

CERTIFICATE IN DISPENSING OPTICS (CDO)

Term-End Examination

December, 2015

OAH-006 : COATING

000032

Time : 90 Minutes

Maximum Marks : 30

Note :

- (i) *There will be multiple choice type of questions in this examination which are to be answered in **OMR Answer Sheets**.*
- (ii) *All questions are **compulsory**.*
- (iii) *Each question will have four options and only one of them is correct. Answers have to be marked in figures in the appropriate rectangular boxes corresponding to what is the correct answer and then blacken the circle for the same number in that column by using HB or lead pencil and not by ball pen in **OMR Answer Sheets**.*
- (iv) *If any candidate marks more than one option, it will be taken as the wrong answer and no marks will be awarded for this.*
- (v) *There will be 30 questions in this paper and each question carries one mark.*
- (vi) *There will be no negative marking for wrong answers.*
- (vii) *No candidate shall leave the examination hall at least for one hour after the commencement of the examination.*

1. In the normal eye, the retina is shielded from much of the UV radiation by the filtering action of the cornea and the lens.
 - (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say
2. The transmission of the cornea (particularly for the shorter wavelengths) increases markedly with age.
 - (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say
3. Patients who work under conditions of good designed illumination usually report glare that interfaces with vision and produces discomfort.
 - (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say
4. Coated lens is tinted by depositing a thin metallic oxide on the surface of the lens.
 - (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say
5. The tear layer absorbs only a small amount of radiation.
 - (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say

6. The most common effect of ionizing radiation is the formation of cataracts.
- (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say
7. IR radiation occupies slightly more than 7 octaves.
- (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say
8. Antireflection (AR) coatings are a type of optical coating applied to the surface of lenses and other optical devices to reduce reflection.
- (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say
9. LTF stands for
- (1) Light Transfer Factor
 - (2) Light Transmission Factor
 - (3) Both (1) and (2)
 - (4) None of the above
10. Which type of lenses also have a uniform density appearance because the coating is applied uniformly over the lens surface ?
- (1) Coated
 - (2) Uncoated
 - (3) Both (1) and (2)
 - (4) None of the above

11. A spectral transmittance curve shows the percentage of transmission for which type of the following spectrum and for portions of the UV and IR wavelengths ?
- (1) Invisible spectrum
 - (2) Visible spectrum
 - (3) Both (1) and (2)
 - (4) None of the above
12. Once the transmission of a material is known, the density may be found by use of the relationship
- (1) $\text{Density} = \log_{10} \text{Opacity}$
 - (2) $\text{Density} = \log_{20} \text{Opacity}$
 - (3) $\text{Opacity} = \log_{10} \text{Density}$
 - (4) $\text{Opacity} = \log_{20} \text{Density}$
13. Discomfort glare occurs when the ratio between the _____ level of illumination in the visual field and the background illumination exceeds a ratio of 3 to 1.
- (1) Highest
 - (2) Lowest
 - (3) Both (1) and (2)
 - (4) None of the above
14. Which of the following are small, yellowish elevated concretions of bulbar conjunctiva, that have long been associated with continued exposure to solar radiation ?
- (1) Pterygia
 - (2) Pingueculae
 - (3) Both (1) and (2)
 - (4) None of the above
15. The radiation received by the retina is the radiation transmitted by the
- (1) Vitreous
 - (2) Choroid
 - (3) Sclera
 - (4) None of the above

- 16. IR radiation occupies slightly more than**
- (1) 3 Octaves
 - (2) 7 Octaves
 - (3) 10 Octaves
 - (4) 5 Octaves
- 17. Visible spectrum occupies only**
- (1) 1 Octave
 - (2) 2 Octaves
 - (3) 3 Octaves
 - (4) 4 Octaves
- 18. CR-39 stands for Columbia Resin, version number**
- (1) 39
 - (2) 38
 - (3) 93
 - (4) 83
- 19. If all the wavelengths of light are equally absorbed, then which colour (neutral density) tint is produced ?**
- (1) Grey
 - (2) Red
 - (3) Green
 - (4) Black
- 20. Type(s) of Absorptive Lens(es) is/are**
- (1) Tinted plastic lenses
 - (2) Photochromic lenses
 - (3) Polarizing lenses
 - (4) All of the above

21. Different absorptive substances may produce lenses of similar _____, but the spectral transmission curves for the lenses differ.
- (1) Colour
 - (2) Design
 - (3) Base
 - (4) Shape
22. Glare can be classified as
- (1) Veiling (disability) glare
 - (2) Discomfort glare
 - (3) Specular reflections glare
 - (4) All of the above
23. Strongly coloured tints may affect
- (1) Colour vision
 - (2) Visual field
 - (3) Both (1) and (2)
 - (4) None of the above
24. The hydrophobic layer is very _____, comparable to a few molecules, and therefore does not interfere with the optics of the AR coating.
- (1) Thin
 - (2) Thick
 - (3) Dark
 - (4) Light
25. UV radiation extends approximately from
- (1) 100 to 200 nm
 - (2) 200 to 380 nm
 - (3) 300 to 400 nm
 - (4) 400 to 500 nm

26. People employed in occupations such as nuclear physics, radiology, uranium mining and engineering are at risk from
- (1) Ionizing
 - (2) Non-ionizing
 - (3) Both (1) and (2)
 - (4) None of the above
27. Exposure to radiation bordering on the visible spectrum can cause the sensation of vision.
- (1) True
 - (2) False
 - (3) None of the above
 - (4) Can't say
28. Factors affecting transmittance of photochromic glass are
- (1) Intensity of incident radiation
 - (2) Wavelength of incident radiation
 - (3) Temperature of glass
 - (4) All of the above
29. Which of the following are growths of vascular and connective tissue into the epithelium of the bulbar conjunctiva and the cornea?
- (1) Pterygia
 - (2) Pingueculae
 - (3) Both (1) and (2)
 - (4) None of the above
30. Which of the following lenses **cannot** be surface coated by evaporation because they would be deformed by the high temperature required?
- (1) Tinted plastic lenses
 - (2) Tinted glass lenses
 - (3) Both (1) and (2)
 - (4) None of the above