**BIOMOLECULES QUESTION BANK**

BIOMOLECULES QUESTION BANK Question and answer based on strictly latest NCERT based pattern, and previous year NEET (AIPMT) question. chapter wise approach mcq is more useful for quick revision and increase speed for maintaining time period.

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**MCQ:-**

**Q1) Which one of the following statements is correct, with reference to enzymes? (NEET 2017)**

- Apoenzyme = Holoenzyme + Coenzyme
- Holoenzyme = Apoenzyme + Coenzyme
- Coenzyme = Apoenzyme + Holoenzyme
- Holoenzyme = Coenzyme + Colactor

*Answer- Holoenzyme = Apoenzyme + Coenzyme*

**Q2) Which of the following are not polymeric? (NEET 2017)**

- Nucleic acid
- Proteins
- Polysaccharides
- Lipids

*Answer- Lipids*

**Q3) A typical fat molecule is made up of (NEET 2016, PHASE I)**

- One glycerol & three fatty acid molecules
- One glycerol & one fatty acid molecule
- Three glycerol & three fatty acid molecules
- Three glycerol molecules & one fatty acid molecule

*Answer- One glycerol & one fatty acid molecule*
Q4) Which one of the following statements is wrong? (NEET 2016, PHASE I)

Cellulose is a polysaccharide  
Uracil is a pyrimidine  
Glycine is a sulphur containing amino acid  
Sucrose is a disaccharide

Answer- Glycine is a sulphur containing amino acid

Q5) Which of the following describes the given graph correctly? (NEET 2016, PHASE II)

Endothermic reaction with energy A in the presence of enzyme & B in the absence of enzyme  
Exothermic reaction with energy A in the presence of enzyme & B in the absence of enzyme
Endothermic reaction with energy A in the absence of enzyme & B in the presence of enzyme
Exothermic reaction with energy A in the absence of enzyme & B in the presence of enzyme

**Answer- Exothermic reaction with energy A in the presence of enzyme & B in the absence of enzyme**

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**Q6** Which of the following is the least likely to be involved in stabilising the three-dimensional folding of most proteins? (NEET 2016, PHASE II)

- Hydrogen bonds
- Electrostatic interaction
- Hydrophobic interaction
- Ester bonds

**Answer- Ester bonds**

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**Q7** A non-proteinaceous enzyme is  (NEET 2016, PHASE II)

- Lysozyme
- Ribozyme
- Ligase
- Deoxyribonuclease

**Answer- Ribozyme**

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**Q8** The chitinous exoskeleton of arthropods is formed by the polymerisation of  (CBSE AIPMT 2015)

- Keratin sulphate & chondroitin sulphate
- D-glucosamine
- N-acetyl glucosamine
- Lipoglycans

**Answer- D-glucosamine**
Q9) Which of the following biomolecules does have a phosphodiester bond? (CBSE AIPMT 2015)

- Fatty acids in a diglyceride
- Monosaccharides in a polysaccharide
- Amino acids in a polypeptide
- Nucleic acids in a nucleotide

Answer- Nucleic acids in a nucleotide

Q10) Which one of the following is a non-reducing carbohydrate? (CBSE AIPMT 2014)

- Maltose
- Sucrose
- Lactose
- Ribose 5-phosphate

Answer- Sucrose

Q11) Select the option which is not correct with respect to enzyme action. (CBSE AIPMT 2014)

- Substrate binds with enzyme as its active site.
- Addition of lot of succinate does not reverse the inhibition of succinic dehydrogenase by malonate
- A non-competitive inhibitor binds the enzyme at a site distinct from that which binds the substrate
- Malonate is a competitive inhibitor of succinic dehydrogenase

Answer- Addition of lot of succinate does not reverse the inhibition of succinic dehydrogenase by malonate

Q12) Transition state structure of the substrate formed during an enzymatic reaction is (NEET 2013)

- Transient but stable
- Permanent but unstable
- Transient & unstable
- Permanent & stable

Answer- Transient & unstable
Q13) The essential chemical components of many coenzymes are  (NEET 2013)
Proteins
Nucleic acids
Carbohydrates
Vitamins

Answer- Vitamins

Q14) A phosphoglyceride is always made up of  (NEET 2013)
Only a saturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached
Only an unsaturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached
A saturated or unsaturated fatty acid esterified to glycerol molecule to which a phosphate group is also attached
A saturated or unsaturated fatty acid esterified to a phosphate group which is also attached to a glycerol molecule

Answer- A saturated or unsaturated fatty acid esterified to glycerol molecule to which a phosphate group is also attached

Q15) Macromolecule chitin is  (NEET 2013)
Nitrogen containing polysaccharide
Phosphorous containing polysaccharide
Sulphur containing polysaccharide
Simple polysaccharide

Answer- Nitrogen containing polysaccharide

Q16) Given below is the diagrammatic representation of one of the categories of small molecular weight organic compounds in the living tissues. Identify the category shown & the one blank component X in it.
<table>
<thead>
<tr>
<th>Category</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholestrol</td>
<td>Guanine</td>
</tr>
<tr>
<td>Amino acid</td>
<td>NH₂</td>
</tr>
<tr>
<td>Nucleotide</td>
<td>Adenine</td>
</tr>
<tr>
<td>Nucleoside</td>
<td>Uracil</td>
</tr>
</tbody>
</table>

Answer- Nucleoside - Uracil

Q17) Which one is the most abundant protein in the animal world? (CBSE AIPMT 2012)

Trypsin
Haemoglobin
Collagen
Insulin

Answer- Collagen

Q18) Which one out of A-D given below correctly represents the structural formula of the basic amino acid? (CBSE AIPMT 2012)
Q19) The curve given below shows enzymatic activity with relation to three conditions (pH, temperature & substrate concentration) (CBSE AIPMT 2011)

What do the two axis (X & Y) represent?

Answer- D
Q20) Which one of the following structural formula of two organic compounds is correctly identified along with its related function? (CBSE AIPMT 2011)
A- Triglyceride major – Source of energy
B – Uracil – A component of DNA
A- Lecithin – A component of cell membrane
B- Adenine – A nucleotide that makes up nucleic acids

**Answer- A- Lecithin – A component of cell membrane**

**Q21) Which one of the following is the correct matching of three items & their grouping category? (CBSE AIPMT 2009)**

<table>
<thead>
<tr>
<th>Items</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malleus, incus, cochlea</td>
<td>Ear ossicles</td>
</tr>
<tr>
<td>Ilium, ischium, pubis</td>
<td>Coxal bones of pelvic girdle</td>
</tr>
<tr>
<td>Actin, myosin, rhodopsin</td>
<td>Muscle proteins</td>
</tr>
<tr>
<td>Cytosine, uracil, thymine</td>
<td>Pyrimidines</td>
</tr>
</tbody>
</table>

**Answer- Cytosine, uracil, thymine – Pyrimidines**

**Q22) Which one of the following pairs is wrongly matched? (CBSE AIPMT 2009)**

Detergents – Lipase
Alcohol – Nitrogenase
Fruit juice – Pectinase
Textile- Amylase

Answer- Alcohol- Nitrogenase

Q23) In the DNA molecule (CBSE AIPMT 2008)

The total amount of purine nucleotides & pyrimidine nucleotides is not always equal
There are two strands which run parallel in the 5’→3’ direction
The proportion of adenine in relation to thymine varies with the organism
There are two strands which run antiparallel one in 5’→3’ direction & other in 3’→5’

Answer- There are two strands which run antiparallel one in 5’→3’ direction & other in 3’→5’

Q24) Which one of the following pairs of nitrogenous bases of nucleic acids, is wrongly matched with the category mentioned against it? (CBSE AIPMT 2008)

- Thymine, Uracil – Pyrimidines
- Uracil, Cytosine – Pyrimidines
- Guanine, Adenine – Purines
- Adenine, Thymine – Purines

Answer- Adenine, Thymine – Purines

Q25) Modern detergents contain enzyme preparation of (CBSE AIPMT 2008)

- Acidophiles
- Alkaliphiles
- Thermoacidophiles
- Thermophiles

Answer- Alkaliphiles

Q26) A competitive inhibitor of succinic dehydrogenase is (CBSE AIPMT 2008)

- Malonate
- Oxaloacetate
- α-ketoglutarate
- Malate
**Answer- Malonate**

Q27) Which one of the following is not a constituent of cell membrane? (CBSE AIPMT2007)

- Cholesterol
- Glycolipids
- Proline
- Phospholipids

**Answer- Proline**

Q28) The two polynucleotide chains in DNA are (CBSE AIPMT 2007)

- Parallel
- Discontinuous
- Antiparallel
- Semiconservative

**Answer- Antiparallel**

Q29) About 98% of the mass of every living organism is composed of just six elements including carbon, hydrogen, nitrogen, oxygen & (CBSE AIPMT 2007)

- Phosphorous & sulphur
- Sulphur & magnesium
- Magnesium & sodium
- Calcium & phosphorous

**Answer- Phosphorous & sulphur**

Q30) One turn of the helix in a B-form DNA is approximately? (CBSE AIPMT 2006)

- 0.34nm
- 3.4nm
- 2nm
- 20nm

**Answer- 3.4nm**
Q31) Antibodies in our body are complex (CBSE AIPMT 2006, 2000)

Steroids
Prostaglandins
Glycoproteins
Lipoproteins

Answer- Glycoproteins

Q32) Antiparallel strands of a DNA molecule means that (CBSE AIPMT 2006)

The phosphate groups of two DNA strands, at their ends, share the same position
The phosphate groups at the start of two DNA strands are in opposite position (pole)
One strand turns clockwise
One strand turns anti-clockwise

Answer- The phosphate groups at the start of two DNA strands are in opposite position (pole)

Q33) An organic substance bound to an enzyme & essential for its activity is called (CBSE AIPMT 2006)

Holoenzyme
Spoenzyme
Isoenzyme
Coenzyme

Answer- Coenzyme

Q34) An enzyme that can stimulate germination of barley seeds is (CBSE AIPMT 2006)

α-amylase
lipase
protease
invertase

Answer- α-amylase

Q35) Nucleotides are building blocks of nucleic acids. Each nucleotide is a composite molecule formed by (CBSE AIPMT 2005, 1991)
base-sugar-phosphate
base-sugar-OH
(base-sugar-phosphate)n
Sugar-phosphate

Answer- Base-sugar-phosphate

Q36) Which of the following is the simplest amino acid? (CBSE AIPMT 2005)

Alanine
Asparagine
Glycine
Tyrosine

Answer- Glycine

Q37) Which one of the following hydrolyses internal phosphodiester bonds in a polynucleotide chain? (CBSE AIPMT 2005)

Lipase
Protease
Endonuclease
Exonuclease

Answer- Endonuclease

Q38) Which of the following statements regarding enzyme inhibition is correct? (CBSE AIPMT 2005)

Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibitor protein
Competitive inhibition is seen when the substrate & the inhibitor compete for the active site on the enzyme
Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate
Non-competitive inhibitors bind to the enzyme irreversibly

Answer-Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate
Q39) Enzymes, vitamins & hormones can be classified into a single category of biological chemicals, because all of these (CBSE AIPMT 2005)

Help in regulating metabolism
Are exclusively synthesised in the body of a living organism as at present
Are conjugated proteins
Enhance oxidative metabolism

Answer- Help in regulating metabolism

Q40) The catalytic efficiency of two different enzymes can be compared by the (CBSE AIPMT 2005)

Formation of the product
pH optimum value
Km value
Molecular size of the enzyme

Answer- Km value

Q41) The most abundant element present in plants is (CBSE AIPMT 2004)

Carbon
Nitrogen
Manganese
Iron

Answer- Carbon

Q42) Which form of RNA has a structure resembling clover leaf? (CBSE AIPMT 2004)

rRNA
hnRNA
c)mRNA
d)tRNA

Answer- tRNA

Q43) The major portion of the dry weight of plants comprises of (CBSE AIPMT 2003)

carbon, nitrogen & hydrogen
carbon, hydrogen & oxygen
nitrogen, phosphorous & potassium
calcium, magnesium & sulphur

Answer- Carbon, hydrogen & oxygen

Q44) Collagen is  (CBSE AIPMT 2002)
fibrous protein
globular protein
lipid
carbohydrate

Answer- Fibrous protein

Q45) Lipids are insoluble in water because lipid molecules are  (CBSE AIPMT 2002)
hydrophilic
hydrophobic
neutral
Zwitter ions

Answer- Hydrophobic

Q46) Which of the following is a reducing sugar?  (CBSE AIPMT 2002)
Galactose
Gluconic acid
β-methyl galactoside
sucrose

Answer- Galactose

Q47) Which steroid is used for transformation?  (CBSE AIPMT 2002)
cortisol
cholesterol
testosterone
progesterone

Answer- Cholestrol
48) Hydrolytic enzymes which act at low low pH are called as (CBSE AIPMT 2002)

- proteases
- α-amylase
- hydrolases
- peroxidises

**Answer- Hydrolases**

Q49) Most abundant organic compound on earth is (CBSE AIPMT 2001, 04)

- protein
- cellulose
- lipids
- steroids

**Answer- Cellulose**

Q50) Spoilage of oil can be detected by which fatty acid? (CBSE AIPMT 2001)

- Oleic acid
- Linolenic acid
- Linoleic acid
- Erucic acid

**Answer- Erucic acid**

Q51) Cytochrome is (CBSE AIPMT 2001)

- Metallo flavoprotein
- Fe containing porphyrin pigment
- Glycoprotein
- Lipid

**Answer- Fe containing porphyrin pigment**

Q52) Element necessary for the middle lamella (CBSE AIPMT 2001)

- Ca
Zn
K
Cu

**Answer - Ca**

Q53) In plants, inulin & pectin are (CBSE AIPMT 2001)

Reserve materials
Wastes
Excretory material
Insect-attracting material

**Answer - Reserve material**

Q54) Conjugated proteins containing carbohydrates as prosthetic group are known as  (CBSE AIPMT 2000)

Chromoproteins
Glycoproteins
Lipoproteins
Nucleoproteins

**Answer - Glycoproteins**

Q55) The transfer RNA molecule in 3D appears  (CBSE AIPMT 2000)

L-shaped
E-shaped
Y-shaped
S-shaped

**Answer - L-shaped**

Q56) Enzymes enhance the rate of reaction by (CBSE AIPMT 2000)

Forming a reactant-product complex
Changing the equilibrium point of the reaction
Combining with the product as soon as it is formed
Lowering the activation energy of the reaction

**Answer - Lowering the activation energy of the reaction**
Q57) Feedback inhibition of an enzymatic reaction is caused by (CBSE AIPMT 2000)

End product
Substrate
Enzyme
Rise in temperature

Answer- End product

Q58) One of the similarities between DNA & RNA is that both  (CBSE AIPMT 2000)

Are polymers of nucleotides
Are capable of replicating
Have similar sugars
Have similar pyrimidine bases

Answer- Are polymers of nucleotides

Q59) Which is an essential amino acid?  (CBSE AIPMT 2000)

Serine
Aspartic acid
Glycine
Phenylalanine

Answer- Phenylalanine

Q60) ATP is a  (CBSE AIPMT 2000)

Nucleotide
Nucleosome
Nucleoside
Purine

Answer- Nucleotide

END