



# BIOLOGY

## BOOKS - DINESH PUBLICATION

### ENGLISH

#### BIOENERGY

#### Multiple Choice Questions

1. Bioenergy is the energy obtained from

A. Coal

B. Natural gas

C. Biomass

D. Petroleum

**Answer: C**



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**2. Types of bioenergy are**

A. Animal energy

B. Solar energy

C. Animal energy and fossil fuels

D. Animal energy and biofuels

**Answer: D**



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**3.** In which of the following forms animal energy is available

A. HMP and DAP

B. Animal wasted

C. Fossil fuels

D. Biofuels

**Answer: A**



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**4. Petroleum yielding plants belong to**

A. Euphorbiaceae

B. Apocynaceae

C. Asclepiadaceae

D. All of the above

**Answer: D**



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5. One of the country where alcohol has been very successfully used as motor fuel is

A. U.S.A

B. Brazil

C. Japan

D. Germany

**Answer: B**



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6. Raising of crops for the production of ethanol is known as

A. Energy cropping

B. Energy plantation

C. Agro-technology

D. Biomass production

**Answer: A**



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**7. Social forestry programme is**

A. Planting of different kinds of trees in the same area

B. Greening of hills with the efforts of common men

C. Raising trees on common village lands and other vacant areas for fodder, minor timber and fire wood

D. Planting of trees along river embankments

**Answer: C**



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8. Calorific value of biogas is

A.  $1 - 2MJ/m^3$

B.  $23 - 28MJ/m^3$

C.  $11 - 15MJ/m^3$

D.  $100 - 120MJ/m^3$

**Answer: B**



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## 9. Pyrolysis of wood yields

A. Alcohol

B. Charcoal

C. Charcoal and wood gas

D. Charcoal, wood gas tar and oil

**Answer: D**



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**10. Biogas contains**

- A. 50-70% Methane
- B. 30-40% Methane
- C. Traces of Methane
- D. 80-95% Methane

**Answer: A**



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**11. Energy crops are**

A. Sugarcane / Sugarbeet, Potato and  
Tomato

B. Sugarcane, Tapioca and Cauliflower

C. Sugarcane, Potato and Tapioca

D. Millets, Banana and Tomato

**Answer: C**



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12. Source of liquid hydrocarbons is

- A. Euphobiaceae
- B. Asclepiadaceae
- C. Apocyananaceae
- D. All the above

**Answer: D**



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13. Which wood is more suitable for fuel?

- A. Hard wood
- B. High calorific value
- C. Highly combustible
- D. All the above

**Answer: D**



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**14. Which one yields more energy?**

- A. Direct burining of cowdung

B. Burning of biogas derived from cowdung

C. Burning of manure derived from  
cowdung

D. Burning of semidecayed cowdung

**Answer: A**



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**15.** Biogas plant is more useful than burning of dung cakes because

- A. It is nonpollutant
- B. It yields manure as well as fuel gas
- C. It yields important biochemicals
- D. Both A and B

**Answer: D**



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**16.** Producer gas is got through the process of

- (a) Fermentation
- (b) Combustion



(c) Pyrolysis

(d) Carbonisation

A. Fermentation

B. Combustion

C. Pyrolysis

D. Carbonisation

**Answer: B**



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17. Producer gas is formed by passing hot biomass over

A. Steam

B. Air

C. Hydrogen

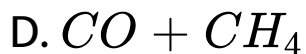
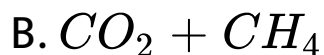
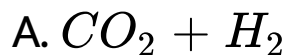
D. Both A and B

**Answer: D**



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18. Producer gas contains



**Answer: C**



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**19.** Hydrocarbons were first isolated from plant latex by

A. Krebs

B. Calvin

C. Walksman `

D. Crystal et al

**Answer: B**



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20. Bacteria involved in formation of gobar gas are

- A. Obligate aerobes
- B. Facultative anaerobes
- C. Obligate anaerobes
- D. Both B and C

**Answer: D**



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21. The order of bacteria active in conversion of organic wastes into biogas is

A. Hydrolytic → Acetogenic →

Methanogenic

B. Methanogenic → Acetogenic →

Hydrolytic

C. Methanogenic → Hydrolytic →

Acetogenic

D. Acetogenic → Methanogenic rarr

Hydrolytic

**Answer: A**



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**22. Which is renewable ?**

A. Wood

B. Organic remains

C. Biogas

D. All the above

**Answer: D**



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**23.** Organic compound not decomposed by microbes in biogas plants is

A. Protein

B. Lignin

C. Cellulose



D. Phospholipid

**Answer: B**



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**24.** Carbonisation of wood produces

A. Charcoal wood gas

B. Wood gas

C. Wood oil

D. All the above

**Answer: A**



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**25.** the first step in biogas production is carried out with the help of

A. Aerobic hydrolysis of polymers

B. Anaerobic hydrolysis of polymers

C. Conversion of monomers into organic acids

D. Conversion of organic acids into monomers

**Answer: B**



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**26.** Which one is equivalent to petroleum hydrocarbons?

A. Resin

B. Latex

C. Gum

D. Tannin

**Answer: B**



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**27.** Which of the following micro-organism is involved in last step of biogas production?

A. Decomposer microbes

B. Fermentative microbes

C. Methanogens

D. Thermoacidophiles

**Answer: C**



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**28.** Energy plantation is

A. Growing starch/sugar rich plants

B. Growing latex rich plants

C. Growing fuel wood trees

D. Growing fruit plants

**Answer: C**



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**29.** Maximum alcohol production per hectare of crop is from

A. Potato

B. Sugarcane

C. Sugarbeet

D. Tapioca

**Answer: B**



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**30. Gasohol contains**

A. 50 – 60 % *alcohol*

B. 10 – 15 % *alcohol*

C. 30 – 40 % *alcohol*

D. Tapioca

**Answer: B**



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**31. Alcohol for running automobiles is**

- A. Ethyl alcohol
- B. Methyl alcohol
- C. Both A and B
- D. Butyl alcohol

**Answer: C**





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32. Fuel wood required per person per day is

A. 3kg

B. 30kg

C. 10kg

D. 1 kg

**Answer: A**



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**33.** A petroleum plant is

A. Sugarcane

B. Maize

C. Potato

D. Euphorbia

**Answer: D**



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**34.** Fuel wood is

A. Renewable source of energy

B. Source of alcohol

C. Source of biogas

D. Source of petroleum gas

**Answer: A**



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**35.** The country pioneer in production of fuel alcohol is

A. Saudi Arabia

B. Japan

C. Brazil

D. Iran Iraq

**Answer: C**



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36. Temperature suitable for biogas production is

A.  $36^{\circ} - 38^{\circ} C$

B.  $20^{\circ} - 25^{\circ} C$

C.  $30^{\circ} - 35^{\circ} C$

D.  $40^{\circ} - 44^{\circ} C$

**Answer: A**



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37. pH favourable for fermentation in biogas plant is

A. 4 – 5

B. 5 – 6

C. 6.5 – 7.2

D. 7.6 – 8.4

**Answer: C**



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**38.** Raw material used in formation of producer gas is

(a) Saw dust and wood chips

(b) Crops residue

(c) Agroindustry wasted

(d) All the above

A. Saw dust and wood chips

B. Crops residue

C. Agroindustry wasted

D. All the above

**Answer: D**



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**39.** The first petroplant discovered by Calvin was

A. *Copaifera longsdorfee*

B. *Euphorbia lathyrus*

C. *Jatropha*

D. *Calotropis*



**Answer: B**



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**40.** The plant which is not a component of energy cropping is

(a) Sugarcane

(b) Sugar Beet

(c) Tapioca

(d) Euphorbia

A. Sugarcane

B. Sugar Beet

C. Tapioca

D. Euphorbia

**Answer: D**



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**41.** The commonest source of bioenergy is

(a) Gobar gas

(b) Charcoal

(c) Fuel wood

(d) Wood gas

A. Gobar gas

B. Charcoal

C. Fuel wood

D. Wood gas

**Answer: C**



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**42.** The process that provides both energy and manure is

A. Burning of fuel wood

B. Pyrolysis of wood

C. Gasification of wood and wood shavings

D. Biogas formation

**Answer: D**



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**43.** Which is not an energy crop

A. Tapioca

B. Sugarcane

C. Calotropis

D. Sugar Beet.

**Answer: C**



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**44.** Petrol crops are plants

A. Grown near oil fields

B. used in refining crude oil

C. Whose fossil remains formed crude oil

D. From which petrol like fuels can be  
derived

**Answer: D**



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**45.** Most of the petrocrops belong to family

(a) Leguminosae

(b) Rutaceae

(c) Euphorbiaceae

(d) Malvaceae

A. Leguminosae

B. Rutaceae

C. Euphorbiaceae

D. Malvaceae

**Answer: C**



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## Revision Question From Competitive Exams

1. Besides dung, the weed which can be used in biogas production is

- A. Hydrilla
- B. *Salanum nigrum*
- C. *Eichhorinaia crassipes*
- D. *Parthenium hysterophorus*



**Answer: C**



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**2. A petroleum plant is**

(a) Sugarcane

(b) Maize

(c) Potato

(d) Euphorbia

A. Sugarcane

B. Maize

C. Potato

D. Euphorbia

**Answer: D**



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**3. Fuel wood is**

A. Renewable source of energy

B. Source of alcohol

C. Source of biogas

## D. Sources of petroleum gas

**Answer: A**



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4. The pioneer country in the production of fuel-alcohol is

- (a) Saudi Arabia
- (b) Japan
- (c) Brazil
- (d) Iran

A. Saudi Arabia

B. Japan

C. Brazil

D. Iran Iraq

**Answer: C**



**Watch Video Solution**

**5. Petrol crops are plants**

A. Grown near oil fields

B. Used in refining crude oil

C. Whose fossil remains formed crude oil

D. From which petrol like fuels can be derived

**Answer: D**



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**6.** Who is credited with indentifying petro crops?

A. Swaminathan

B. Calvin

C. Krebs

D. Borlang

**Answer: B**



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7. Biogas production from waste biomass with the help of methanogenic bacteria is

- A. One step process
- B. Two step process
- C. Three step process
- D. Multistep process

**Answer: C**



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**8. Pyrolysis is**

- A. Biochemical process

B. Biological Process

C. Thermochemical process

D. Petrochemical process

**Answer: C**



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**9.** Biogas can be a good substitute for

Or

In developing countries , the heaviest demand on forests is for



A. Fuel wood

B. Petroleum and oil

C. Coal

D. Charcoal

**Answer: A**



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**10.** Group of bacteria used in biogas production is

A. Eubacteria

B. Organotrophs

C. Methanotrophs

D. Methanogens

**Answer: D**



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**11.** Certain plants convert a substantial amount of photosynthate into latex. Most of them belong to family

A. Euphorbiaceae

B. Malvaceae

C. Asteraceae

D. Sterculiaceae

**Answer: A**



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**12.** Government of India is putting more stress on planting quick growing trees which yield better fodder and fuel. It is under

- (a) Afforestation
- (b) Forest conservation
- (c) Social forestry
- (d) All the above

- A. Afforestation
- B. Forest conservation
- C. Social forestry
- D. All the above

**Answer: C**



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13. Which one is not a petrocrop?

A. *Euphorbia lathyris*

B. *Calotropis procera*

C. *Jatropha*

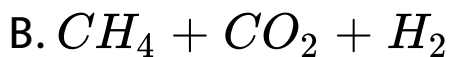
D. *Hardwickia binata*

**Answer: D**



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14. Biogas contains



**Answer: B**



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**15. Bacteria utilised in gobar gas plants are**

(a) Methanogens

(b) Nitrifying

(c) Anmonifying

(d) Denitrifying

A. Methanougens

B. Nitrifying

C. Anmonifying

D. Denitrifying

**Answer: A**



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16. Which one is used in biogas generation ?

A. Rhizobium

B. Methanobacterium

C. Agrobacterium

D. Azotobacter

**Answer: B**



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17. Biogas mainly consist of

A. Ethane

B.  $CO_2$

C.  $H_2$

D. Methane

**Answer: D**



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**18.** Who showed that certain plants can function as a source of hydrocarbons

A. Melvbin calvin

B. Hanskrebs

C. Robert Brown

D. Joseph Priestely

**Answer: A**



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**19.** Bioenergy is obtained from

A. Petroleum

B. Natural gas

C. Biomass

D. Synthetic fuel

**Answer: C**



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**20.** Producer gas differs from biogas in having

A. Methane

B. Carbon monoxide

C.  $CO_2$

D. Formed by Fementation

**Answer: B**



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**21.** Recently Govt. of India has allowed mixing of alcohol in petrol. What is the amount of alcohol permitted for mixing in petrol ?

A. 0.25

B. 10-15%

C. 0.1

D. 0.05

**Answer: D**



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**22.** The main energy containing components of biogas is

A. Methane

B. Hydrogen

C. Hydrogen sulphide

D. Carbon dioxide

**Answer: A**



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**23. Which one is a petroplant?**

(a) *Cicer arietinum*

(b) *Beta vulgaris*

(c) *Euphobia lathyrus*

(d) *Solanum tuberosum*

A. *Cicer arietinum*

B. *Beta vulgaris*

C. *Euphobia lathyrus*

D. *Salanum tuberosum*

**Answer: C**



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24. Pyrolysis of wood yields

- A. Wood alcohol
- B. Wood gas
- C. Pyroligneous acid
- D. All the above

**Answer: D**



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25. Supply of oxygen to the biogas plant will have

- A. Positive effect
- B. Negative effect
- C. No effect
- D. None of these

**Answer: B**



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26. Biodiesel is got from

A. *Jatropha bilaba*

B. *Cedrus*

C. *Jatropha curcas*

D. None of the above

**Answer: C**



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27. Product obtained from which family can be alternative to liquid fuel

A. Asclepiadaceae

B. Leguminosae

C. Solanaceae

D. Lilaiaceae

**Answer: A**



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**28.** Latex containing plants are classified on the basis of

A. Chemical composition

B. Morphological traits

C. Both A and B

D. None of the above

**Answer: C**



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29. Pyrolysis of wood is responsible for yielding

- A. Presence of air
- B. Absence of air
- C. Limited supply of air
- D. Both B and C

**Answer: B**



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**30.** The technology of biogas production was developed in India due to the efforts of

A. KVIC

B. IARI

C. Both A and B

D. WHO

**Answer: C**



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31. Which one of the following is being tried in india as a bio fuel substitute for fossil fuels ?

A. Jatropha bilaba

B. Musa

C. Aegilops

D. Azodirachta

**Answer: A**



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32. Methanogens, growing anaerobically on cellulosic material produce

A. Methane

B. Methane and hydrogen

C. Methane and carbon dioxide

D. Methnane carbon dioxide and hydrogen

**Answer: D**



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33. Which of the following plant species you would select for the production of bioethanol ?

A. Brassica

B. Zea mays

C. Jaytropa

D. Pongamia

**Answer: B**



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34. Biogas predominantly comprises

A.  $CH_4$ ,  $N_2$  and  $H_2$

B.  $CH_4$  and  $CO$

C.  $CH_4$  and  $CO_2$

D.  $CH_4$  and  $NO_3$

**Answer: C**



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35. In biogas plant, which group of bacteria is found? (

A. Archaeobacteria

B. Myxobacteria

C. Cyanobacteria

D. Mycobacteria

**Answer: A**



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**36.** Jatropha is a

A. Biodiesel crop

B. Biopetrol crop

C. Fibre crop

D. Food crop

**Answer: A**



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**37.** A petrocrop is

A. Sugarcane

B. Maize

C. Euphorbia

D. Potato

**Answer: C**



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**38. Which is used in biodiesel production?**

A. *Jatropha bilaba*

B. Maize

C. Rice

D. Tectona

**Answer: A**



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**39.** Which one of the following is the correct order of conversion of waste materials during biogas formation

A. Monomers → Polymers Methane

organic acids

B. Organic acids Methane Polymers

Monomers

C. Methane organic acids Polyumers

Monomers

D. Polymers Monomers Organic acids

Methane

**Answer: D**



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## Check Your Grasp

1. A bad fire wood is that of

A. Dalberiga

B. Bauhinia

C. Lagersroemia

D. Terminalia

**Answer: B**







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2. Which one contains hydrocarbons similar to those of petroleum?

A. Tannin

B. Starch

C. Latex

D. Resin

**Answer: C**



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3. A better fuel wood is

A. Dicotyledonous hardwood

B. Dicotyledonous softwood

C. Monocotyledonous softwood

D. Resinous gymnospermous wood

**Answer: A**



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4. Producer gas is used for

A. Manufacture of ammonia

B. Industrial fuel

C. Running certain engines

D. All the above

**Answer: C**



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5. Wood gas is used as

A. Fuel gas

B. Source of alcohol

C. Source of oil

D. Source of ammonia

**Answer: A**



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**6.** Pyroligneous acid produced during pyrolysis of wood is

A. Creosote

B. Acetic acid

C. Methy alcohol

D. Ammonia

**Answer: B**



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7. Methane content of biogas is

A. 0.4

B. 20-3

C. 50-70%

D. 10-20%

**Answer: C**



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**8. Aquatic plant used in bioigas generation is**

A. Eichhorina

B. Typha

C. Potamogeton

D. Vallisneria

**Answer: A**



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**9. In Brazil, 90% of cars are running on**

A. Pure alcohol

B. Pure gasoline

C. Mixture of alcohol and gasoline

D. Diesel

**Answer: C**



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**10. A petroleum plant is**

A. Eichhorina

B. Brickellia

C. Causuarina

D. Madhuca



**Answer: B**



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