



BIOLOGY

BOOKS - S DINESH & CO BIOLOGY (HINGLISH)

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 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

Answer: B



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17. Producer gas is formed by passing over hot biomass

A. Steam

B. Air

C. Hydrogen

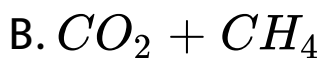
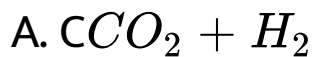
D. Both A and B

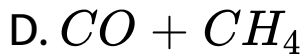
Answer: D



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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 Lignin

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. First steps in biogas generation is

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. Last step in biogas production is carried out by

- A. Decomposer microbes
- B. Fermentative microbes
- C. Methanogens
- D. Thermoacidophilic

Answer: C



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28. Energy plantation is

- A. Growing starch/surgar rich plants
- B. Growing latex rich plants
- C. Growing fule 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. Biogas production is rate limited by

A. Production of methane

B. Cellulose digestion

C. Conversion of monomers into organic acids

D. of monomers to organic acids

Answer: B



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34. Apertroleum plant is

A. Surgarcane

B. Maize

C. Potato

D. Euphorbia

Answer: D



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35. 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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36. 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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37. 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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38. 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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39. 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

Answer: D



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40. The first petroplant discovered by Calvin was

A. *Copaifera longsdorffii*

B. *Euphorbia lathyris*

C. *Jatropha*

D. Calotropis

Answer: B



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41. The plant which is not a component of energy cropping is

A. Sugarcane

B. Sugar Beet

C. Tapioca

D. Euphorbia

Answer: D



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42. The commonest source of bienergy is

A. Gobar gas

B. Charcoal

C. Fuel wood

D. Wood gas

Answer: C



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43. 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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44. Which is not an energy crop

A. Tapioca

B. Sugarcane

C. Calotripis

D. Sugar Beet.

Answer: C



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45. Petro-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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46. Most of the petrocrops belong to family

- 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 hysterothorus

Answer: C



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2. A petroleum plant is

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 Iraq

Answer: C



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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

Answer: C



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13. Which one is not a petrocrop?

A. Weuphorbia lathyrus

B. Helianthus annus

C. Jatropha Hardwickis binata

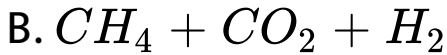
D.

Answer: D



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14. Biogas contains



Answer: B



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15. Bacteria utilised in gobar gas plants are

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. Melvin Calvin

B. Hans Krebs

C. Robert Brown

D. John 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 government of India has allowed mixidgn of alcohol in petrol.What is amoutn 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. *Euphorbia lathyris*
- D. *Solanum 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. Propdcut obtained from which family can be alternative to liqud 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 aA 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 through the efforts of

A. KVIC

B. IARI

C. Both A and B

D. WHO

Answer: C



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31. Which one is being tried in india as biofuel 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 should be used for production of bioethanol ?

A. Brassica

B. Zea mays

C. Jatropha

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. Ptotamogeton

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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