	(1) Glycolysis; oxidative phosphorylation ; TCA cycle		(1)       1, 2       (2)       2, 1         (3)       0, 0       (4)       36, 6
	(2) Oxidative phosphorylation; GlycolyNEETCOG cycle Biolo	(20 <u>2</u> 4	During glycolysis, for each mole of glucose
	(3) Glycolysis; TCA cycle; oxid <b>CiviZ</b> - phosphorylation	-19 -19	<ul> <li>(1) 6 moles of ATP are produced</li> <li>(2) 2 males of NAD<sup>+</sup> are much and</li> </ul>
	(4) Glycolysis; fermentation		<ul> <li>(2) 2 moles of NAD<sup>*</sup> are produced</li> <li>(3) 2 moles of ATP are used, and 4 moles of ATP are produced</li> </ul>
102.	Glycolysis occurs in the and produces, which in the presence of $O_2$ enters the		(4) No ATP is produced
	(1) Cytosol; pyruvate; mitochondrion	107.	In the absence of $O_2$ cells capable of fermentation:
	(2) Cytosol; glucose; mitochondrion		(1) Accumulate glucose
	(3) Mitochondrion; pyruvate; chloroplast		(2) No longer produce ATP
	(4) Chloroplast; glucose; cytosol		(3) Accumulate pyruvate
			(4) Oxidise NADH to produce NAD <sup>+</sup>
103.	The end product of glycolysis is:		
	(1) Pyruvate	108.	In alcoholic fermentation, NAD <sup>+</sup> is produced
	(2) The starting point for TCA cycle		during the:
	(3) The starting point for fermentation		(1) Reduction of acetaldehyde to ethanol
	(4) All of these		(2) Oxidation of glucose
			(3) Oxidation of pyruvate to acetyl CoA (4) $H = 1 + \frac{1}{2} = \frac{1}{2} + $
104	The reasons why plants can get along without		(4) Hydrolysis of ATP to ADP
104.	respiratory organs are:	100	The result of first five reaction of the glycolytic
	(1) Almost all living cells in a plant have their	103.	nathway are:
	surface exposed to air		(1) Adding phosphates modifying sugars and
	(2) Plant have little demand for gas exchange		forming 3PGA1d

- (3) Taking care of its own gas exchange need by every part, very little transport of gases from one part to another
- (4) All of these

- (2) Removal of e<sup>-</sup> and H<sup>+</sup> from glucose
  (3) Oxidation of pyruvate and formation of acetyl CoA
- (4) Oxidative step

- **110.** Fermentation takes place:
  - (1) Under anaerobic conditions in many prokaryotes and unicellular eukaryotes
  - (2) Under aerobic conditions in many prokaryotes and unicellular eukaryotes
  - (3) Under anaerobic conditions in all prokaryotes and unicellular eukaryotes
  - (4) Under aerobic conditions in all prokaryotes and unicellular eukaryotes
- 111. The main purpose of cellular respiration is to
  - (1) Convert potential to kinetic energy
  - (2) Convert kinetic to potential energy
  - (3) Create energy in the cell
  - (4) Convert energy stored in the chemical bonds of glucose to an energy that the cell can use
- 112. If  $O_2$  is not present, yeast cells break down glucose
  - to
  - (1)  $CO_2 + H_2O$
  - (2)  $CO_2 + Latic acid$
  - (3)  $CO_2$  + Pyruvic acid
  - (4) C<sub>2</sub>H<sub>5</sub>OH and CO<sub>2</sub>

113.



Figure: Major pathway of Anaerobic respiration Identify A, B and C

	А	В	С
(1)	$\mathrm{NAD}^+$	Ethanol	Lactic acid
(2)	Ethanol	NAD <sup>+</sup>	Lactic acid
(3)	Lactic acid	Ethanol	NAD
(4)	NAD	Lactic acid	Ethanol

114. Pyruvate  $\rightarrow C_2H_5OH + CO_2$ 

The above reaction needs 2 enzymes named as

- (1) Pyruvate decarboxylase and alcohol dehydrogenase
- (2) Pyruvate decarboxylase and enolase
- (3) Pyruvate decarboxylase and pyruvate kinase
- (4) Pyruvate carboxylase + Aldolase
- 115. Which one is correct?
  - (1) In absence of  $O_2$ , fermentation regenerates the NAD<sup>+</sup> needed for glycolysis
  - (2) Fermentation does not liberate all the energy available in each sugar molecule
  - (3) When alcohol concentration reaches 13%, the yeast cells become poisoned and die
  - (4) All
- 116. Where is ATP synthesized in glycolysis?
  - (1) When 1, 3 di PGA is changed into 3 PGA
  - (2) When PEP is changed into pyruvic acid
  - (3) When Fr. 1, 6 di P is broken in Triose phosphate (2 molecules)
  - (4) Both (1) and (2)
- **117.** In Kreb's cycle, the first product is citric acid which is a 6-carbon compound. It is formed by a condensing irreversible reaction between?
  - (1) OAA and Pyruvic acid
  - (2) OAA and Acetyl Coenzyme A
  - (3) Pyruvic acid and Acetyl Coenzyme A
  - (4) OAA and Citrate synthetase
- **118.** In Kreb's cycle, how many oxidation (dehydrogenation) occur?
  - (1) 4
  - (2) 6
  - (3) 2
  - (4) 1
- **119.** In Kreb's cycle
  - (1) Acetyl coenzyme A undergoes 4 oxidations and 2 decarboxylations
  - (2) Pyruvic acid undergoes 4 oxidations and 2 decarboxylations
  - (3) TCA undergoes 4 oxidations and 4 decarboxylations
  - (4) OAA undergoes 4 oxidation and 2 decarboxylations
- **120.** At the end of the Kreb's cycle, most of energy removed from glucose molecule is transferred to?
  - (1) NADH +  $H^+/FADH + H^+$
  - (2) ATP
  - (3) OAA
  - (4) Citric acid

- **121.** Which of the following statements correctly describes relationship between the Kreb's cycle and electron transport pathway?
  - The Kreb's cycle releases H<sup>+</sup> used by electron transport
  - (2) The electron transport pathway obtains electron from the CO<sub>2</sub> produced by the Kreb's cycle
  - (3) The Kreb's cycle and electron transport pathway, both produce ATP
  - (4) NADH + H<sup>+</sup> produced by Kreb's cycle is used to make a ATP by electron transport
- **122.** At the end of the Kreb's cycle, but before the electron transport chain, the oxidation of glucose has produced a net gain of
  - (1) 3CO<sub>2</sub>, 5NADH<sub>2</sub>, 1 FADH<sub>2</sub>, 2 ATP
  - (2) 6CO<sub>2</sub>, 10NADH<sub>2</sub>, 2FADH<sub>2</sub>, 4ATP
  - (3) 6CO<sub>2</sub>, 10 NADH<sub>2</sub>, 2FADH<sub>2</sub>, 38 ATP
  - (4) None of the above is correct
- **123.** All of the following processes can release CO<sub>2</sub> except
  - (1) Alcohol fermentation
  - (2) Oxidative decarboxylation and Kreb's cycle
  - (3) Oxidative phosphorylation
  - (4)  $\alpha$ -Ketoglutaric acid  $\rightarrow$  Succinic acid
- **124.** The first reaction of Kreb's cycle i.e. condensation of acetyl group with OAA and water is catalysed by
  - (1) Citrate synthetase
  - (2) Succinate dehydrogenase
  - (3) RuBisCo
  - (4) PEPCase
- **125.** Water is the by-product of cellular respiration. The water is produced as a result of
  - (1) Conversion of pyruvate to acetyl CoA
  - (2) Conversion of glucose to pyruvate
  - (3) Combining carbon dioxide with protons
  - (4) The reduction of oxygen at the end of electron transport chain

(2)  $C_6H_{12}O_6$ 

- **126.** The main purpose of electron transport chain is to
  - (1) Cycle NADH +  $H^+$  back to NAD<sup>+</sup>
  - (2) Use the intermediates from TCA cycle
  - (3) Breakdown pyruvate
  - (4) All
- **127.** Terminal e<sup>-</sup> acceptor of e<sup>-</sup> transport is
  - (1) CO<sub>2</sub>
  - (3)  $H_2O$  (4)  $O_2$

**128.** Statement I: Mitochondria are site of oxidative phosphorylation.

**Statement II:** Krebs cycle takes place in mitochondria.

- (1) If both statements are correct.
- (2) If both statement are incorrect.
- (3) If only statement I is correct.
- (4) If only statement II is correct.
- **129.** Statement I: During passage of electron over ETC, pH of matrix decreases.

**Statement II:** During EMP pathway, ATP is produced through substrate phosphorylation.

- (1) If both statements are correct.
- (2) If both statement are incorrect.
- (3) If only statement I is correct.
- (4) If only statement II is correct.
- **130.** Assertion: Aerobic respiration yields more energy than anaerobic respiration.

**Reason:** In aerobic respiration there is complete oxidation of organic substances in presence of oxygen and release all hydrogen and  $CO_2$ 

- (1) Both assertion and reason are true and the reason is the correct explanation of the assertion.
- (2) Both assertion and reason are true but the reason is not the correct explanation of the assertion.
- (3) Assertion is a true statement but reason is false.
- (4) Both assertion and reason are false statements.

# **131.** Assertion: Oxygen is vital for aerobic respiration.

**Reason:** Oxygen drives whole process by removing hydrogen from the system.

- (1) Both assertion and reason are true and the reason is the correct explanation of the assertion.
- (2) Both assertion and reason are true but the reason is not the correct explanation of the assertion.
- (3) Assertion is a true statement but reason is false.
- (4) Both assertion and reason are false statements.
- **132.** The e<sup>-</sup> carrier molecules and cytochrome
  - (1) Are reduced as they pass electrons on to the next molecule
  - (2) Transfer electrons between the electron carrier complexes
  - (3) Shuttle protons to ATP synthase
  - (4) Are found in outer mitochondrial membrane

- **133.** The oxidation of a molecule of FADH<sub>2</sub> yield less ATP (2ATP) and a molecule of NADH<sub>2</sub> yields 3ATP but FADH<sub>2</sub> yields only 2 ATP because
  - (1) Carries few electrons
  - (2) Passes its electrons to a transport molecule later in the chain and at a lower level
  - (3) Has a lower energy conformation than  $NADH_2$
  - (4) Is formed in the cytosol and energy is lost when it shuttles it's electron across the mitochondrial membrane
- **134.** I. Proton channel of oxysome/complex V/ATP synthase is located in  $F_0$ 
  - **II.** Metabolic water is water produced in terminal oxidation/produced in respiration
  - III. CoQ accepts electron from NADH dehydrogenase (complex I) and also can accept electron from FADH<sub>2</sub>/succinate Qreductase/complex II.
  - **IV.** Cytochrome c is a small protein attached to outer surface of the inner mitochondrial membrane and acts as a mobile carrier for transfer of electrons between complex II (cyt bc, complex) and IV.
  - V. Complex IV refers to cytochrome c oxidase (Cyt a, a<sub>3</sub> and 2 cu per centre)
  - **VI.** If a cell treated with a drug that inhibits ATP synthase, the pH of mitochondrial matrix will increase.
  - VII. If glycolysis is interrupted mammalian mature RBC/s would eventually die.
  - (1) All are correct.
  - (2) All are incorrect.
  - (3) I and V are correct.
  - (4) Only III is correct.
- **135.** Which of the following shows **correct** order of electrons in mitochondria?
  - (1) FeS  $\rightarrow$  NADH  $\rightarrow$  CoQ  $\rightarrow$  Cyt b  $\rightarrow$  FeS  $\rightarrow$ Cyt c<sub>1</sub>  $\rightarrow$  Cyt c  $\rightarrow$  Cyt a<sub>3</sub>  $\rightarrow$  O<sub>2</sub>  $\rightarrow$  Cyt b
  - (2) NADH  $\rightarrow$  FMN  $\rightarrow$  FeS  $\rightarrow$  CoQ  $\rightarrow$  Cyt b  $\rightarrow$ FeS  $\rightarrow$  Cyt c<sub>1</sub>  $\rightarrow$  Cyt c  $\rightarrow$  Cyt a  $\rightarrow$  Cyt a<sub>3</sub>  $\rightarrow$ O<sub>2</sub>
  - (3) NADH  $\rightarrow$  Cyt c<sub>1</sub>  $\rightarrow$  Cyt c  $\rightarrow$  Cyt a  $\rightarrow$  Cyt a<sub>3</sub>  $\rightarrow$  O<sub>2</sub>  $\rightarrow$  FMN  $\rightarrow$  FeS  $\rightarrow$  CoQ  $\rightarrow$  Cyt b  $\rightarrow$ FeS
  - (4) Cyt  $c_1 \rightarrow$  Cyt  $c \rightarrow$  Cyt  $a \rightarrow$  Cyt  $a_3 \rightarrow$  NADH  $\rightarrow$  FMN  $\rightarrow$  FeS  $\rightarrow$  COQ  $\rightarrow$  Cyt  $b \rightarrow$  FeS  $\rightarrow$ O<sub>2</sub>

#### SECTION- B

- **136.** Which of the following is amphibolic?
  - (1) Glycolysis
  - (2) Oxidative decarboxylation of pyruvate
  - (3) TCA cycle
  - (4) Oxidative phosphorylation
- 137. Choose the correct option
  - (1)  $RQ = \frac{Volume of CO_2 \text{ evolved}}{Volume of O_2 \text{ consumed}}$
  - (2) RQ depends on the types of respiratory substrates
  - (3) When fat are used in respiration the RQ is less than 1
  - (4) All
- **138.** Phosphorylation of glucose during glycolysis is catalysed by
  - (1) Phosphoglucomutase
  - (2) Phosphoglucoisomerase
  - (3) Hexokinase
  - (4) Phosphorylase
- **139.** Pyruvic acid, the key product of glycolysis can have many metabolic fates. Under aerobic condition it forms
  - (1) Lactic acid
  - $(2) \quad \mathrm{CO}_2 + \mathrm{H}_2\mathrm{O}$
  - (3) Acetyl  $CoA + CO_2$
  - (4) Ethanol +  $CO_2$
- **140.** Match the following and choose the **correct** option from those given below.

	Column I		Column II
А.	Molecular oxygen	i.	α-Ketoglutaric acid
В.	Electron acceptor	ii.	Hydrogen acceptor
C.	Pyruvate dehydrogenase	iii.	Cytochrome c
D.	Decarboxylation	iv.	Acetyl CoA

	Α	В	С	D
(1)	ii	iii	iv	i
(2)	iii	iv	ii	i
(3)	ii	i	iii	iv
(4)	iv	iii	i	ii

- **141.** In which of the following process CO<sub>2</sub> is **not** released?
  - (1) Aerobic respiration in plants
  - (2) Aerobic respiration in animals
  - (3) Alcoholic fermentation
  - (4) Lactate fermentation
- **142.** In which of the following reaction of glycolysis, oxidation take place?
  - (1) Glucose 6-phosphate to fructose 6-phosphate
  - (2) Fructose 6-phosphate to fructose 1, biphosphate
  - (3) 1, 3-biphosphoglycerate to 3-phosphoglyceric acid
  - (4) 3-phosphoglyceraldehyde to 1, 3 biphosphoglycerate
- **143.** Which molecule links glycolysis with fermentation as well as TCA cycle?
  - (1) Ethanol (2) Acetaldehyde
  - (3) PEP (4) Pyruvic acid
- **144.** Which of the following is the only 5-carbon compound formed during Kreb's cycle?
  - (1) Malic acid (2) Succinic acid
  - (3) Cis-aconitic acid (4)  $\alpha$ -ketoglutaric acid
- 145. When protein is aerobically oxidised the RQ (Respiration Quotient) value will be
  - (1) One (2) Zero
  - (3) More than one (4) Less than one
- 146. Cytochromes are found in
  - (1) Cristae of mitochondria
  - (2) Lysosomes
  - (3) Matrix of Mitochondria
  - (4) Outer wall of mitochondria

- **147.** Which of the metabolites is common to respiration mediated breakdown of glycerol; carbohydrates and proteins?
  - (1) Pyruvic acid
  - (2) Acetyl CoA
  - (3) Glyceraldehyde 3-phosphate
  - (4) Pyruvic acid and Acetyl CoA
- 148. Which of the following statement is incorrect?
  - (1) During aerobic respiration, role of oxygen is limited to the terminal stage
  - (2) In ETC (Electron Transport Chain), one molecule of NADH<sup>+</sup> H<sup>+</sup> gives rise to 2ATP molecule and one FADH<sub>2</sub> gives rise to 3 ATP molecules
  - (3) ATP is synthesised through complex V
  - (4) Oxidation-reduction reactions produce proton gradient in respiration
- **149. Statement I:** Products of anaerobic respiration are ethyl alcohol and acetyl CoA.

**Statement II:** Energy storing compound formed during conversion of succinyl CoA to succinic acid is GTP.

- (1) If both statements are correct.
- (2) If both statement are incorrect.
- (3) If only statement I is correct.
- (4) If only statement II is correct.
- **150.** The complete oxidation of \_\_\_\_\_ by the stepwise removal of all the hydrogen atoms, leaving 3 molecules of \_\_\_\_\_.
  - (1) Pyruvate, CO<sub>2</sub>
  - (2) Pyruvate, O<sub>2</sub>
  - (3) Acetyl CoA, N<sub>2</sub>
  - (4) Acetate,  $O_2$

# (ZOOLOGY)

# SECTION - A

- 151. Sella turcica is
  - (1) Endocrine gland
  - (2) Cavity in ethamoid bone containing hypothalamus
  - (3) Cavity in sphenoid bone containing pituitary gland
  - (4) Cavity of skull containing eye
- **152.** Which is a hypothalamic hormone stored in posterior pituitary?
  - (1) LH (2) GnRH
  - (3) GHRH (4) Oxytocin

- **153.** A neuron is depolarised when it aquires.
  - (1) Negative charge on inside and positive charge outside
  - (2) Positive charge on inside and negative charge outside.
  - (3) Positive charge on both the sides
  - (4) Negative charge on both sides
- **154.** Control of body temperature in the body of man is done by
  - (1) Skin (2) Diencephalon
  - (3) Hypothalamus (4) Pituitary

- 155. As Statement based question: Statement-1: Limbic system contains amygdala
   Statement-2: Brainstem contains cerebrum, diencephalon and Pons
  - (1) Both statements (1) and (2) are correct
  - (2) Statement (1) is correct, but (2) is incorrect
  - (3) Statement (1) is incorrect, but (2) is correct
  - (4) Both statements (1) and (2) are incorrect
- **156.** Which is a steroid hormone?
  - (1) Insulin
  - (2) Epinephrine
  - (3) Cortisol
  - (4) Glucagon
- 157. Catecholamines are secreted by
  - (1) Adrenal gland
  - (2) Thyroid gland
  - (3) Pituitary gland
  - (4) Testes
- 158. Pineal gland is found in or near
  - (1) Trachea
  - (2) Abdominal Cavity
  - (3) Attached to back side of thyroid gland
  - (4) on the dorsal side of forebrain

# 159. Assertion and Reason: -

Assertion: - In case of very high calcium levels in blood parathyroid gland secretes parathormone **Reason:** - Parathormone decreases blood calcium levels

- (1) Both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- (2) Both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.
- (3) Assertion is true but Reason is false.
- (4) Both Assertion and Reason are false.
- **160.** A child is mentally retarded, dwarf, suffers from deafness and mutism is suffering from
  - (1) Myxoedema
  - (2) Cretinism
  - (3) Grave's disease
  - (4) Acromegaly
- **161.** What is the role of schwann cell?
  - (1) Secrete melatonin hormone
  - (2) Forms Nissl's granules
  - (3) Forms myelin sheath in CNS
  - (4) Forms myelin sheath in PNS

162. Analyse the diagram and fill in the blanks



- (1) B = Spinal cord; A = PNS, C = SNS
- (2) B = pinal cord; A = SNS, C = PNS
- (3) B = SNS; A = Spinal; C = Sympathetic nerves cord
- (4) B = spinal cord; D = Sympathetic nerves; A = Parasympathetic nerves
- 163. Nissl's granule contains
  - (1) ER + Golgi complex
  - (2) ER + Mitochondria
  - (3) RER
  - (4) ER + Nucleus
- 164. Corpora quadrigemina are \_X\_ in number and associated with \_Y\_
  - (1) X = 1; Y = Pons
  - (2) X = 4; Y = Cerebrum
  - (3) X = 3; Y = Medulla
  - (4) X = 4; Y = Midbrain
- 165. Which hormone is secreted by corpus luteum?
  - (1) Testosterone
  - (2) Cortisol
  - (3) Aldosterone
  - (4) Progesterone
- **166.** A person has high blood sugar level which can be due to
  - (1) Low T<sub>4</sub> levels
  - (2) High cortisol levels
  - (3) Low glucagon levels
  - (4) Low cortisol levels
- **167.** Male sexual behaviour (libido) and aggressiveness along with low pitched voice can be attributed to
  - (1) FSH
  - (2) Progesterone
  - (3) Androgens
  - (4) Estradiol

**168.** Match the column A and column B and select the correct option

	Column A		Column B	
(i)	Association area	a	Pneumotaxic centre	
(ii)	Pons	b	Supra optic nuclei	
(iii)	Hypothalamus	c	Gastric secretions	
(iv)	Medulla	d	Communication	
		e	Vision	
(1)	i-d ii-a iii-	b	iv-c	
(2) i-a ii-d iii-		c	iv-e	
(3)	i-b ii-a iii-	e	iv-d	
(4)	i-c ii-b iii-	a	iv-d	

- 169. Which is incorrect about hormones?
  - (1) Non-nutrient chemicals
  - (2) Intracellular messengers
  - (3) Produced by endocrine gland
  - (4) Produced in trace amounts
- **170.** Which hormone helps in reabsorption of  $H_2O$  from late DCT or collecting duct into blood?
  - (1) LH
  - (2) ACTH
  - (3) Vasopressin
  - (4) Oxytocin
- **171.** During mid of menstrual cycle which hormone leads to rupture of graffian follicle and ovulation
  - (1) LH
  - (2) FSH
  - (3) Estrogen
  - (4) Progesterone
- **172.** Which hormone helps in vigorous contraction of uterus leading to child birth?
  - (1) Estrogen (2) Progesterone
  - (3) Vasopressin (4) Oxytocin
- **173.** A 90 year old man gets repeated bacterial and uiral infections, it can be due to
  - (1) Non production of melatonin
  - (2) Thymus is degenerated in old age
  - (3) Thyroid gland is hyperactive in old age
  - (4) Aldosterone is high in concentration in old age
- **174.** A person having injured hippocampus may have problems related to
  - (1) Sexual behavior
  - (2) Vision
  - (3) May have poor long term memory
  - (4) Intersensory association

- 175. Statement based question: -Statement-1: Cerebral aqueduct is a canal that passes through midbrain Statement-2: Hypothalamus is responsible for voluntary motor function

  (1) Both statements (1) and (2) are correct
  - (1) Dour statements (1) and (2) are correct(2) Statement (1) is correct, but (2) is incorrect
  - (2) Statement (1) is correct, but (2) is incorrect(3) Statement (1) is incorrect, but (2) is correct
  - (4) Both statements (1) and (2) are incorrect
- **176.** Which hormone needs  $I_2$  for its formation?
  - (1) Tetraiodothyronine
  - (2) Thyrocalcitonin
  - (3) LH
  - (4) GH
- 177. Diabetes insipidus is caused by
  - (1) Non-secretion of Insulin
  - (2) Non-secretion of Glucagon
  - (3) Non-secretion of ADH
  - (4) Non-secretion of GH
- **178.** Which hormone helps in regulation of 24 hours (diurnal) rhythm of our body, managing sleep-wake cycle?
  - (1) Melanin (2) Melatonin
  - (3) MSH (4) Thymosin
- **179.** Protrusion or bulging out of eyeballs, increased BMR and weight loss is associated with
  - (1) Acromegaly
  - (2) Cretenism
  - (3) Grave's disease
  - (4) Addison's disease
- **180.** Urge for eating and drinking water is associated to
  - (1) Hippocampus
  - (2) Hypothalamus
  - (3) Medulla
  - (4) Cerebellum
- **181.** A person has broken dorsal horn of spinal cord, he may have lost
  - (1) Sensory functioning
  - (2) Motor functioning
  - (3) Control over breathing specially inspiration"
  - (4) All memories
- 182. Which is part of Metencephalon: -
  - (1) Pons and Medulla
  - (2) Cerebrum and Thalamus
  - (3) Cerebellum and Pons
  - (4) Medulla and cerebellum
- **183.** Which hormone may increase bone calcium and reduce blood calcium levels?
  - (1)  $T_3$  (2) FSH
  - (3) Thyrocalcitonin (4) Epinephrine

- **184.** Which hormone may lead to increase in heart beat, breakdown of glycogen, erection or raising of body hairs?
  - (1) Cortisol (2) Aldosterone
  - (3) Testosterone (4) Adrenaline
- **185.** Which hormone acts on hepatocytes and adipocytes?
  - (1) LH (2) Estrogen
  - (3) Prolactin (4) Insulin

#### SECTION-B

- **186.** Under production of hormones of Adrenal Care cortex may lead to
  - (1) Acromegaly
  - (2) Diabetes mellitus
  - (3) Myxoedema
  - (4) Addison's disease
- **187.** Depolarisation from -55mv to +30mV is due to
  - (1) Opening of voltage gated  $K^+$  channel
  - (2) Clossing of voltage gated  $Na^+$  channel
  - (3) Opening of voltage gated Na<sup>+</sup> channel
  - (4) Opening of voltage gated Cl<sup>-</sup> channels
- 188. Which hormone helps in reabsorption of Na<sup>+</sup> and H<sub>2</sub>O from filtrate into blood and excretion of K<sup>+</sup> ions in urine?
  - (1) ADH (2) Cortisol
  - (3) Aldosterone (4) Insulin
- **189.** Glycosuria and ketonuria is associated with
  - (1) Diabetes insipidus
  - (2) Diabetes mellitus
  - (3) Acromegaly
  - (4) Cretinism
- **190.** Which hormone supports pregnancy and stimulates formation of alveoli in mammary glands?
  - (1) Prolactin
  - (2) Oxytocin
  - (3) Estrogen
  - (4) Progesterone
- **191.** Which hormone stimulates leydig cells of testis?
  - (1) FSH (2) ICSH
  - (3) ACTH (4) GH

192. Assertion and Reason: -

Assertion: Addison's disease in a man may lead to high blood sugar levels

**Reason:** Addison's disease is due to hypersecretion of cortisol

- (1) Both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- (2) Both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.
- (3) Assertion is true but Reason is false.
- (4) Both Assertion and Reason are false.
- 193. Which is a second messenger?
  - (1)  $HCO_{3}^{-}$
  - (2)  $Ca^{+2}$
  - (3) Na<sup>+</sup>
  - (4) K<sup>+</sup>

#### 194. Erythropoietin is secreted by

- (1) Liver
- (2) Kidney
- (3) Brain
- (4) Heart
- 195. Assertion and Reason: -

Assertion: - A man with a disfigured face may have gigantism

**Reason:** - Gigantism is due to hypersecretion of T<sub>3</sub>

- (1) Both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.
- (2) Both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.
- (3) Assertion is true but Reason is false.
- (4) Both Assertion and Reason are false.
- **196.** Which hormone does not produce second messenger?
  - (1) Aldosterone
  - (2) FSH
  - (3) Adrenaline
  - (4) Insulin

197. Statement based question: -

**Statement-1:** Estrogen causes appearance of female secondary sex characters and female sexual behaviour

**Statement-2:** FSH stimulates development of follicles in pancreas

- (1) Both statements (1) and (2) are correct
- (2) Statement (1) is correct, but (2) is incorrect
- (3) Statement (1) is incorrect, but (2) is correct
- (4) Both statements (1) and (2) are incorrect
- **198.** Receptor sites for neurotransmitters are present on
  - (1) Membranes of synaptic vesicles
  - (2) Pre synaptic membrane.
  - (3) Tips of axons
  - (4) Post synaptic membrane

- **199.** Which part of brain has very convoluted surface in order to provide additional space for neurons?
  - (1) Pons (2) Medulla
  - (3) Cerebellum (4) Midbrain
- **200.** Hormone of anterior pituitary that does not stimulate another endocrine gland is
  - (1) ACTH (2) FSH
  - (3) TSH (4) GH

# Solution

Glycolysis occurs in the cytosol and produce pyruvate which in the presence of  $O_2$  enters the mitochondria.

NCERT Page No. 228-231

# 103. (4)

Pyruvic acid is the end product of glycolysis.

NCERT Page No. 229

# 104. (4)

All of them are reason why plant can get along without respiratory organs.

NCERT Page No. 226

# 105. (3)

During the glycolysis breakdown of one glucose molecule, zero molecules of  $O_2$  are used and zero molecules of  $CO_2$  comes out.

NCERT Page No. 228-229

# 106. (3)

During glycolysis for each mole of glucose oxidised to pyruvate 2 moles of ATP are used and 4 moles of ATP are produced.

NCERT Page No. 229

# 107. (4)

In the absence of  $O_2$ , cells capable of fermentation oxidise NADH to produce NAD<sup>+</sup>.

NCERT Page No. 230-231

# 108. (1)

In Alcoholic fermentation, NAD<sup>+</sup> is produced during the reduction of acetaldehyde to ethanol. NCERT Page No. 230

#### TOERT Lage 100.

# 109. (1)

The result of first five reactions of the glycolytic pathway are adding phosphate modifying sugars and forming 3PGAld.

NCERT Page No. 229

# 110. (1)

Fermentation takes place under anaerobic conditions in many prokaryotes and unicellular eukaryotes.

NCERT Page No. 230

# 111. (4)

The main purpose of cellular respiration is to convert energy stored in the chemical bonds of glucose to energy that the cell can use.

NCERT Page No. 227

# 112. (4)

If  $O_2$  is not present yeast cells break down glucose to  $C_2H_5OH$  and  $CO_2$ .

# NCERT Page No. 230-231

- 113. (1)
  - **A.** NAD<sup>+</sup> **B.** Ethanol
  - C. Lactic Acid

#### NCERT Page No. 230

#### 114. (1)

The above reaction involves enzyme pyruvate decarboxylase and alcohol dehydrogenase.

NCERT Page No. 230-231

#### 115. (4)

All the statement are true.

NCERT Page No. 230-231

#### 116. (4)

Reaction involves in option (1) and (2) in glycolysis ATP is synthesized.

NCERT Page No. 229

# 117. (2)

In Kreb's cycle, the first product is citric acid which is a 6-C compound. It is formed by a condensing irreversible reaction between OAA and acetyl coenzyme A.

# NCERT Page No. 232

#### 118. (1)

In Kreb's cycle 4 oxidation reaction occurs.

NCERT Page No. 232

# 119. (1)

In Kreb's cycle Acetyl coenzyme A undergoes 4 oxidation and 2 decarboxylation.

NCERT Page No. 231-232

# 120. (1)

At the end of the Kreb's cycle most of energy removed from glucose molecules is transferred to NADH +  $H^+/FADH + H^+$ .

# NCERT Page No. 232

#### 121. (4)

Option (4) correctly describes relationship between the kreb's cycle and electron transport pathway.

#### NCERT Page No. 231-232

122. (2)

At the end of Kreb's cycle, but before the electron transport chain, the oxidation of glucose produced a net gain of 6CO<sub>2</sub>, 10NADH<sub>2</sub>, 2FADH<sub>2</sub>, 4ATP. NCERT Page No. 232

# 123. (3)

In oxidative phosphorylation CO<sub>2</sub> is not released. NCERT Page No. 233

# 124. (1)

First reaction of Kreb's cycle i.e. condensation of acetyl group with OAA and water is catalysed by citrate synthetase enzyme.

NCERT Page No. 231

# 125. (4)

In cellular respiration, water is produced as a result of reduction of  $O_2$  at the end of electron transport chain.

NCERT Page No. 233

# 126. (1)

The main purpose of electron transport chain is to cycle NADH +  $H^+$  back to NAD<sup>+</sup>.

NCERT Page No. 232-234

#### 127. (4)

Terminal e<sup>-</sup> acceptor of e<sup>-</sup> transport is O<sub>2</sub>. NCERT Page No. 233

#### 128. (1)

Both the statements are correct. NCERT Page No. 231-232

#### 129. (4)

During passage of electron over ETC, pH of matrix increases.

NCERT Page No. 232-234

# 130. (1)

Both assertion and reason are true and the reason is the correct explanation of the assertion.

NCERT Page No. 234-235

# 131. (1)

Both assertion and reason are true and the reason is the correct explanation of the assertion.

NCERT Page No. 231

# 132. (2)

The e<sup>-</sup> carrier molecules and cytochrome transfer electron between the electron carrier complexes. NCERT Page No. 233

# 133. (2)

The oxidation of a molecule of FADH<sub>2</sub> yield less ATP and a molecule of NADH<sub>2</sub> yields 3ATP but FADH<sub>2</sub> yields only 2 ATP because it passes its electrons to a transport molecule later in the chain at a lower level.

NCERT Page No. 232-234

# 134. (1)

All the statements are correct. NCERT Page No. 232-234

# 135. (2)

 $NADH \rightarrow FMN \rightarrow FeS \rightarrow CoQ \rightarrow Cyt b \rightarrow FeS$  $\rightarrow Cyt c_1 \rightarrow Cyt c \rightarrow Cyt a \rightarrow Cyt a_3 \rightarrow O_2$ NCERT Page No. 233

# 136. (3)

TCA cycle is Amphibolic pathway. NCERT Page No. 235

#### 137. (4)

All of these are correct statements.

NCERT Page No. 236-237

138. (3)

Phosporylation of glucose during glycolysis is catalysed by hexokinase.

#### NCERT Page No. 229

#### 139. (3)

Pyruvic acid, under aerobic condition forms  $Acetyl CoA + CO_2$ .

#### NCERT Page No. 231-232

# 140. (1)

A.	Molecular	ii.	Hydrogen
	oxygen		acceptor
B.	Electron acceptor	iii.	Cytochrome C
C.	Pyruvate dehydrogenase	iv.	Acetyl CoA
D.	Decarboxylation	i.	α-Ketoglutaric acid

NCERT Page No. 231-234

# 141. (4)

In Lactate fermentation CO<sub>2</sub> is not released. NCERT Page No. 230

#### 142. (4)

3-phosphoglyceraldehyde  $\rightarrow$  1, 3 biphosphoglycerate in this step oxidation takes place.

# NCERT Page No. 229

143.	(4) Pyruvic acid links glycolysis with fermentation as well as TCA cycle	
	NCERT Page No. 231	148.
144.	(4) $\alpha$ -ketoglutaric acid is the 5-C compound formed	
	during Kreb's cycle.	
	NCERT Page No. 232	140
145.	(4) When protein in aerobically oxidised then RQ will be less than one. NCERT Page No. 236-237	149.
	C C	150.
146.	(1) Cytochromes are found in cristae of mitochondria.	
	NCERT Page No. 232-233	
147.	(4)	
	(ZOO	LOGY)

Pyruvic acid and acetyl Co-A are the common metabolites in respiration mediated breakdown of glycerol, carbohydrates and proteins.

# NCERT Page No. 236

#### (2)

In ETC (Electron Transport Chain), one molecule of NADH2 gives rise to 3ATP and 1 FADH2 gives rise to 2 ATP.

# NCERT Page No. 231-234

# (4)

Products of anaerobic respiration are ethyl alcohol and lactic acid.

#### NCERT Page No. 230-232

# (1)

The complete oxidation of pyruvate by the stepwise removal of all hydrogen atoms, leaving three molecule of CO<sub>2</sub>.

#### NCERT Page No. 231

151.	(3)	NCERT 11 <sup>th</sup> Page No. 241	161. (4)	NCERT 11 <sup>th</sup> Page No. 232
152.	(4)	NCERT 11 <sup>th</sup> Page No. 241	162. (1)	NCERT 11 <sup>th</sup> Page No. 230
153.	(2)	NCERT 11 <sup>th</sup> Page No. 233	163. (3)	NCERT 11 <sup>th</sup> Page No. 231
154.	(3)	NCERT 11 <sup>th</sup> Page No. 236	164. (4)	NCERT 11 <sup>th</sup> Page No. 234
155.	(2)	NCERT 11 <sup>th</sup> Page No. 236	165. (4)	NCERT 11 <sup>th</sup> Page No. 241
156.	(3)	NCERT 11 <sup>th</sup> Page No. 248	166. (2)	NCERT 11 <sup>th</sup> Page No. 241
157.	(1)	NCERT 11 <sup>th</sup> Page No. 244	167. (3)	NCERT 11 <sup>th</sup> Page No. 246
158.	(4)	NCERT 11 <sup>th</sup> Page No. 242	168. (1)	NCERT 11 <sup>th</sup> Page No. 234
159.	(4)	NCERT 11 <sup>th</sup> Page No. 242	169. (2)	NCERT 11 <sup>th</sup> Page No. 240
160.	(2)	NCERT 11 <sup>th</sup> Page No. 241	170. (3)	NCERT 11 <sup>th</sup> Page No. 242

171.	(1) NO	CERT 11 <sup>th</sup> Page No. 246	187.	(3)	NCERT 11 <sup>th</sup> Page No. 234
172.	(4) NO	CERT 11 <sup>th</sup> Page No. 246	188.	(3)	NCERT 11 <sup>th</sup> Page No. 244
173.	(2)	CERT 11 <sup>th</sup> Page No. 242	189.	(2)	NCERT 11 <sup>th</sup> Page No. 245
174.	(3) NO	CERT 11 <sup>th</sup> Page No. 234	190.	(4)	NCERT 11 <sup>th</sup> Page No. 246
175.	(2)	CERT 11 <sup>th</sup> Page No. 234	191.	(2)	NCERT 11 <sup>th</sup> Page No. 246
176.	(1) NG	CERT 11 <sup>th</sup> Page No. 242	192.	(4)	NCEDT 11th Darrow No. 244
177.	(3)	CERT 11 <sup>th</sup> Page No. 245	193.	(2)	NCERT II <sup>III</sup> Page No. 244
178.	(2)	ERT 11 <sup>th</sup> Page No. 242	194.	(2)	NCERT 11 <sup>th</sup> Page No. 248
179.	(3)	TERT 11 <sup>th</sup> Page No. 2/1	195.	(4)	NCERT 11 <sup>th</sup> Page No. 240
180.	(2)		196		NCERT 11 <sup>th</sup> Page No. 241
181.	(1)	CERT 11 <sup>th</sup> Page No. 234	190.	(1)	NCERT 11 <sup>th</sup> Page No. 244
182.	(3)	CERT 11 <sup>th</sup> Page No. 236	197.	(2)	NCERT 11 <sup>th</sup> Page No. 246
102	NO (2)	CERT 11 <sup>th</sup> Page No. 236	198.	(4)	NCERT 11 <sup>th</sup> Page No. 232
183.	(3) N(	CERT 11 <sup>th</sup> Page No. 242	199.	(3)	NCERT 11 <sup>th</sup> Page No. 236
184.	(4) NO	CERT 11 <sup>th</sup> Page No. 244	200.	(4)	NCERT 11 <sup>th</sup> Page No. 244
185.	(4) NO	CERT 11 <sup>th</sup> Page No. 245			
186.	(4) NO	CERT 11 <sup>th</sup> Page No. 244			
			]		