

F.Y. M.B.B.S. Examination April - 2023

Human Anatomy: Paper 1 - Set I

(New CBME Curriculum Pattern)

Tim	e: 3	Hours]	[Total Marks: 100		
સૂચન	u : / 1	Instructions			
(٩)		દર્શાવેલ 🖝 નિશાનીવાળી વિગતો ઉત્તરવહી પર અલ up strictly the details of 🖝 signs on you			Seat No.:
	Nan	ne of the Examination:			
	•	F.Y. M.B.B.S.	7.		
	Nan	ne of the Subject :			
	•	Human Anatomy : Paper 1 - Set I (New C Curriculum Pattern)	ВМЕ		Chadasta Cispatura
	Subj	ect Code No.: 2006000101010001			Student's Signature
(2)	777 :	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-1-		
(2)		te each section in separate answer bo		no oncuver	will be accepted
(3)		ection A, all MCQs are compulsory, negative marking & must be submitted			
(4)		tion A carry 20 marks and Section B			
(4) (5)		w labelled diagrams wherever necess		arry 40 me	irks cucii.
(5) (6)		te to the point.	oury.		
(0)	VV 11	te to the point.			
		SECTION A - I	МCQ	s ·	1x20=20
1.		Medial branch of external carotid a	rtery i	is	
	a)	Ascending pharyngeal	b)	Lingual	
	c)	Posterior auricular	d)	Facial	
2.		Combined actions of which muscle	s prod		
	a)	Superior oblique & superior rectus	b)		oblique & inferior rectus
	c)	Inferior oblique & superior rectus	d)	Superior	oblique & inferior rectus
3.		Muscle innervated by glossopharyn	geal r	nerve is	
	a)	Salpingopharyngeus	b)	Stylopha	
	c)	Palatopharyngeus	d)	Levator	veli palatini
	-				

4.		Internal carotid nerve is branch of		
	a)	Superior cervical sympathetic gan	glion	
	b)	Middle cervical sympathetic gang	lion	
	c)	Inferior cervical sympathetic gang	lion	
	d)	Otic ganglion		
5.		Expression of surprise is caused by	/	
	a)	Corrugator supercilli	b)	Nasalis
	c)	Frontalis	d)	Procerus
6.		All pierce clavipectoral fascia EXC	CEPT	
	a)	Lateral pectoral nerve	b)	Thoraco-acromial artery
	c)	Cephalic vein	d)	Medial pectoral nerve
7.		Structure(s) in deltopectoral groove	e is/are	
	a)	Cephalic vein		
	b)	Deltoid branch of thoraco-acromial	artery	
	c)	Both a & b		
	d)	None of a & b		
8.		Action of dorsal interossei is		
	a)	Flexion of interphalangeal joints		
	b)	Adduction of fingers		
	c)	Abduction of fingers		•
	d)	Extension of metacarpo-phalangeal	joints	
9.		True about extensor pollicis longus		
	a)	Insert over distal phalanx of thumb		
	b)	Supplied by posterior interosseus ne		
	c)	Blood supply from anterior interosse	us arte	ry
	d)	All of above		
10.		Stabilising factors for shoulder joint	include	e all EXCEPT
	a)	Tight capsule		
	b)	Glenoid labrum		
	c)	Rotator cuff Splinting of humaral hand between t		
	d)	Splinting of humeral head between te	endons	of biceps & triceps

11.	The of the spinal nerve contains both sensory and motor i							
	a)	Anterior ramus	b)	Posterior ramus				
	c)	Main trunk	d)	All of above				
12.		Fibers of nucleus dorsalis neurons	give ri	se to				
	a)	Anterior spino-thalamic tract	b)	Posterior spino-thalamic tract				
	c)	Anterior spino-cerebellar tract	d)	Posterior spino-cerebellar tract				
13.		All are functional components of g	glossop	haryngeal nerve EXCEPT				
	a)	Special visceral efferent	b)	Somatic efferent				
	c)	General visceral efferent	d)	Special visceral afferent				
14.		Basal nuclei consist of all EXCEP	T					
	a)	Corpus striatum	b)	Amygdaloid body				
	c)	Uncus	d)	Claustrum				
15.		Which of following is receptor in	muscle	e?				
	a)	Motor end plate	b)	Muscle spindle				
	c)	Neurotransmitter	d)	Motor unit				
16.		Which structure form brush borde	er?					
	a)) Microvilli	b)	Basal infoldings				
	c) Cilia	d)	Villi				
17.		What is embryonic origin of micr		•				
	a) Neural crest	b)	Neural tube				
	C	e) Neural plate	d)	Mesenchyme				
18.		Somites develop from						
	8	a) Paraxial mesoderm	b)	Intermediate mesoderm				
	(c) Lateral plate mesoderm	d)	Endoderm				
19.		Pully-shaped articular surfaces & characteristics of	strong	g collateral ligaments are				
		a) Ellipsoid joint	b)	Condylar joint				
		c) Hinge joint	d)	Pivot joint				

- 20. Example of elastic ligament is
 - a) Ligamenta flava

b) Sacrotuberous ligament

c) Deltoid ligament

d) Ilio-femoral ligament

SECTION B

Marks:40

Que 2. Attempt any TWO case scenario questions.

16 marks

- (1) 45 years old female attended clinic with complain of gradually developed painless mass in upper lateral quadrant of right breast. She also had complain of retracted nipple. On examination, clinician found that right axillary lymph nodes were palpable. (2+2+4 marks)
 - (A) What is probable diagnosis?
 - (B) Give anatomical basis of retracted nipple.
 - (C) Describe lymphatic drainage of breast.
- (2) 50 years old male attended clinic with complain of loss of pain & thermal sensations on right side of face and loss of same sensations from left lower part of body. He also had complains of difficulty of speech and dysphagia. MRI revealed vascular lesion in postero-lateral aspect of medulla.

(2+1+5 marks)

- (A) What should be probable diagnosis?
- (B) Name the artery involved.
- (C) Give anatomical basis of above mentioned clinical features.
- (3) 35 years old male patient brought to hospital with complains of high grade fever, severe pain in eye & forehead and orbital swelling on right side. He had history of incomplete course of antibiotics given for sepsis of upper lip 1 week ago. Clinical examination revealed periorbital oedema and extraocular muscles palsy on the same side. (2+2+4 marks)
 - (A) What is the most probable diagnosis?
 - (B) Based on clinical features, enumerate the affected nerves.
 - (C) Explain anatomical basis of clinical features.

Que 3. (A) Write short notes on (ANY TWO)

10 marks

- (1) Intermuscular spaces of scapular region
- (2) Pectoralis major muscle
- (3) Ulnar nerve in hand

(B) Write short notes on

10 marks

(1) Somites **OR** Fertilization

(2) Development of tongue **OR** Development of pituitary gland

(C) Write short note on.... (ANY ONE)

4 marks

- Cartilagenous joint (1)
- Deep fascia (2)

SECTION C

Marks:40

Long questions.... (ANY TWO) Que 4

16 marks

- Describe larynx under following heads. (1)
 - Fibrous framework (a)
 - Laryngeal cavity (b)
 - Motor & sensory innervation (c)
- (2) Describe parotid gland under following heads.
 - External features & relations
 - Structures traversing through its substance (b)
 - Neuro-vascular supply (c)
- Describe pterygopalatine fossa under following heads. (3)
 - Boundaries and communications (a)
 - List of contents (b)
 - Connections and branches of pterygo-palatine ganglion (c)

Que 5(A) Write short notes on (ANY TWO)

10 marks

- Pyramidal tracts (1)
- Circle of Willis (2)
- Superior colliculus (3)

10 marks

(B)

- Histology of hyaline cartilage OR Histology of cardiac muscle Write short notes on
- Histology of mix salivary gland OR Histology of cerebellum (1) (2)

Write short note on (ANY ONE) **(C)**

4 marks

- Saddle joints (1)
- Implantation (2)
- Histology of thymus (3)



F.Y.MBBS Examination April - 2023

Human Anatomy: Paper II - Set 3

(New CBME Curriculum Pattern)

Time	e: 3 Hours]	[Total Marks: 100
સૂચના	a:/Instructions	
(٩)	નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી. Fill up strictly the details of signs on your answer book Name of the Examination: F.Y.MBBS Name of the Subject : Human Anatomy : Paper II - Set 3 (New CBME Curriculum Pattern) Subject Code No.: 2006000101010002	Seat No.: Student's Signature
(2) (3) (4) (5) (6)	Write each section in separate answer book. In section A, all MCQs are compulsory, only one answ no negative marking & must be submitted within first 3 Section A carry 20 marks and Section B & C carry 40 marks and Section B & C car	30 minutes.
	SECTION A - MCQs	1x20=20
.1.	Stomach has relations with all of the following EXa) Anterior abdominal wall b) Left ki	
2.	True regarding coeliac trunk a) Vertebral level of origin is L1 b) Right gastro-epiploic artery is branch of gastroducc) Common hepatic artery is the largest branch d) It is artery of midgut	odenal artery

3.	a)	Right kidney is related to all EX 11 th rib	СЕРТ	
	b)	Quadratus lumboram muscle		
	c)	Transverses abdominis muscle		
	d)	Thoraco-abdominal diaphragm		
4.		Vertebral level of vena caval ope	ening in	thoraco-abdominal diaphragm is
	a)	T8	b)	Т9
	c)	T10	d)	T12
5.		Subdivision of peritoneal cavity	posterio	r to stomach is called
	a)	Omental bursa .	b)	Lesser sac
	c)	Omentum	<u>d</u>)	Both a & b
6.		Medial boundary of femoral ring	is form	ed by
	a)	Lacunar ligament	b)	Inguinal ligament
	c)	Pectinate ligament	d)	Pectineal fascia
7.		Ligament preventing hyper-exter	nsion of	hip joint is
	a)	Pubo-femoral ligament	b)	llio-femoral ligament
	c)	Inguinal ligament	d)	Ischio-femoral ligament
8.		Profunda femoris artery leaves fe	emoral tr	riangle by passing between
	a)	lliacus & psoas major	b)	Psoas major & pectineus
	c)	Pectineus & adductor longus	d)	Adductor longus & adductor brevis
9.		Posterior primary rami of L1-L3 of gluteal region?	and S1-	S3 supply skin of which quadrant
	a)	Upper & anterior	b)	Upper & posterior
	c)	Lower & anterior	d)	Lower & posterior
10.		Lateral plantar nerve innervates a	ıll EXCE	EPT
	a)	Adductor hallucis	b)	Flexor digiti minimi brevis
	c)	2 nd lumbrical	d)	Flexor digitorum brevis

11.		Incorrect about intercostal nerves								
	a)	Provide motor fibres to peripheral part of diaphragm								
	b)	Provide motor fibres to intercostals muscles								
	c)	Provide sensory fibres to costal pleur	a							
	d)	Lower nerves provide sensory fibres	to per	itoneum						
12.		Sternal angle level corresponds to all	EXC	ЕРТ						
	a)	Beginning & end of arch of aorta								
	b)	2 nd sterno-costal joint								
	c)	Demarcation between superior and in	ferio	r mediastinum						
	d)	Formation of superior vena cava								
13.		How many pairs of posterior intercost thoracic aorta?	stal ar	teries arise from descending						
	a)	7	b)	8						
	c)	9	d)	10						
14.		Incorrect about visceral pleura								
	a)	Adherent to lung surfaces	b)	Lines fissures of lungs						
	c)	Pain insensitive	d)	Innervated by somatic nerves						
15.		Lining epithelium of trachea is								
	a)	Pseudo-stratified ciliated columnar	b)	Simple columnar						
	c)	Stratified squamous non-keratinized	d)	Stratified squamous keratinized						
16.		Example of dense regular connective	e tissu	ie is						
	a)	Dermis	b)	Superficial fascia						
	c)	Capsule of glands	d)	Tendon						
17.		Tissue develop from ectoderm of en	nbryo	is						
	a)	Nervous tissue	b)	Muscular tissue						
	c)	Connective tissue	d)	None of above						
18.		Mullerian duct gives rise to								
	a)	Ovary	b)	Fallopian tube						
	c)	Uterus	d)	Both b & c						

19. How many chromosomes are there in Turner's syndrome? a) 45 b) 46 c) 47 d) 48 20. The karyotype of Androgen Insensitivity Syndrome is a) 46XX **46XY** b) c) 47XXY d) 45XO SECTION B Marks:40 Que:2 Attempt ANY TWO case scenario questions. 16 marks (1) Fatty and fertile female of 40 years complained of spasmodic pain in right hypochondrium radiating to right shoulder. (1+2+5 marks)(A) What should be the probable diagnosis? Why pain is referred to right shoulder? (C) Describe gross anatomy of affected organ. 45 years old woman complaining of swelling in upper medial side of thigh just infero-lateral to pubic tubercle. The swelling becomes prominent on coughing. (2+2+2+2 marks)(A) What is this female most likely suffering from? Why is it more common in females? (B) Explain anatomical basis of the condition. (C) What could be the possible complication of surgical intervention in this condition? (D) Enumerate the other swellings in the same region. 47 years old male with history of smoking for 25 years presents with chest pain radiating to his left arm, sweating and nausea. His blood pressure is

(1+5+2 marks)

low and investigation reveals infarction of left lateral and parts of

(A) Which artery is most likely to be affected in this case?

aspect of interventricular septum.

(C) What is coronary dominance?

sternocostal and diaphragmatic surfaces of heart and damage to anterior

(B) Describe course, branches and areas of heart supplied by that artery.

Oue:3(A) Write short notes on (ANY TWO) 10 Marks (1) Profunda femoris artery (2) Ligaments of knee joint (3) Tibialis anterior muscle **(B)** Write short notes on 10 marks (1)Histology of autonomic ganglion **OR** Histology of lymph node (2)Histology of colon **OR** Histology of ureter (C) Write short note on.... (ANY ONE) 4 marks (1)Karyotyping (2)Klinefelter syndrome SECTION C Marks:40 16 marks Que:4 Long questions.... (ANY TWO) (1) Describe uterus under following heads. Subdivisions (a) (b) Axes Relations (c) (d) Supports (2) Describe thoraco-abdominal diaphragm under following heads. Attachments (a) (b) Major openings Nerve supply (c) (d) Actions (3) Describe portal vein in detail with applied aspects. Que:5(A) Write short notes on (ANY TWO) 10 marks (1) Internal thoracic artery Coronary sinus (2)Thoracic duct (3) (B) Write short notes on (ANY TWO) 10 marks Development of right atrium (1)Development of pancreas (2)Mesonephric duct (3)4 marks (C) Write short note on Cadaver as a teacher OR Hysterosalpingography



First Year M.B.B.S. Examination April - 2023

Physiology: Paper -I

Tim	e: 3 Hours]		[Total Marks: 100
સૂચન	a:/Instructions		
(٩)	નીચે દર્શાવેલ ☞ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવ Fill up strictly the details of ☞ signs on your	શ્ય લખ answ	Seat No.:
	Name of the Examination:		
	First Year M.B.B.S.		
	Name of the Subject :		
	☞ Physiology: Paper -I		
	Subject Code No.: 2006000101020001		Student's Signature
(2)	SECTION A (MCQ) is given in separate	shee	t.
(3)	Draw diagrams and flow chart wherever	requi	red.
	Section A (MCQs	i)	20 Marks
	Select the most appropriate choic	e in	each of the following MCQ
1.	Which of the following acts as a cell a	dhes	sion molecule
1.	a) Connexin	b)	Kinesin
	c) Actin	d)	Cadherin
2.	All of the following transport process	follo	ow 'saturation kinetics' except
2.	a) Simple diffusion	b)	Facilitated diffusion
	c) Na ⁺ -Ca ⁺ exchanger	d)	Na+ coupled active transport
3.	Enzymes catalases are present in		
٥.	a) Lysosomes	b)	Peroxisomes
	c) Ribosomes	d)	Mitochondria
4.	The Equilibrium potential for Na+ is		
• •	a) +60mV	b)	$+90 \mathrm{mV}$,
	c) +70mV	d)	+100mV

5.	 In the body muscle contractions are subtetanic type but not jerky because of a) Recruitment of motor units b) Frequency of nerve impulse c) Synchronization of nerve impulse d) Asynchronous discharge of motor units 					
6.	Eosinophilia occurs ina) Stressful condition.c) Pyogenic infection.	b) d)				
7.	 The function of suppressor T (Ta) Secreting interleukin-2 Suppressing the activity of Ca Preventing the activity of Ca Induction of Apoptosis 	fB lymph				
8.	A 2-year-old boy bruises easily had bleeding into his knee joints that this patient has a deficiency a) Prothrombin activator c) Factor VIII	s after min				
9.	The property of aggregation of pa a) von Willebrand factor c) Thromboxane A2	platelets is b) d)	because of Thrombosthenin Serotonin			
10.	Atrioventricular dissociation occa) First degree AV nodal block b) Second degree AV nodal block c) Third degree AV nodal block d) Mobitz type II block	k ock				
11.	Which is the most potent coronaa) Adenosinec) Prostaglandins	ry vasodila b) d)	ator Lactate Dopamine			
12.	Heart rate is calculated by dividing following two consecutive waves a) P-P c) P-R	ng 1500 by s? b) d)	R-R T-T			
13.	Carbon monoxide poisoning is a a) Anemic hypoxia c) Hypoxic hypoxia	type of b) d)	Histotoxic hypoxia Stagnant hypoxia			

14	Given Tidal Volume = 540 ml, Anatomical Dead Space = 180 ml and Respiratory Rate = 14/min, calculate Alveolar Ventilation per minute							
					-			
	a)	4200 ml		b)	6890 ml			
	c)	4680 ml		d)	5040 ml			
15.	Enz	ymes within the lun	g are responsibl	le fo	or the activation of			
	a)	Angiotensin II		b)	Bradykinin			
	c)	Prostaglandins		d)	Serotonin			
16.	Volu	untary micturition						
	a)	Depends on the ir	ntegrity of a lum	bar	spinal reflex arc			
	b)				tion of the bladder			
	c)		ion of the detrus		muscle in the bladder by			
	d)			e re	flux of bladder contents into the	ie		
17.	Ald	losterone secretion	tends to raise the	e vo	olume of			
	a)	Interstitial fluid		b)	Intracellular fluid			
	c)	Urine		d)	CSF			
18.	A patient with chronic renal failure has all of the following except							
	a)	Increased Blood	urea					
	b)	Increased Blood	uric acid					
-	c)	Increased creating	ine clearance					
	d)	Increased acid-ba	ase disturbance of	on a	high protein diet			
19.	Pa	ralytic Salivary seco	retion is seen on	sec	tioning of			
	a)	Tympanic nerve						
	b)	•						
	c)	• •	nerve					
	d)	Otic ganglion						
20.	Tl		ate pancreatic sec	cret	ion rich in water and bicarbona	te		
	a)							
	b)	•	L					
	(c)							
	d)) Vagal stimulation	on					

[Time:3 Hours]

[Total Marks: 100]

Instruction:

(1) Section A (MCQ) is given in separate sheet.

(2) Draw diagrams and flow chart wherever required.

Section - "B"

(40 Marks)

Q.I A 43-year-old man presents to the physician's clinic with complaints of epigastric pain. After a thorough workup, the patient is diagnosed with peptic ulcer disease. He is started on a medication that inhibits the "proton pump" of the stomach. (10 marks)

a. What is the "proton pump" that is referred to above?

(1 mark)

b. What type of cell membrane transport would this medication be blocking? (1 mark)

c. Describe the types of transport where molecules use ATP as energy to move against concentration gradient across a cell membrane?

(4 marks)

d. Describe Peptic ulcer disease.

(4 marks)

Q.2 Answer in Short (Any 5 out of 6)

(5x3=15 marks)

- 1. Apoptosis
- 2. Draw a labelled diagram of Sarcomere
- 3. Functions of Monocytes
- 4. Conducting system of heart
- 5. Excitation contraction coupling in smooth muscle
- 6. Importance of cross matching in blood transfusion

Q.3 Short notes (Any 3 out of 4)

(3x5=15 marks)

- 1. Ventricular events in Cardiac cycle
- 2. Immunoglobulins
- 3. Sites and Stages of erythropoiesis

4. Functions of Liver

(2+3marks)

Section - "C"

(40 Marks)

Q.4 Define Cardiac output. Explain any one method by which Cardiac Output is determined. Explain the factors that regulate Cardiac output. (1+3+6=10marks) (10 marks)

Q.5 Answer in Short (Any 5 out of 6)

(5x3=15 marks)

- 1. Acclimatization at high altitude
- 2. Definition and classification of Diuretics

(1+4 marks)

- 3. Pancreatic Enzymes
- 4. Morphological classification of Anaemia
- 5. Role of ADH in homeostasis
- 6. Respiratory membrane

Q.6 Short notes (Any 3 out of 4)

(3x5=15 marks)

- 1. Neural Regulation of Respiration.
- 2. Lung Surfactant and it's function and applied aspect

(1+2+2 marks)

- 3. What is Tubular maximum for glucose (TmG) and what is Splay? Explain with diagram. (2.5 +2.5marks)
- 4. Functions of Juxtaglomerular apparatus



F. Y. M.B.B.S. Examination April - 2023

Physiology: Paper - II

			Filysiology	у . 1 арс	1 - 11	
Tim	ie: 3 I	Hour	s]			[Total Marks: 100
સૂચન	น : / I	nstru	ictions			
(1)	Name	p strice of the Y. M of the	❤ નિશાનીવાળી વિગતો ઉત્તરવહી પર etly the details of ❤ signs on yo e Examination: .B.B.S. e Subject :		Seat No.:	
		Physio ct Code	logy : Paper - II e No.: 2006000101020002			Student's Signature
(2) (3)	Sect	tion -	A (MCQ) is given in separa grams and flow chart where		ed.	
			S	et - 2		
			Section - A (N	1CQs) 20	Marks	
		Sele	ect the most appropriate cl	noice in ea	ach of th	e following MCQ.
	1.	Cryj a) b) c) d)	ptorchidism refers to: Male hypogonadism Removal of testis before p Removal of testis after pu Undescended testis	•		
	2.			function	is not car	ried by dorsal white column
		a) c)	pinal cord? Fine touch Proprioceptive	b) d)	Crude Pressui	
	3.	Whi	ich area as per Brodmann's ex?	classificat	ion is ter	med as Primary motor
		a) c)	Area 3,2,1 Area 6	b) d)	Area 4 Area 8	
	4.		ebellar dysfunction will not ptom?	cause whi	ich of the	e following sign and
		a) c)	Resting tremors Atonia or Hypotonia	b) d)	Intention Dvsart	on tremors hria

		nan chorionic gonadotrophin (l	uCG)	is secreted from
5.	Hum	nan chorionic gonadotrophin (b)	Ovaries
	a)	lestis	d)	Endometrium
	c)	Placenta	,	
	0	of the following is Protein and	d polyt	peptide type hormone
6.	One	of the following is Protein and	b)	
	a)	Cortisol	d)	Thyroxine
	c)	PTH		
7.	REM	1 is		
<i>'</i> •	a)	characterised by delta waves	on EC	CG .
	b)	a sound and dreamless sleep		
	c)	characterised by total lack of	musc	ular activity
	d)	referred to as paradoxical sle	ер	
	,			
8.	Whi	ch region is known as Wernick	e's are	ea?
	a)	BA 8	b)	BA 22
	c)	BA 39	d)	BA 44
0		rson with damaged Visual Ass	ociatio	on area may be
9.		Declared legally blind	Ociatic	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	a) b)	Unable to see rows of letters		
	c)	Unable to understand spoken	words	
	d)	Able to see letters but unable	to ass	ociate them into words
	u)			
10.	Norr	nal serum Ca ⁺⁺ level is		
	a)	11-20mg/dL	b)	9-10mg/dL
	c)	1-3 mg/dL	d)	12-15 mg/dL
11	Im A	rgyll-Robertson Pupil, which o	ne of t	the following reflex is lost?
11.	a)	Accommodation Reflex		
	c)	Ciliospinal Reflex	d) -	Light Reflex
	C)	Cmcop		<u>-</u>
12.	Spin	al interneurones inhibit antago	nistic 1	motor neurones in a process called
	a)	Crossed extensor reflex	b)	Tendon reflex
	c)	Reciprocal inhibition	d)	Reverberating circuits
10	0-4-	most connective tissue coveri	na of s	
13.		rmost connective tissue coveri Endoneurium		
	a)		b)	Epineurium
	c)	Perineurium	d)	Epimysium
14.	The 1	process of fertilization takes pl	ace in	
1 7.	a)	Ovary	b)	Uterus
	c)	Vagina	d)	
	C)	, up	u)	Fallopian tube

	15.	Sperr	ns are temporarily kept in				
		a)	Epididymis	b)	Vas deferens		
		c)	Testis	d)	Scrotum		
	16.	Horn	none responsible for onset of P	uberty	in females is		
		a)	Prolctin	b)	Oxytocin		
		c)	Follicle stimulating hormone	d)	Growth hormone		
	17.	Incre	tins are gastro-intestinal hormo	nes ca	using		
		a)	Enhancement in rate of thyroic increase blood glucose				
		b)	glucose		retion in response to increase blood		
		c)	increase blood glucose		se from pancreas in response to		
		d)	Enhancement in rate of glucage increase blood glucose	on rel	ease from pancreas in response to		
	18.	The	disorder of eye in which intraoc	ular p	ressure is increased		
		a)	Myopia	b)	Glaucoma		
		c)	Astigmatism	d)	Neurofibroma		
	19.	The l	lesion in bilateral macular corte	x leads	s to		
	17.	a)	Ipsilateral scotoma	b)	Bilateral central scotoma		
		c)	Bitemporal hemianopia	d)	Homonymous hemianopiar		
	20	At normal room temperature, maximum heat loss from body occurs by:					
	20.	a)	Conduction	b)	Convection		
		c)	Radiation	d)	Sweating		
			Section - B (40				
Q. 1.		hung	ung woman complained of polyger and weight loss for the last for	ew wee	eks. (10 marks)		
	a.		t is the likely cause of above sy				
	b.		e two simple tests to confirm th				
	c.	poly	cribe in detail the clinical condit dypsia, increased hunger and un ment of this condition.	ions th explai	at are associated with polyuria, ned weight loss (asthenia) and (5 + 2 marks)		

Q. 2. Answer in Short. (Any 5 out of 6)

 $(5 \times 3 = 15 \text{ marks})$

- 1. Descent of Testis
- 2. Indicators of ovulation
- 3. Importance of Communication in Doctor-patient relationship
- 4. Differences in Decerebrate and Decorticate Rigidity (1.5 + 1.5 marks)
- 5. Aldosterone is essential for life. Explain.
- 6. Mechanism of onset of Puberty

Q. 3. Short notes. (Any 3 out of 4)

 $(3 \times 5 = 15 \text{ marks})$

- 1. Methods of Contraception
- 2. Compare and contrast sympathetic and parasympathetic system
- 3. Parturition
- 4. Disorders of Parathyroid hormone

Section - C (40 Marks)

Q. 4. Draw the cerebellar circuit. Describe functions and dysfunctions of Cerebellum. (2 + 5 + 3 marks) (10 marks)

Q. 5. Answer in Short. (Any 5 out of 6)

 $(5 \times 3 = 15 \text{ marks})$

- 1. Night blindness
- 2. Describe any 3 abnormalities of smell sensation
- 3. Otolith organs
- 4. Compound Action Potential
- 5. Aphasias
- 6. Somatosensory cortex

Q. 6. Short notes. (Any 3 out of 4)

 $(3 \times 5 = 15 \text{ marks})$

- 1. Which are the Heat gain mechanisms in body and when are they activated?
- 2. Write Course and features of Auditory pathway including Areas of Auditory cortex. (3 + 1 + 1 mark)
- 3. Dark Adaptation
- 4. Differntiate Conditioned Reflex and Unconditioned reflex



1st M.B.B.S. Examination April - 2023

Biochemistry - Paper - II (New CBME Pattern)

નીચે દર્શાવે Fill up s	ોલ 🖝 નિશાનીવાળી વિગતો ઉત્તરવર્હ trictly the details of signs c	ો પર અવશ્ય લખ on your answ	ખવી. wer book	_
	the Examination:			_
☞ 1st l	M.B.B.S.	10		
	the Subject :			
Biod	chemistry - Paper - II (New CB	ME Pattern)		
Subject C	ode No.: 2006000101030002		Student's Signature	
		SET-2		
	Section	on A: MCQ	Q (20 Marks))
	stions are compulsory			
	CQ has only one correct ar			
One ma	rk for correct answer. No n	egative mar	irking.	
Se	vere Combined Immunode	ficiency cou	ould be due to deficiency of?	
a)	Adenosine Deaminase	b)	Xanthine Oxidase	
c)	Dihydrofolate Reductas	se d)	Carbamoyl Phosphate Synthetase	
Mo	olybdenum containing enzy	me of purir	ine catabolism is	
a)	Guanine Deaminas	b)	Nucleotidase	
c)	Xanthine Oxidase	d)	Purine Nucleotide Phosphorylase	
Ge	ne cloning largest fragmen	t can be inc		
a)	Plasmid	b)	Bacteriophage	
c)	Cosmid	(d)	YAC	
FIG	GLU Test is done to detect	deficiency of	of	
a)	Cobalamin	b)	Folate	
c)	Thiamine	d)	PLP	
0	stinuria is associated with a	excretion of	f which group of amino acids:	
Cy		nine and Le	eucine	
a)	Cystine, Ornithine, Argi	mine und Le		
	Cystine, Ornithine, Argi Cystine, Ornithine, Argi			
a)	Cystine, Ornithine, Argi Cystine, Ornithine, Argi Cystine, Ornithine, Alan	nine and Ly	ysine	

6.	Whi	ch of the following is NOT True	e abou	it PCR?
	a)	Thermostable enzyme Taq Po	lymera	ase is used
	b)	Annealing comes after denatu	ration	
	c)	Specific primers are required		
	d)	Taq Polymerase is added at ea	ch cy	cle of PCR Reaction
7.	Whi	ch of the following amino acid	is seei	n being excreted in Maple
		up Urine Disease?		
	a)	Tyrosine	b)	Tryptophan
	c)	Leucine	d)	Glycine
8.	Vita to ir	min B ₁₂ and folate supplementa nprovement of anemia due to	ation i	n megaloblastic anemia leads
	a)	Increased DNA synthesis in b	one m	arrow
	b)	Increased Heme synthesis		
	c)	Erythroid Hyperplasia		
	d)	Increased iron absorption		
9.	Wh	ich of the following is True rega	arding	silent mutation
	a)	No change in mRNA	b)	Change in Amino acid Sequence
	c)	Altered Gene Expression	d)	No change in Protein Expression
10.	Wh	ich of the following blocks DN	A Rep	lication with getting incorporated
	in D	DNA strands		
	a)	Cytarabine	b)	Nalidixic Acid
	c)	Paclitaxel	d)	Ciprofloxacin
11.		of the following aminoacids are leotides, EXCEPT	e used	for synthesis of purine
	a)	Glycine	b)	Alanine
	c)	Aspartate	d)	Glutamine
12.	PLI	P is required for all of the follow	ving re	eactions EXCEPT
	a)	Trans-sulfuration Reactions	b)	Heme Synthesis
	c)	Transamination Reactions	d)	Carboxylation Reactions
13.	Buf	ffering action of hemoglobin is	seen d	ue to which Amino Acid?
	a)	Histidine	b)	Tryptophan
	(c)	Aspartate	d)	Arginine
14.	Wh	ich of the following is competit	tive in	hibitor of Dihydrofolate redutase?
	a)	Aminopterin	b)	Flurouracil
	c)	Allopurinol	d)	Para arninobenzoic Acid
15.	Wh	ich of the following is plasma i	functio	
	a)	Alkaline Phosphatase	b)	Acid Phosphatase
	c)	Lipoprotein Lipase	d)	Gamma Glutamyl Transpeptidase

10.	AII	All are true regarding Cushing's syndrome EXCEPT:				
	a)	a) Serum electrolytes reveal hyperkalemia and hyponatremia				
	b)	Due to hyper function of the	e adren	al cortex		
	c)	It is characterized by muscle	e weak	ness and fatigue		
	d)	Blood glucose levels reveal				
17.	Wh			tic marker for diagnosis of Acute MI		
	a)	SGOT	b)	CPK-MB		
	c)	LDH	d)	Troponin T		
18.	Wh	ich of the following is true abo	out Her	•		
	a)	Parabolic curve of dissociat				
	b)	Co-operative effect in binding	ng of O	12		
	c)	Dimer Protein		2		
	d)	Store O ₂ in muscle				
19.	Enz	zyme deficient in erythropoietic	c porph	yria is		
	a)	PBG deaminase	b)	Uroporphyrinogen III Cosynthase		
	(c)	Coproporphyrin Oxidase	d)	Ferrochelatase		
20.	Wh	ich plasma protein prevents ex	cretion	of Haemoglobin in urine?		
	a)	Haptoglobin	b)	Hemopexin		
	c)	Albumin	d)	Transferrin		

Section B:

40 Marks

Instructions for section B & C:

- 1. Use blue/black ball point pen only.
- 2. The numbers to the right indicates full marks.
- 3. Draw diagrams wherever necessary

Q 2: Long Answer Questions (ANY TWO)

 $(2 \times 10 = 20).$

- A. Describe in detail the process of protein synthesis? Add a note on various drugs affecting the process of protein synthesis. (7+3).
- B. Describe the metabolism of Tyrosine. Enumerate important biological product synthesized from tyrosine. Add a note on various inborn error of metabolism related to tyrosine (3+2+5)
- C. Describe source, RDA, biochemical role of Thiamine. Add a note on various disorders related to thiamine (1+1+4+4)

Write Brief Answer / Justifications/ Biochemical Q 3: basis (ANY TEN)

 $(10 \times 2 = 20)$

- a) Vitamin B12 deficiency is associated with increased risk of myocardial infarction.
- b) Genetic code is universal with few exceptions.
- c) Enzyme has a role in diagnosis of a disease.
- d) Vitamin C deficiency is associated with anemia.
- e) Restriction enzymes are used in recombinant DNA technology.
- f) DNA replication is called semi conservative & semi discontinuous.
- g) Difference between CPS-I & CPS-II enzymes.
- h) α -1 antitrypsin deficiency leads to development of emphysema.
- i) Adenosine deaminase (ADA) enzyme deficiency is associated with Severe Combined Immune Deficiency (SCID).
- j) Methotrexate is used as an anticancer drug,
- k) Warfarin is used as an oral anticoagulant.

Section C:

40 Marks

Short Answer Questions (ANY FOUR) Q 4:

 $(2 \times 10 = 20)$

- A. Biologically important peptides and their clinical significance.
- B. Allosteric enzyme inhibition.
- C. Describe the various types of DNA repairs & related disorders.
- D. Describe the role of vitamin D in regulating blood calcium levels. Add a note on disorders related to vitamin D deficiency. (3+2)
- E. PCR and its applications.

Clinical Cases (ALL COMPULSORY) Q 5:

 $(2 \times 10 = 20)$

Case 1:

A pediatrician was called to attend a 3 days old neonate as the baby's skin had become yellowish in color. Pediatrician found the icterus was present. Lab investigation showed: Serum Total Bilirubin = 14 mg/dl, Direct Bilirubin = 0.8 mg/dL, Indirect Bilirubin = 13.2 mg/dl. He advised phototherapy to baby & drug phenobarbitone. Daily monitoring of serum Bilirubin level was advised.

- What is the diagnosis? Why do many neonates suffer from jaundice? 1.
- Enumerate the site & steps of bilirubin synthesis in the body. 2.
- Differentiate between direct & indirect bilirubin. 3.
- How is phototherapy helpful in this condition? 4.

5. Explain the biochemical role of phenobarbitone as a treatment modality in this patient.

Case 2:

A 60-year-old alcoholic male with preferential non vegetarian diet suddenly wakes up at night with excruciating pain in great toe. He was admitted in the hospital, on examination, on examination he had fever & his great toe was swollen and red, felt hot to touch. Routine peripheral smear revealed mild lecocytosis. The laboratory data revealed following. Blood Urea: 38 mg/dl; Serum Creatinine 1.5 mg/dl; Serum Uric Acid: 12 mg/dl. A diagnosis of gouty arthritis was made. Patient was started on Allopurinol & anti inflammatory drugs.

- 1. What is gout? Explain its pathophysiology.
- 2. What is role of Allopurinol in patients suffering from gout?
- 3. Enumerate the causes of Primary gout?
- 4. What is Normal range of Uric acid?
- 5. Alcohol tends to precipitate the acute attack of gout.



Ist MBBS Examination April - 2023

Biochemistry - Paper - I

Set - 3

- (2) All questions are compulsory.
- (3) Each MCQ has only one correct answer.
- (4) One mark for correct answer. No negative marking.

Section A

20 Marks

0.1 MCQ

- 1. Which of the following is not a dietary essential nutrient?
 - a. Linoleic acid

b. Isoleucine

c. Phenylalanine

- d. Cysteine
- 2. A patient came with lactose intolerance. He should be avoid all except:
 - a. Yoghurt

b. Skimmed milk

c. Ice-cream

- d. Condensed milk
- 3. Most predominant anion in extracellular fluid:
 - a. HCO_3^-

b. Chloride

c. HPO_{3_}

d. HPO_4^-

4.	Which of the following is not belong to omega-6 family?					
	a.	Linoleic acid	b.	Alpha linolenic acid		
	c.	Arachidonic acid	d.	Gamma linolenic acid		
5.	Rot	thra's test used for detection of	f			
	a.	Ketones	b.	Glucose		
	c.	Protein	d.	Fatty acid		
6.	Bile	e acids are derivative of:				
	a.	Bilirubin	b.	Cholesterol		
	c.	Ketone body	d.	Fatty acids		
7.	Wh	ich glycosaminoglycan that se	erve as	an anticoagulant?		
	a.	Dermatan sulfate	b.	Heparin		
	c.	Chondroitin sulfate	d.	Heparan sulfate		
8.	All	of the following are used for g	glucone	eogenesis except.		
	a.	Glycerol	b.	Acetoacetate		
	c.	Lactate	d.	Alanine		
9.	The	e organ which cannot utilize ke	tone bo	odies as fuel is		
	a.	Brain	b.	Cardiac muscle		
	c.	Skeletal muscle	d.	Liver		
10.	Wh	at is true about Basal Metaboli	ic rate (BMR)?		
	a.	Increase in old age	b. ,	Similar for males and female		
	c.	Increased during exercise	d.	low in hyperthyroidism		
11.	Wh	ich of the following organelle	has DN	IA?		
	a.	Lysosomes	b.	Peroxisomes		
	c.	Mitochondria	d.	Microsomes		
12.	Zino	c is present in all enzymes EXO	CEPT:			
	a.	Alkaline phosphatase	b.	Amylase		
	c.	Carbonic anhydrase	d.	Carboxypeptidase		
13.	Whi	ich of the following is not synt	hesised	in endoplasmic reticulum?		
	a.	Ganglioside	b.	Glycoproteins		
	c.	RNA	d.	Lipoproteins		
14.	Whi	ch of the following organelle of	can cau	se auto-digestion?		
	a.	Golgi bodies	b.	Peroxisome		
	c.	Microsomes	d.	Lysosomes		

		a.	Oleic acid	b.	Stearic acid
		c.	Palmitic acid	d.	Arachidonic acid
16	5 .	Whi	ch amino acid can enter the TC	A cyc	le as fumarate and oxaloacetate?
		a.	Arginine	b.	Aspartate
		c.	Glutamate	d.	Alanine
17	7.	Whi	ch of the following is soluble a	and mo	bile?
		a.	Coenzyme-Q	b.	Cytochrome c
		c.	Cytochrome b	d.	Cytochrome a
13	8.	Enz	yme responsible for respiratory	y burst	is:
		a.	NADPH Oxidase	b.	Nitric oxide synthase
		c.	Glutathione peroxidase	d.	Catalase
1	9.	On	overnight standing Cerebrospi	nal flui	d forms 'cob-web' clot in:
		a.	Fungal meningitis	b.	Staphylococcal meningitis
		c.	Tuberculous meningitis	d.	Pneumococcal meningitis
2	20.	Ess	ential pentosuria is due to meta	abolic (defect in:
		a.	Glycolysis	b.	HMP Shunt
		c.	Uronic acid pathway	d.	Glycogenolysis
			a d. T		40 Marks
			Section E	5	40 Marks
			or section B & C:		
			black ball point pen only.	1	
(2) Th	he r	numb	ers to the right indicates full m	arks.	
(3) D	raw	/ diag	rams wherever necessary.		
0.2		T a	ong Answer Questions (ANY	rwo)	$(2\times10=20)$
Q. 2		L0 En	numerate the name of ketone bo	odies. E	Explain ketogenesis and
	A		tolysis. Add a note on ketosis.	, 6, 10 2	(1+6+3)
	В	. D	escribe the reactions of hexose dd a note on metabolic significa	monop ance of	hosphate shunt pathway. This pathway. (6+4)

15. Which of the following fatty acids present in surfactant?

and metabolic disorders of Iron.

C. Describe sources, daily requirement, absorption, biochemical functions

(1+1+2+3+3)

Q. 3 Write Brief Answer/Justifications/Biochemical basis. (ANY TEN)

 $(2 \times 10 = 20)$

- a) Fruity odour of breath is characteristic of Diabetic ketoacidosis patients. Give reason.
- b) Fluoride container used to collect blood sample for blood glucose estimation.
- c) Metabolic adaptations in starvation.
- d) Explain: copper is essential for normal collagen synthesis.
- e) Serum Potassium should not be estimated in hemolysed blood sample.
- f) Oral rehydration solution is contains both Glucose and Sodium chloride.
- g) Substrate level phosphorylation.
- h) Regulation of blood calcium level.
- i) Combination of Rice and Dal known as complete protein diet.
- j) Essential fatty acids.
- k) Name insulin dependent glucose transporters and their tissue distribution.

Q. 4 Short Answer Questions (ANY FOUR)

 $(2 \times 10 = 20)$

- A. Detoxification reactions.
- B. Inhibitors of Electron transport chain.
- C. Liver function tests
- D. Describe the protein energy malnutrition (PEM).
- E. Write the elements of effective communication of doctor and patient.

Q. 5 Clinical Cases (ALL COMPULSORY)

 $(2 \times 10 = 20)$

Case 1:

11-month-old boy brought to the paediatrics OPD by parents with complaints of on and off vomiting and lethargy for past 2 months. The mother had also noticed abdominal swelling while giving bath to baby. The developmental milestones were delayed. On examination, boy had a round face with fatty chick (doll like face) and hepatomegaly. Paediatrician made diagnosis of Von Gierke's Disease. Blood investigations were as follows:

Lab parameter	Observed values	Reference range
Blood glucose:	55 mg/dL	70-110 mg/dL
Lactic acid:	3 mmol/L	less than 2 mmol/L
Total cholesterol	325 mg/dL	less than 200 mg/dL
Uric acid:	8.5 mg/dL	3.5-7.5 mg/dL

Questions:

- 1) What is a Von Gierke's disease? What is a cause for it?
- 2) What is a reason of hypoglycemia and hypercholesterolemia in this patient?
- 3) What is a reason of hyperuricemia in this patient?
- 4) Give name of two-glycogen storage disease with enzyme deficiency other than Von Gierke's Disease.
- 5) Why muscle glycogen does not contributed to blood glucose level?

Case 2:

A male patient brought to casualty by his relative with altered sensorium. He was breathing heavily. His Blood sugar measured by Glucometer and it was 653 mg/dl. Physician made a diagnosis of diabetes ketoacidosis.

ABG report shows following results.

ABG Finding	Observed values	Reference range
pH:	: 7.20	(7.35-7.45)
HCO ₃ -	12 mmol/L	(22-26 mmol/L)
pCO ₂	23 mm of Hg	(35-45 mmHg)
Sodium	130 mmol/1	
Potassium	3.9 mmol/1	
Chloride	:95 mmol/1	

Ouestions:

- 1) What is a reference range of fasting blood sugar and blood pH?
- 2) Interpret the above ABG report with explanation.
- 3) What is the compensatory mechanism in this case?
- 4) Calculate and comment on the anion gap.
- 5) Give two causes of metabolic alkalosis.