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

B.OPTOMETRY DEGREE EXAMINATION – August 2018
Second Year
VISUAL OPTICS

Time: Three hours   Maximum: 80 marks

I Choose the best answer   (10 x 1 = 10)

1. Refraction in a new born will reveal several diopters of _____
    a) Myopia   b) Astigmatism
    c) Hyperopia   d) Myopic astigmatism

2. _____ axis is the line passing through the center of cornea, lens and meets the retina on nasal side of fonea.
    a) Optical axis   b) visual axis
    c) Fixation axis   d) Egocentric axis

3. The refractive power of cornea is _____
    a) +48D   b) +40D
    c) +50 D   d) +43D

4. The vergence formula for calculating the power of lens is _____

    a) $F = L' + L$ b) $F = \dfrac{1}{L'} + L$

    c) $F = L' - L$ d) $F = L' + \dfrac{1}{L}$

5. _____ is a risk factor for myopia progression
    a) lack of outdoor activity   b) lack of sleep
    c) Over weight   d) Diet pattern

6. White reflex is appreciated in the following EXCEPT
    a) Cataract   b) Retinoblastoma
    c) Retinal detachment   d) Arcus senilis

7. The working distance is 66cm, thus the power of working distance lens is _____
    a) +1.00D   b) +1.50 D
    c) -1.50D   d) -1.00 D

8. The spherical equivalent of $\overline{3}.00DS / \overline{1}.50DC \times 90$ is _____
    a) $\overline{3}.75DS$ b) $\overline{3}.25DS$
    c) $\overline{4}.00DS$ d) $\overline{4}.50DS$

9. In straddling technique the retinoscope streak is turned _____degree off axis in both directions.
   a) 60°   b) 10°
   c) 45°   d) 25°

10. Patients with high AC/A ratio and near exophoria will be benefited with the following EXCEPT.
   a) Added minus lens   b) Added plus lens
   c) Vision therapy   d)   Prisms

II State whether the following statements are **TRUE** or **FALSE**   (10 x 1 = 10)

   1. Internal astigmatism can be identified with keratometer.
   2.   Percival's criterion of prescribing prism is recommended for exophoric patients.
   3. Foucault's principle is applied in keratometry
   4. Ocular refraction and contact lens refraction are approximately the same.
   5. As the pupil size increases blur circle decreases.
   6. Pseudomyopia can be identified by comparing cycloplegic refraction value and subjective acceptance.
   7. Calculated AC/A ratio uses added lens techniques
   8. Speed of retinoscopy reflex decreases towards neutrality.
   9. Relative spectacle magnification in refractive ametropia is unity.
   10. +0.75 D is normal lag of accommodation.

III Fill in the blanks: (10 x 1 = 10)

   1. In sign connection, convergent rays of light are considered as _____ sign
   2. The axial length of the eye ball is _____
   3. In irregular astigmatism the principal meridians are _____ apart.
   4. _____ refractive error is common in premature babies
   5. _____ correction in a refractive anisometropia leads to aniseikonia
   6. _____ lens are required in a pseudophake to do near work comfortably
   7. _____ shift in refractive error is noted in optic disc edema.
   8. Power at _____ plane is called spectacle refraction
   9. A pinhole increases the depth of _____
   10. An hyperope corrected with contact lens accommodates _____ than a myope.

IV Write any **FIVE** answers of the following: (5 x 6 = 30)

1. Discus about the factors determining the accuracy of retinoscopy
2. What is amblyopia? Discuss about the treatment options.
3. State Knapp's law and discuss about the aniseikonia caused by axial and refractive anisometropia.
4. A 21year old reports to your clinic with headache and eyestrain. Visual activity (unaided) is 6/12 partial) in both eyes. Dry objective refraction is $\overline{0.25}DS(BE)$ whereas the patient accepts $T.25DS\left(\frac{6}{6}\right)$. Duochrome green better Anterior and posteria segments normal
   (a) What are the other tests recommended for this case and why.
   (b) Diagnose the condition, if CTC value is plano, justify your answer.
5. Transpose the following in the other two forms:
   (a) $+3.00Dcx180/-1.00DC \times 90$
   (b) $-5.00DS/+3.00DC \times 120$
   (c) $+8.00DS/-4.00DC \times 180$
6. What are the indications for keratometry? Convert the following radius of curvature to diopters and mention the steep K value and type of astigmation flat K value : 7.7mm @ 90 and 8.2 mm @ 180.
7. Define ocular refraction and spectacle refraction. What is the difference between ocular refraction and contact lens refraction.

V Write any **TWO** essays of the following: (2 x 10 = 20)

1. Discuss on hyperopia and presbyopia
2. Discus on static retinoscopy and the characteristics of reflex in different types of refractive error and other ocular conditions
3. Discuss and compare ocular accommodation with spectacle accommodation for +5.00D hyperope and -5.00D myope.

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