Question Paper

Exam Date & Time: 24-May-2024 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER B.Sc. (NMT/RT/ MIT/EMT/BPT/BOPT/CVT/CND/RRT & DT/BOT/AOTT/ PHYSICIAN ASSISTANT/PFT/MLT) DEGREE EXAMINATION - MAY/JUNE 2024
SUBJECT: BIC1201 - BIOCHEMISTRY
(2020/2022 SCHEME)

Marks: 50 **Duration: 120 mins.**

Answer all the questions.

1)	Define gluconeogenesis and write the reactions of gluconeogenesis from pyruvate	(10)
2)	Explain with illustrations the biosynthesis of mature collagen, emphasizing the reactions catalyzed by prolyl hydroxylase, lysyl hydroxylase, and lysyl oxidase.	(10)
3A)	Illustrate the classification of lipoproteins based on their ultracentrifugation properties. Mention the site of synthesis and function for any THREE lipoproteins.	(5)
3B)	Describe in detail the activation of fatty acid and the steps of beta oxidation in mitochondria.	(5)
3C)	Mention the RDA for dietary fibres. Explain FOUR benefits of consuming dietary fibres	(5)
3D)	Mention the RDA, sources and chemical forms of vitamin A. List FOUR features of vitamin A deficiency	(5)
4A)	Mention the normal blood levels of fasting glucose, urea, cholesterol and total bilirubin.	(2)
4B)	Write the normal level of albumin in serum and mention any TWO conditions in which its levels are altered.	(2)
4C)	List FOUR differences between DNA and RNA	(2)
4D)	Write the reaction catalysed by pyruvate dehydrogenase complex indicating the coenzymes required.	(2)
4E)	Define metabolic alkalosis. Mention TWO causes for it.	(2)

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Question Paper

Exam Date & Time: 22-May-2024 (10:00 AM - 12:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER B.Sc. (NMT/RTT MIT/EMT/BPT/BOPT/CVT/RRT & DT/BOT/AOTT/ PHYSICIAN ASSISTANT/BPO/PFT/MLT/RESPIRATORY THERAPY) DEGREE EXAMINATION - MAY/JUNE 2024
SUBJECT: PHY1201 - PHYSIOLOGY - II
(2020/2022 SCHEME)

Marks: 50 **Duration: 120 mins.**

Answer all the questions.

Write brief, clear and legible answers.
Illustrate your answers with diagrams and flow charts wherever appropriate.

1)	Name the functional divisions of cerebellum. Enumerate the functions of each lobe of cerebellum. Add a note on clinical features of cerebellar lesion. (2+5+3 = 10 marks)	(10)
2)	Describe the actions of growth hormone. Explain the regulation of secretion of growth hormone. Add a note on the cause and clinical features of gigantism (4+3+3 = 10 marks)	(10)
3A)	Enumerate any FOUR functions of saliva. Add a note on Xerostomia (4+1 = 5 marks)	(5)
3B)	Describe the renal tubular reabsorption of glucose.	(5)
3C)	Draw a labeled diagram of the lateral spinothalamic pathway and mention any two sensations carried by the same.	(5)
3D)	Describe the uterine endometrial changes during menstrual cycle	(5)
4A)	List any TWO clinical features of Parkinson's disease	(2)
4B)	List any TWO properties of receptors	(2)
4C)	Enumerate any TWO functions of gall bladder	(2)
4D)	Define Renal clearance. Mention the substance used for the estimation of GFR	(2)
4E)	List the indicators of ovulation	(2)

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Question Paper

Exam Date & Time: 20-May-2024 (10:00 AM - 01:00 PM)

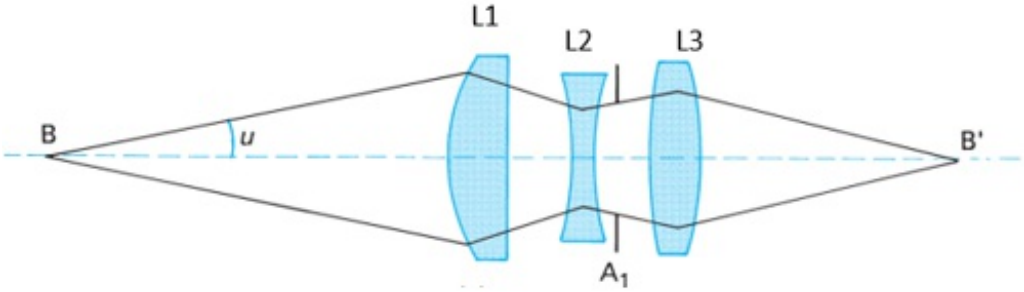
MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER BACHELOR OF OPTOMETRY DEGREE EXAMINATION - MAY/JUNE 2024
SUBJECT: OPT1201 - GEOMETRIC OPTICS - II
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1A)	With a neat diagram, explain the prismatic effect of a lens and derive an expression for Prentice rule.	(10)
1B)	Explain the processes involved in obtaining (i) Sphere-minus cylinder combination from a given power cross (ii) Sphere-plus cylinder combination from a given power cross.	(6)
1C)	Explain the properties of crossed cylinders.	(4)
2A)	Derive an expression for the circle of least confusion using an appropriate optical diagram. If "s" denotes a distance from the lens to the circle of least confusion, derive an expression for "s".	(10)
2B)	Define the following terms: (i) Aperture (ii) Stop (iii) Aperture stop (iv) Entrance pupil (v) Window.	(5)
2C)	One side of the lens is spherical, with a power of +8.0 D and the other side is toric, described by +3.0 x 30/-5.0 x 120. Determine the power cross and sturm interval of the lens for a point object 40 cm from the lens.	(5)
3)	Derive an expression for the depth of field. Write the significance of the depth of field and depth of focus.	(10)
4)	Explain (i) Spherical Aberration (ii) Chromatic Aberration (iii) Coma (iv) Accommodation (v) Radial Astigmatism.	(10)
5A)	Explain briefly the following terms: a) Myopia b) Hyperopia	(5)
5B)	Write a note on Purkinje-Sanson images and mention its significance.	(5)
5C)	Define f-number and mention its significance.	(5)
5D)	With a neat diagram, show the sign conventions used to find the BU, BD, BI and BO prisms in contra-ocular coordinate system where the abbreviations have their usual meanings.	(5)
5E)	Explain a procedure to find the sphero-cylindrical lens parameters from the dioptric power matrix.	(5)
5F)	Angela Landkey wears a +9.00 D spherical lens. When Angela reads, she looks through a point 5 mm in and 12 mm down from the optical center of her lens. What is the vertical component of the prism at the reading center?	(5)
6A)	There are three lenses (L1,L2, L3) and one aperture (A_1) used in the diagram. Which of those optical elements acts as an aperture stop? Justify.	(2)

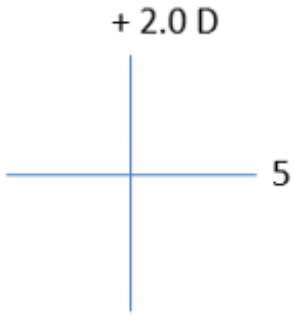


6B) List all the components which affect the brightness of the image in an optical system. (2)

6C) A plane wavefront is reaching a thin +10 spherical -6.0 x 155 spherocylindrical lens. What is the Sp Eq. (2)

6D) A 5.0x90 lens is combined with a 3x180 lens. What are the spherocylindrical parameters of the single lens that is equivalent to this combination. (2)

6E) For the following power cross combination write the sphere plus and sphere minus cylinder combinations (2)



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Question Paper

Exam Date & Time: 27-May-2024 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER BACHELOR OF OPTOMETRY DEGREE EXAMINATION - MAY/JUNE 2024
SUBJECT: OPT1202 - OCULAR BASIC SCIENCE - II
(2020 SCHEME)

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	List the different parts of uvea. Explain the anatomy of ciliary body and choroid in detail.	(20)
2)	Using a neat labelled diagram, describe the 10 layers of retina. Compare the physiology or scotopic and photopic vision.	(20)
3)	Draw a neat labelled diagram of the visual pathway. What are ipsilateral and contralateral fibres?	(10)
4)	Summarise on production of aqueous humor.	(10)
5A)	Write a note on angle of anterior chamber.	(5)
5B)	Write a note on the attachments of the vitreous.	(5)
5C)	Explain about Primary and secondary vitreous.	(5)
5D)	What are optic cup and lens placode? What is its role in the development of the eye?	(5)
5E)	List three differences between bipolar cells and ganglion cells.	(5)
5F)	Compare anterior and posterior pigmented epithelium of the iris.	(5)
6A)	What is Berger's Space?	(2)
6B)	What contributes to the change in colour of retina after dissection?	(2)
6C)	List the parts of rods and cones.	(2)
6D)	State the functions of sphincter and dialator pupillae.	(2)
6E)	What is fovea centralis? How is it different from macula lutea?	(2)

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