



Hello students,

Wish you all a very Happy New Year 2008. Its been almost 3 months since we started this web portal and every month we are seeing an increase in the no. of visitors and pageviews. Thank you all for the faith in us, telling your friends about us and encouraging us through your constant feedback. We are committed to provide you quality resources for your MHT-CET preparations.

-Rohan Shenoy

[www.BiologyForMhtcet.com](http://www.BiologyForMhtcet.com)

Date of MHT-CET 2008 has been announced officially as May 8, 2008.

December 2008 'mega' issue contains: **10** challenging MCQs, **3** Real-Life Bio references

### **Challenging MCQs**

1. Which of these is an amphibolic process?  
a) Krebs's cycle      b) EMP pathway      c) Lactic acid fermentation      d) Both 'b' and 'c'.
2. Which of these procedures can be done without inserting any device into the body?  
a) B.P. measurement      b) Laproscopy      c) OGDscopy      d) Angiography
3. The killed vaccine used in prophylaxis of poliomyelitis (polio) is  
a) BCG vaccine      b) Sabin vaccine      c) Salk vaccine      d) Tetanus Toxoid
4. 24 hr-frequency of micturition in a person suffering from anuria is  
a) Greater than 6 times      b) Greater than 10-12 times      c) 3 times at most      d) Nil (zero)
5. Secretion of which gland is independent of internal state of the body  
a) Adrenal cortex      b) Adrenal medulla      c) Hypophysis cerebri      d) None of these
6. Mitochondrial DNA in a cell obtained through animal-cell-cloning using cytoplasm of sheep A and nuclear material of sheep B will be that of  
a) Sheep B      b) Sheep A      c) Both of these      d) Any of the sheep
7. In the word 'Kranz anatomy', *kranz* stands for  
a) Sugarcane      b) Name of the discoverer      c) Name of the university      d) Sugarbeet
8. A weed that can be put to good use of treating industrial waste waters containing heavy metals is  
a) *Eichhornia crassipes*      b) Neubaer's weed      c) *Loa loa*      d) *Zygogramma multicolorate*
9. What is the purpose of anti-cancer drugs (chemotherapy) given to a cancer patient?  
a) To kill the cancer cells      b) To reverse the mutation      c) To prevent side effects of drugs      d) Both 'a' and 'c'
10. Out of the cranial nerves supplying the muscles of eyeballs, which one carry(s) sensory fibres?  
a) Oculomotor (CN III)      b) Pathetic/trochlear (CN IV)      c) Abducens (CN VI)      d) None of these

Answer key and explanations are given in this newsletter itself. Please scroll down through 'Real Life Bio References'

Want **more** such questions?

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## Real Life Bio References

### **1. Use of zidovudine in HIV-AIDS:**

Zidovudine is phosphorylated inside the cell to zidovudine phosphate. Zidovudine phosphate blocks the enzyme reverse transcriptase and thus virus is not able to multiply. Zidovudine prevents HIV infection of other healthy cells by not allowing HIV to multiply and thus increases life of HIV patient. Zidovudine is also used for prophylaxis of HIV infection in a foetus of HIV+ve mother.

### **2. Why C<sub>4</sub> plants are preferred over C<sub>3</sub> by plant breeders?**

For photosynthesis to occur in C<sub>3</sub> plants, RuBP-carboxylase requires a minimum CO<sub>2</sub> conc. of 50 ppm where as PEP-carboxylase of C<sub>4</sub> plants can photosynthesize even when it is around 2-3 ppm. If the conc. is less than 50 ppm, C<sub>3</sub> plants will waste the incident energy of sunlight where as C<sub>4</sub> plants may utilize it very efficiently and convert it into starch. Starch rich materials have commercial value in the fermentation industry, etc. and hence plants breeders prefer C<sub>4</sub> over C<sub>3</sub>. Other reasons include C<sub>4</sub> plants can maintain appreciable photosynthesis rate even under drought and stress compared to C<sub>3</sub> plants. Thus they have greater viability.

### **3. Use Anti-D(Rh) antibodies to prevent erythroblastosis fetalis:**

When the first Rh+ve baby is delivered by a Rh-ve mother, there occurs some mixing of Rh+ve fetal blood with Rh-ve maternal blood. As the Rh antigen is 'foreign' to the Rh-ve mother's body, she will produce anti-Rh(anti-D) antibodies. These will circulate life-long in her blood. When she conceives a Rh+ve fetus next time, these circulating anti-D antibodies will destroy the R.B.C. of fetus and can cause disaster.

To prevent this disaster, immediately after delivering the first Rh+ve, anti-D antibodies should be administered to the mother. These antibodies will destroy the Rh antigen and prevent it from activating (sensitizing) the maternal immunity system. Thus, chances of formation of anti-D antibodies is reduced and next Rh+ve baby is possibly more safe.

### **Answer key and explanation to MCQs:**

**1. Ans: A** ) An amphibolic process is the one in which anabolic as well as catabolic in nature. In Krebs's cycle, the intermediates serve as raw materials for synthesis of many other important biomolecules. Eg: (1). OAA is used for synthesis of Aspartate (2). Oxoglutarate(alpha-KGA) is used for synthesis of Glutamate. Aspartate and glutamate are in turn used for synthesis of non-essential amino acids, purines and pyrimidines. (3). Succinyl Co-A is used for synthesis of porphyrins (porphyrins are a part of chlorophyll pigments).

(4). Succinyl Co-A is also utilized for synthesis of 'haeme', which is a constituent of haemoglobin, cytochromes. (5). Citric acid formed in mitochondria can be transported to cytosol where it is broken down to yield acetyl-CoA. This acetyl-CoA is used to produce lipid products.

**2. Ans: A** ) Hint: OGD scopy is endoscopy of **O**esophagus/Esophagus(O of **OGD**), **G**astrium/stomach(G of **OGD**), and **D**uodenum(D of **OGD**)

**3. Ans: C** ) Salk vaccine is a killed vaccine. Hint-to-Remember: **K** for **K**illed which occurs in Salk vaccine.

**4. Ans: D** ) In an anuric person, the physiologic capacity of urine is not reached as amount of urine formed is very less and hence micturition is not initiated.

**5. Ans: D** ) None of the glands can function independent of internal conditions of the body. If it would it defy the

basic purpose of maintaining homeostasis.

6. Ans: B) Hint: Mitochondria are cytoplasmic organelles---Mitochondrial DNA is different from nuclear DNA.
7. Ans: A) Kranz=Wreth. It is the German name for sugarcane plant in which it was originally discovered.
8. Ans: A) Apart from treating industrial waste waters to absorb heavy element, *Eichhornia crassipes* also finds its application as a source of fiber and biogas.
9. Ans: D) Hint: Anti-cancer drugs cannot reverse the mutation.
10. Ans:C) Abducens(CN VI) is a mixed nerve, which means it carries sensory as well as motor fibers.

For discussion of any of these questions/answer-key/explanations, please use the [MHT-CET forum](#).

There is one more thing we wish to tell you. We now have RSS feeds on [www.BiologyForMhtcet.com](http://www.BiologyForMhtcet.com). This means that you can now receive updates about newly added articles, podcasts, downloads, announcements and news all without visiting our site. The news will come to you! All you have to do is [click here](#) and place the feed in an appropriate bookmark folder in your browser. It will check for updates everytime you come online.

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