BIOLOGY

BOOKS - NTA MOCK TESTS

RESPIRATION IN PLANTS TEST - 1

Single Choice

1. R.Q. is

A. $\frac{C}{N}$

B. $\frac{N}{C}$

C. $\frac{CO_2}{O_2}$

D. $\frac{O_2}{CO_2}$

Answer: C

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2. End product of glycolysis is

A. Acetyl COA

B. Pyruvic acid

C. Glucose 1-phosphate

D. Fructose 1-phosphate

Answer: B

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3. Site of glycolysis in a prokaryotic cell is

A. mesosome

B. cytosol

C. cell membrane

D. nucleoid

Answer: B

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4. Which metabolic pathway is a common pathway in both anaerobic and aerobic respiration?

A. TCA cycle

B. ETS

C. CEMP pathway

D. Kreb's cycle

Answer: C

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5. Which of the following occurs in glycolysis?

A. Carboxylation

B. Decarboxylation

C. Reduction

D. Oxidation

Answer: D

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6. Terminal oxidation of one molecule of NADH gives:

A. 3 ATP molecules

B. 12 ATP molecules

C. 2 ATP molecules

D. 1 ATP molecule

Answer: A

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7. Which one of following is complex V of the ETS of inner mitochondrial membrane?

A. NADH Dehydrogenase

B. Cytochrome oxidase

C. Ubiquinone

D. ATP synthase

Answer: D

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8. During oxidative phosphorylation, the net gain of ATP is

A. 48

B. 38

C. 34

D. 30

Answer: C

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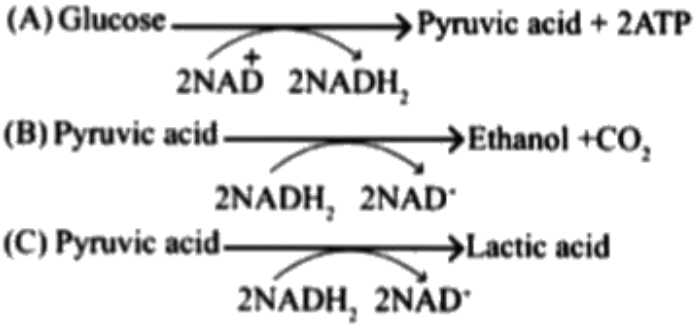
9. Fermentation involves



A. Only (B) and (C)

B. Only (B)

C. (A) and (B) only

D. (A), (B) and (C)

Answer: D

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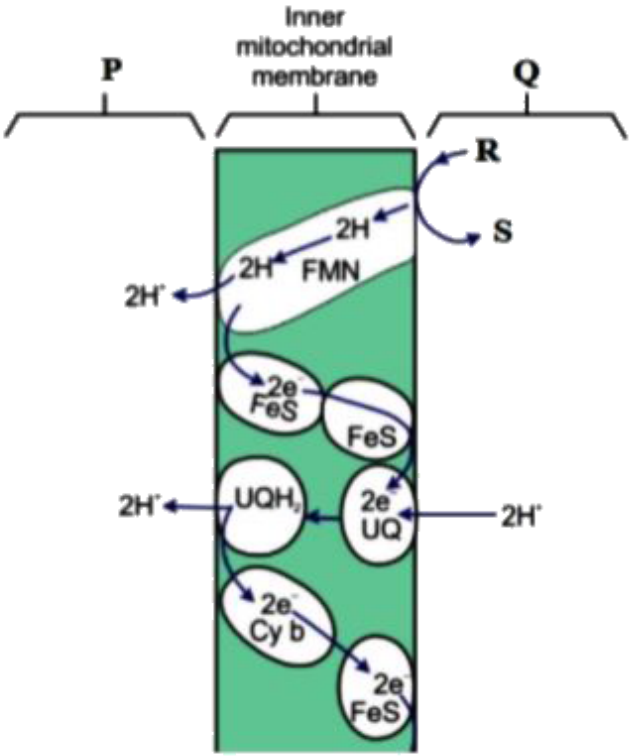
10. Identify P, Q, R and S in the given diagram of the electron transport system.



A.

P	Q	R	S
Matrix	Outer chamber	$FMNH_2$	$NADH_2$

B.

P	Q	R	S
Inter – membrane space	Matrix	$NADH + H^+$	NAD

C.

P	Q	R	S
Inter – membrane space	Cristae	NAD^+	$NADH + H^+$

D.

P	Q	R	S
Cristae	Outer chamber	$NADH + H^+$	NAD^+

Answer: B

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11. In all the following reactions, reduction of NAD^+ to $NADH$ occurs, except

A. isocitric acid $\rightarrow$ α-ketoglutaric acid

B. malic acid $\rightarrow$ oxaloacetic acid

C. pyruvic acid $\rightarrow$ acetyl coenzyme

D. succinic acid $\rightarrow$ fumaric acid

Answer: D

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12. In the formation of Acetyl Co-A from pyruvic acid in mitochondria, pyruvic acid gets

A. oxidised

B. decarboxylated

C. both (A) and (B)

D. reduced and isomerised

Answer: C

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13. How many NADPH molecules are formed in a single turn of the Krebs cycle?

A. 4

B. Zero

C. 3

D. 8

Answer: B

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14. Flow of electrons in ETS is

A. $Fe^{+++} + Cu^{+} + Fe^{++}$

B. $Fe^{++} + Fe^{+++}$

C. $Fe^{+3} \rightarrow Fe^{+2} \rightarrow Fe^{+3}$

D. $Fe^{+2} \rightarrow Fe^{+3} \rightarrow Fe^{+2}$

Answer: C

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15. A single turn of the citric acid cycle yields

A. $2FADH_2, 2NADH_2, 2GTP$

B. $1FADH_2, 2NADH_2, 1GTP$

C. $1FADH_2, 4NADH_2, 1GTP$

D. $1FADH_2, 4NADH_2, 1GTP$

Answer: C

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16. Which of the following is true regarding the given electron transport chain?

$CoQ + Cytc \rightarrow Cyta - a_3 \rightarrow O_2$

A. $CoQ + Cytc$ is H^+ absorbing site

B. $aa_3 \rightarrow O_2$, H^+ yielding site

C. $CoQ + Cytc$ is H^+ yielding site and $aa_3 \rightarrow O_2$ is H^+ absorbing site

D. No H^+ is absorbed or released

Answer: C

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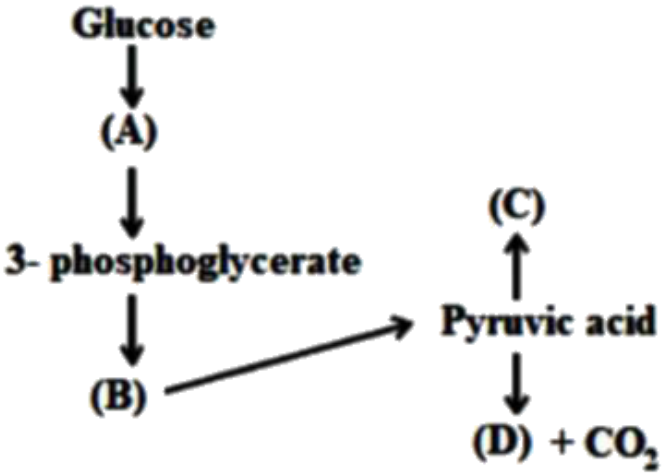
17. Based on the given process, identify the correct match for A, B, C and D from the following options.



A. $\begin{matrix} A & B & C & D \\ \text{PGAL} & \text{PEP} & C_2H_5OH & \text{Lactic acid} \end{matrix}$

B. $\begin{matrix} A & B & C & D \\ \text{PGAL} & \text{PEP} & \text{Lactic acid} & C_2H_5OH \end{matrix}$

C. $\begin{matrix} A & B & C & D \\ \text{G-6-P} & 2-PGA & C_2H_5OH & \text{Lactic acid} \end{matrix}$

D. $\begin{matrix} A & B & C & D \\ \text{PEP} & \text{F-6-P} & \text{Lactic acid} & C_2H_5OH \end{matrix}$

Answer: B

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18. Match I with II and select the correct option from the given codes.

I	II
(a) Glycolysis	(i) Inner mitochondrial membrane
(b) TCA cycle	(ii) Mitochondrial matrix
(c) ETS	(iii) Cytoplasm

A. a - (iii), b – (i), c – (ii)

B. a - (iii), b - (ii), c – (i)

C. a - (i), b – (ii), c – (iii)

D. a - (ii), b – (i), c- (iii)

Answer: B

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19. During starvation, RQ value will be

A. O

B. less than unity

C. more than unity

D. unity

Answer: B

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20. Complete oxidation of one molecule of glucose yields

A. 30 ATP

B. 38 ATP

C. 24 ATP

D. 34 ATP

Answer: B

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21. Oxidation of one NADH and one $FADH_2$ respectively gives rise to ------ and------ ATP molecules.

A. 3 and 2

B. 2 and 1

C. 2 and 3

D. 1 and 1

Answer: A

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22. A small protein that is attached to the outer surface of the inner membrane of mitochondria and acts as a mobile carrier for electron transfer in oxidative phosphorylation is

A. Ubiquinone that receives electron from complex I only

B. Cytochrome ci between complex III and complex IV

C. Cytochrome c between complex III and complex IV

D. Plastocyanin

Answer: C

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23. The connecting link between glycolysis and Krebs cycle is

A. Pyruvic acid

B. Acetyl Co-A

C. Oxaloacetic acid

D. Phosphoenol Pyruvate

Answer: B

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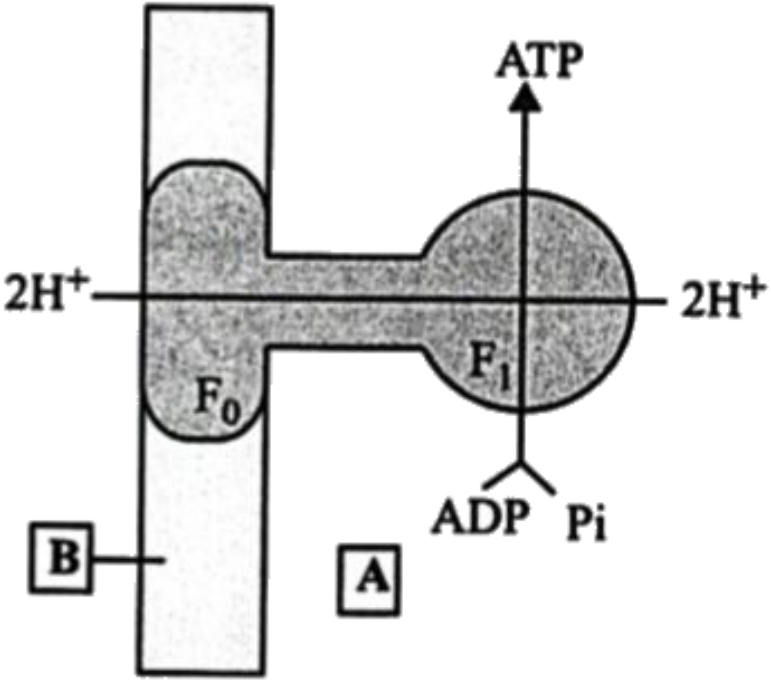
24. Identify A and B in the given diagram showing ATP synthesis in mitochondria.



A. A = Mitochondrial matrix

B = Outer mitochondrial membrane

B. A = Mitochondrial matrix

B = Inner mitochondrial membrane

C. A = Cell cytoplasm

B = Inner mitochondrial membrane

D. A = Cell cytoplasm

B = Outer mitochondrial membrane

Answer: B

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25. (i) ___A___ is the site of complete oxidation of pyruvate by the stepwise removal of all the hydrogen atoms.

(ii) __B__ CO_2 molecules are released in the above process.

A. (A - Mitochondrial matrix), (B – 3)

B. (A - Perimitochondrial space), (B - 2)

C. (A - Mitochondrial matrix), (B - 6)

D. (A - Inner mitochondrial membrane), (B - 3)

Answer: A

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26. The complex of ETS which has two copper centres associated with it is:

A. Succinate dehydrogenase

B. Cytochrome $a - a_3$ complex

C. Cytochrome bc complex

D. Cytochrome reductase complex

Answer: B

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27. RQ of germinating seed containing fatty acid is

A. Unity

B. Less than unity

C. More than unity

D. Infinite

Answer: B

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28. In which one of the following processes CO_2 is not released?

A. Lactate fermentation

B. Aerobic respiration in plants

C. Aerobic respiration in animals

D. Alcoholic fermentation

Answer: A

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29. The last product of the citric acid cycle is

A. Malic acid

B. Acetyl-CoA

C. Oxaloacetic acid

D. Citric acid

Answer: C

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30. The activity of succinic dehydrogenase involves conversion of:

A. NAD

B. FAD

C. GDP

D. ATP

Answer: B

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