of the data.
 - B. Involves testing an explicitly defined hypothesis.
 - C. Allows for findings to feed back into the stock of knowledge.
 - D. Uses qualitative methods whenever possible.
33. A systematic literature review is:
- A. which starts in your own library, then goes to on-line databases and, finally, to the internet.
 - B. A replicable, scientific, and transparent process
 - C. One which gives equal attention to the principal contributors to the area.
 - D. A responsible, professional process of time-management for research
34. Type-II error is
- A. Accepting false null hypothesis
 - B. Rejecting true null hypothesis
 - C. Rejecting false null hypothesis
 - D. Accepting true null hypothesis
35. For a positively skewed curve which measure of central tendency is largest
- A. Mode
 - B. Mean
 - C. Median
 - D. All are equal

Part B (Optometry)

36. Which of the following tests does not have a complete dissociation?
- A. Maddox rod test
 - B. Mallet test
 - C. Von graefe prism test
 - D. Cover test
37. You perform a MEM retinoscopy on a patient and find -0.50 OD and OS. Which of the following diagnoses would you suspect?
- A. Accommodative excess, convergence insufficiency
 - B. Accommodative insufficiency, convergence insufficiency
 - C. Accommodative insufficiency, convergence excess
 - D. Accommodative excess, convergence excess
38. The retinomotor value of the fovea is.
- A. -1
 - B. 0
 - C. 1
 - D. 100
39. The absence of refixatory movement in the eye without a prism in a 4 prisms BO test indicates
- A. Suppression
 - B. Binocular single vision
 - C. ARC
 - D. Palytic squint
40. Calculate AC/A ratio based on the heterophoria method for a patient with IPD:60 mm; Distance cover test: 5PD exophoria; near cover test at 40cm; 14 PD esophoria
- A. 13/1
 - B. 13.6/1
 - C. 10.2/1
 - D. 12/1
41. Fincham's Test is done
- A. To differentiate the type of glare
 - B. To differentiate types of coloured haloes
 - C. To measure contrast sensitivity
 - D. To measure Abbe's number
42. Which one of the following myopic corrections may be reduced with an eccentricity of 0.63, while wearing an orthokeratology lens,
- A. 3.00
 - B. 2.00

- C. 4.00
D. 6.00
43. The limit of an orthokeratology procedure is reached when:
- A. The cornea is changed to a hyperbolic shape
 - B. The cornea is changed to a prolate shape
 - C. The cornea is changed to an oblate shape
 - D. The cornea is changed to a spherical shape
44. If a subtractive corneal topography plot shows a 'smiley face' pattern, what can be deduced about the contact lens used for orthokeratology?
- A. The BOZR is too steep
 - B. The total diameter (TD) is too large
 - C. The BOZR is too flat
 - D. The lens fit is ideal
45. An important exclusion criterion for refractive surgery is:
- A. A large phoria at distance
 - B. Amblyopia
 - C. Presbyopia
 - D. Forme fruste keratoconus
46. Which one of the following is NOT a desirable factor when fitting presbyopic patients with contact lenses?
- A. Lower sensitivity to ghosting
 - B. Previous success with contact lens wear
 - C. Dependence on near vision correction
 - D. Large pupil size
47. Which one of the following essential lens modifications will NOT affect the performance of an orthokeratology lens:
- A. Increase sagittal depth
 - B. Decrease sagittal depth
 - C. Increase lens diameter
 - D. Axial edge lift
48. Which of the following factors doesn't affect the post graft astigmatism
- A. Recipient's corneal astigmatism
 - B. Donor's button astigmatism
 - C. External compression factors during surgery
 - D. Tissue malapposition.
49. For a +8.00 hyperope in near gaze, contact lenses may eliminate the following prismatic prism effect to increase the accommodative demand.
- A. 2.4Δ BO
 - B. 2.4Δ BI
 - C. 4.8Δ BO
 - D. 4.8Δ BI

50. Which one of the following is NOT a general rule for magnification effects in unilateral aphakia is:
- A. 30% magnification with spectacles
 - B. 20% magnification with contact lenses
 - C. 10% magnification with spectacles
 - D. 0% magnification with contact lenses
51. Which of the following is NOT indicative of the keratoconus pathophysiology
- A. Increase mitochondrial DNA damage
 - B. Increase levels of malondialdehyde & peroxyxynitrite
 - C. Increase VEGF RNA
 - D. Increase stromal keratocan
52. A presbyope, who is strongly right-eye dominant, has the following spectacle Rx: OD: +1.50 DS; OS: +2.00 DS; Add: +1.25 DS. What is the most suitable monovision prescription for this patient?
- A. Right +1.50 D and Left +3.25 D
 - B. Right and Left +2.75 D
 - C. Right +2.75 D and Left +2.00 D
 - D. Right and Left +3.25 D
53. Some sodium fluorescein staining of the corneal epithelium is regarded as physiological. This staining is probably due to:
- A. Abrasion from airborne contaminants
 - B. Rubbing the eyes
 - C. Epithelial cell desquamation
 - D. Exotoxins from micro-organisms on the anterior eye
54. When assessing a Schirmer tear test result after 5 minutes of application, what 'wet length' is suggestive of a dry eye?
- A. 5 mm
 - B. 10 mm
 - C. 10 to 20 mm
 - D. >12 mm when an anaesthetic is used
55. If a person has "relative peripheral hyperopia" (say 25 degrees away from the fovea), what approximate refraction power do you expect in the periphery (peripheral refraction in the uncorrected state based on literature) if the central on-axis refraction is -5.00D spherical?
- A. -4.00
 - B. -7.00
 - C. -5.00
 - D. +1.00

56. Controlling myopia progression by 1 dioptre has the potential to :
- A. Reduce the risk of myopic maculopathy by 40%
 - B. Reduce the risk of myopic maculopathy by 20%
 - C. Reduce the risk of myopia maculopathy by 10%
 - D. Does not reduce the risk of myopic maculopathy
57. Which one of the following statement indicates tangential maps in corneal topography:
- A. Provides better visualisation of the exact location of peripheral defect
 - B. All refracted light does not fall nicely on a central reference axis
 - C. All refracted light falls nicely on a central reference axis
 - D. Shows bigger patterns with details that are more centrally located
58. Defocus Incorporated Soft Contact (DISC) lens and Defocus Incorporated Multiple Segments (DIMS) spectacles are related to which of the following:
- A. High myopia prescriptions
 - B. High astigmatic prescriptions
 - C. Hoya MiYOSMART Lenses
 - D. Varilux Progressive Lenses for High myopes
59. Atropine is known to control myopia progression based on the following mechanism:
controlling accommodation
- A. controlling pupil size
 - B. non-accommodative mechanism
 - C. leading to myopic blur in the periphery
 - D. reducing the accommodative lag
60. EDOF in the myopia control area stands for:
- A. extended depth of focus
 - B. extended dioptric field
 - C. evolving depth of field
 - D. Engineering the Depth of the myopia field
61. What is the definition of high myopia based on the IMI classification?
- A. ≤ -9.00 D when the ocular accommodation is relaxed
 - B. ≤ -8.00 D Less than or equal to -5.00 D when the accommodation is relaxed
 - C. ≤ -6.00 D when the ocular accommodation is relaxed, and the eye has pathologic changes
 - D. ≤ -6.00 D when the ocular accommodation is relaxed
62. What percentage of children (living in urban regions) are predicted to get myopia in India by the year 2050?
- A. 48%
 - B. 22%
 - C. 11%
 - D. 33%

63. Select the true statement from the below options:
- A. Myopia development can be prevented with more physical activity
 - B. Increased near work increases the risk for the development of myopia
 - C. Myopia development can be prevented by more intake of proteins
 - D. Myopia development can be prevented by just watching television from the far distance
64. Select the true statement from the below options:.
- A. Under-correction of myopia can prevent myopia
 - B. Under-correction of myopia can prevent myopia and also stop its progression
 - C. Over-correction of myopia will relax accommodation and can counteract myopia
 - D. Under-correction of myopia is considered inappropriate for myopia control
65. Orthokeratology slows down myopia progression and is majorly related to what theory?
- A. Accommodative lag theory
 - B. Relative peripheral defocus theory
 - C. Release of dopamine
 - D. None of these
66. A person A's axial length changed from 24.49 mm to 27.01 in 5 years. What is the approximate refractive error change per year based on the axial length elongation?
- A. 1.50 D
 - B. 7.50 D
 - C. 3.00 D
 - D. 2.50 D
67. Which of the following statements is TRUE for pathological myopia?
- A. Refractive error ≤ -6.00 D when the ocular accommodation is relaxed
 - B. Refractive error ≤ -9.00 D when the ocular accommodation is relaxed
 - C. Myopic eye irrespective of magnitude with any of the posterior ocular/retinal lesions associated with myopia
 - D. High myopic eye (≤ -6.00 D) with any of the posterior ocular lesions (such as Lattice degeneration, Lacquer Cracks, Staphyloma, Chorio-retinal atrophy, choroidal neovascularisation)
68. Which of the following changes does not happen in the eye's biometric properties during emmetropisation
- A. Axial length of the eyeball increases
 - B. Lens power decreases
 - C. Vitreous chamber shortens
 - D. Cornea flattens

69. The following statements are correct, EXCEPT:

- A. Time outdoors is protective for myopia development
- B. Outdoors has a clinically insignificant effect on controlling myopia progression
- C. Myopia progression is thought to involve biochemical weakening of the sclera
- D. Irreversible deformations and axial elongation of the eye is not reason for myopia progression

70. Based on the location of focal planes with respect to the retina, classify the type of astigmatism of this spectacle prescription: +2.00/-2.00x180

- A. Simple myopic astigmatism
- B. Simple hyperopic astigmatism
- C. Compound myopic astigmatism
- D. Mixed astigmatism

University of Hyderabad
Ph.D. Entrance Examinations - 2023

School/Department/Centre: School of Medical Sciences

Course : Ph.D. Health Sciences

Subject : Optometry

Q.No.	Answer	Q.No.	Answer	Q.No.	Answer
1	C	26	A	51	C
2	C	27	B	52	A
3	A	28	A	53	D
4	A	29	B	54	C
5	C	30	B	55	A
6	D	31	C	56	A
7	A	32	B	57	B
8	A	33	B	58	C
9	C	34	A	59	B
10	A	35	B	60	A
11	A	36	B	61	D
12	C	37	A	62	A
13	D	38	B	63	B
14	B	39	A	64	D
15	D	40	B	65	B
16	D	41	B	66	A
17	B	42	A	67	C
18	C	43	B	68	C
19	B	44	A	69	D
20	A	45	D	70	B
21	C	46	D		
22	C	47	D		
23	A	48	A		
24	B	49	C		
25	D	50	D		

Note/Remarks : NO NEGATIVE MARKS.

Signature 
School/Department/Centre 22/6/23
MEDICAL SCIENCES