**MCQs Sources of Energy**

1. Energy can neither be created nor destroyed but still everybody discuss about the energy crisis because  
(a) Energy transform into different form continuously.  
(b) Usable form of energy is dissipated to the surroundings in less usable forms.  
(c) Energy is consumed and cannot be used again.  
(d) All of these

**Answer/Explanation**

Sources of Energy Class 10 MCQ with Answer: d  
Explanation:  
(d) Energy can neither be created nor be destroyed but usable form is dissipated to surrounding in less usable farm which can’t be used again.

2. An ideal source of energy should have  
(a) higher calorific value  
(b) easy transportability  
(c) easy accessibility  
(d) All of these

**Answer/Explanation**

Answer: d  
Explanation:  
(d) These are the characterises of ideal source of energy.

3. Fossile fuels are  
(a) non-renewable source of energy  
(b) renewable source of energy  
(c) both (a) and (b)  
(d) Neither (a) nor (b)

**Answer/Explanation**

Answer: a  
Explanation:  
(a) Fossile fuels were formed over million of years ago and there are only limited reserve. So they are non-renewable source of energy.

4. Dead organisms are transformed into petroleum and natural gas in  
(a) presence of air  
(b) absence of air  
(c) presence of sunlight  
(d) none of the above

**Answer/Explanation**

Answer: b  
Explanation:  
(b) absence of air

5. Which of the following problem is associated with a burning of coal?  
(а) Carbon-dioxide emission  
(b) acid rain  
(c) ash with toxic metal supurity  
(d) all of these.

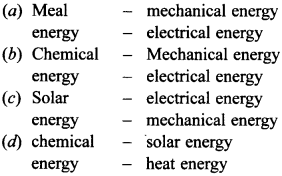
**Answer/Explanation**

Answer: d  
Explanation:  
(d) all of these.

6. Select the important factor for the site selection of a thermal power plant.  
(a) Distance from the populated area  
(b) Availability of fuel  
(c) Availability’ of water  
(d) Cost of plant

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Water is required to produce steam. Thermal power plants are setup near the coal field and transmission of electricity is easy than transporting fuel.

7. Select the correct order of energy conversion in thermal power plant-  


**Answer/Explanation**

Answer: b  
Explanation:  
(b) chemical energy – heat energy, mechanical energy, electrical energy

Sources of Energy Class 10 MCQs Question 8. Hydropower plant are located in the  
(a) desert area  
(b) plane area  
(c) hilly terrains  
(d) none-of above

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Hydroelectric power plant are generally located in high hilly areas where dam can easily be buit and large reservoir for storage of water can be obtained.

9. Biogas is a better fuel than animal dung cake because  
(a) biogas has lower calorific value.  
(b) animal dung cake has high calorific value  
(c) biogas bums smoke and leaves no residue  
(d) biogas is used as a fuel for cooking only wheareas dung cake can be used for cooking, illuminant the lanterns.

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Biogas has high calorific value and leave no residue, no smoke after burning and can be used for domestic purpose, running engins and in gas lanterns for illumination.

10. Which of the following organism produces biogas from cow drug sherry in the biogas plant?  
(a) aerobic bectria  
(b) anaerobic bectria  
(c) prolozoa  
(d) fungi

**Answer/Explanation**

Answer: b  
Explanation:  
(b) In the absence of oxygen, anaerobic micro-organism decomposed the compound of cow- dung sturry to generate biogas.

11. Wind is caused due to  
(a) uneven heating of earth’s surface  
(b) rotation of earth  
(c) local conditions  
(d) All of these

**Answer/Explanation**

Answer: d  
Explanation:  
(d) All are the factors that responsible for the blowing of wind.

12. What are the disadvantage of solar energy  
(a) A large surface area is required collect the solar  
(b) Daily average of solar energy varies from 4 to 7 kwh/m2  
(c) Highly hazardous toxic material is used in the manufacturing of solar device.  
(d) All of the above are disadvantages.

**Answer/Explanation**

Answer: d  
Explanation:  
(d) All the points given are the disadvantage age of using solar energy.

13. The temperature inside the solar cooker ranges from  
(a) 500-100°C  
(b) 100-140°C  
(c) 150-200°C  
(d) 70-80°C

**Answer/Explanation**

Sources of Energy Questions and Answer: bExplanation:  
(b) The box type solar cooker have a range 100-140°C.

14. The use of reflector in the solar cooker is to  
(a) Decrease efficiency  
(b) create green house effect  
(c) increase efficiency  
(d) none of these

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Reflectors (mirror) are used to focus the sun rays along with heat radiation inside the box to achieve high temperature.

15. Solar cells are made of  
(a) germanium  
(b) silicon  
(c) silver  
(d) aluminium

**Answer/Explanation**

Answer: b  
Explanation:  
(b) special grade silicon is used for making solar cells.

16. The material used for interconnection the solar cells in the solar panel is  
(a) silicon  
(b) silver  
(c) aluminium  
(d) copper

**Answer/Explanation**

Answer: b  
Explanation:  
(b) Silver is the best conductor of electricity.

17. A solar panel is made by combining in an arrangement  
(a) solar concentrator  
(b) solar cookers  
(c) solar cells  
(d) solar chimney

**Answer/Explanation**

Answer: c  
Explanation:  
(c) A large number of solar cells connected together in a particular arrangement to deliver useful electrical power is called solar cell panel.

18. Tidal energy is a farm of energy obtained from the  
(a) motion of surface water in ponds  
(b) ocean in the form of tidal waves  
(c) tides occurs in the river water  
(d) motion of the wave in sea

**Answer/Explanation**

Answer: b  
Explanation:  
(b) The energy produced by the surge of ocean water during high and low tides due to difference in sea level is called tidal energy.

Sources of Energy MCQ Question 19. Tidal energy is harnessed by constructing a dam across  
(a) narrow opening to the sea  
(b) wide opening to the sea  
(c) the river in hilly trains  
(d) the river in plane areas

**Answer/Explanation**

Answer: a  
Explanation:  
(a) Tidal energy is harnessed by constructing a dam near the shores across narrow opening it.

20. Wave energy is caused due to  
(a) strong winds blowing across the sea  
(b) kinetic energy possessed by huge waves near the sea shore  
(c) potential energy possessed by the stored water  
(d) both (a) and (b)

**Answer/Explanation**

Answer: d  
Explanation:  
(d) The waves are generated by a strong wind due to solar energy across the sea.

21. The working fluid in ocean thermal power plant is  
(a) Volatile liquid like ammonia  
(b) petrol  
(c) charcoal  
(d) liquified petroleum gas

**Answer/Explanation**

Answer: a  
Explanation:  
(a) volatile liquid like ammonia

22. Geothermal energy is  
(a) Heat energy in the interior of earth  
(b) energy of molten mars exists in the farm of magma inside the earth.  
(c) molten lava on the surface of earth  
(d) energy obtained from solar thermal electric plants

**Answer/Explanation**

Answer: c  
Explanation:  
(c) The heat energy trapped in the certain region of earth’s crust is called geo thermal energy.

23. U-235 will undergo fission by  
(a) low energy neutrons only  
(b) high energy neutrons only  
(c) medium energy neutrons  
(d) low energy protons only

**Answer/Explanation**

Answer: d  
Explanation:  
(d) Heavy nucleus such as uranuim-235, when bombarded with low energy neutrons split into lighter nuclear with the liberation of large amount of energy.

Multiple Choice Questions on Sources of Energy Question 24. In a hydropower plant [NCERT Exemplar Problems]  
(a) Potential energy possessed by stored water is converted into electricity  
(b) Kinetic energy possessed by stored water is converted into potential energy  
(c) Electricity is extracted from water  
(d) Water is converted into steam to produce electricity.

**Answer/Explanation**

Answer: a  
Explanation:  
(a) The stored water behind the dam has a potential energy which charges into the kinetic energy of falling water. This kinetic energy is utilized to rotate the turbine to produce electricity.

25. Which is the ultimate source of energy? [NCERT Exemplar Problems]  
(a) Water  
(b) Sun  
(c) Uranium  
(d) Fossil fuels

**Answer/Explanation**

Answer: b  
Explanation:  
(b) Sun is the ultimate source of energy directly or indirectly, all the form of energy are desired from solar energy.

MCQ Questions on Sources of Energy Class 10 Question 26. Which one of the following forms of energy leads to least environmental pollution in the process of its harnessing and utilisation? [NCERT Exemplar Problems]  
(a) Nuclear energy  
(b) Thermal energy  
(c) Solar energy  
(d) Geothermal energy

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Solar energy leads to least environmental pollution in the process of its harnessing and utilisation.

27. Ocean thermal energy is due to [NCERT Exemplar Problems]  
(a) energy stored by waves in the ocean  
(b) temperature difference at different levels in the ocean  
(c) pressure difference at different levels in the ocean  
(d) tides arising out in the ocean

**Answer/Explanation**

Answer: b  
Explanation:  
(b) Energy of warm surface water used to vaporise the low boiling point liquid ammonia. This vapours at high pressure is used to strin the turbines to generate electricity. Deep ocean cold water again condenses the used vapour into liquid.

28. The major problem in harnessing nuclear energy is how to [NCERT Exemplar Problems]  
(a) split nuclei?  
(b) sustain the reaction?  
(c) dispose off spent fuel safely?  
(d) convert nuclear energy into electrical energy?

**Answer/Explanation**

Answer: c  
Explanation:  
(c) The waste product obtained from nuclear power plant is highly radioactive material and harmful for human beings and environment.

29. Which part of the solar cooker is responsible for green house effect? [NCERT Exemplar Problems]  
(a) Coating with black colour inside the box  
(b) Mirror  
(c) Glass sheet  
(d) Outer cover of the solar cooker

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Glass lid of solar cooker trapped the heat energy inside the box.

30. The power generated in a windmill [NCERT Exemplar Problems]  
(a) is more in rainy season since damp air would mean more air mass hitting the blades  
(b) depends on the height of the tower  
(c) depends on wind velocity  
(d) can be increased by planting tall trees close to the tower

**Answer/Explanation**

Answer: a  
Explanation:  
(a) About 75% methane is present in bir-gas

31. Choose the correct statement [NCERT Exemplar Problems]  
(a) Sun can be taken as an inexhaustible source of energy  
(b) There is infinite storage of fossil fuel inside the earth  
(c) Hydro and wind energy plants are non-polluting  
(d) Waste from a nuclear power plant can be easily disposed off

**Answer/Explanation**

Answer: c  
Explanation:  
(c) In rainy season, wind velocity is higher. So the blades of windmill moves with greater speed.

32. A good fuel should possess  
(a) high ignition temperature  
(b) moderate ignition temperature  
(c) high calorific value  
(d) both high calorific value and moderate ignition temperature

**Answer**

Answer: d

33. The variety of coal which has the highest car-bon content  
(a) Anthracite  
(b) Peat  
(c) Bituminous  
(d) Lignite

**Answer**

Answer: a

34. Unit of calorific value of a substance is  
(a) Kcal  
(b) Joules  
(c) J kg  
(d) J/kg

**Answer**

Answer: d

MCQ on Sources of Energy Class 10 Question 35. Biogas is formed in the  
(a) presence of air only  
(b) presence of water only  
(c) absence of air only  
(d) presence of water and absence of air

**Answer**

Answer: d

36. Solar energy can be directly converted to elec-trical energy by which of the following de-vices?  
(a) solar cooker  
(b) solar heater  
(c) solar cell  
(d) solar geyser

**Answer**

Answer: c

37. Which of the following is the ultimate source of energy?  
(a) Water  
(b) Sun  
(c) Fossil fuels  
(d) Uranium

**Answer**

Answer: b

38. Which of the following gases is the main con-stituent of natural gas?  
(a) Methane  
(b) Ethane  
(c) Propane  
(d) Butane

**Answer**

Answer: a

39. Which element is used in solar cells?  
(a) Carbon  
(b) Silicon  
(c) Phosphorous  
(d) Sulphur

**Answer**

Answer: b

40. Ocean thermal energy is produced due to  
(a) pressure difference at different levels in the ocean.  
(b) temperature difference at different levels in the ocean.  
(c) energy stored by waves in the ocean.  
(d) tides rising out of the ocean.

**Answer**

Answer: b

41. A device in which electricity is produced by the process of controlled nuclear fission reaction is called  
(a) nuclear chain reaction  
(b) hydel power plant  
(c) nuclear reactor  
(d) thermal power plant

**Answer**

Answer: c

42. One major problem in harnessing nuclear energy is  
(a) converting nuclear energy into electrical energy.  
(b) sustaining the reaction.  
(e) splitting the nuclei.  
(d) disposing off spent fuel easily.

**Answer**

Answer: d

43. Spent slurry (Bio-waste after obtaining biogas) is used as  
(a) fuel  
(b) manure  
(c) food for livestock  
(d) used again for generating biogas

**Answer**

Answer: b

Direction (Q44 to Q48): In the following Questions, the Assertion and Reason have been put forward. Read the statements carefully and choose the correct alternative from the following:  
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.  
(b) The Assertion and the Reason are . correct but the Reason is not the correct explanation of the Assertion.  
(c) Assertion is true but the Reason is false.  
(d) The statement of the Assertion is false but the Reason is true.  
44. Assertion: Fuel has to be burnt to obtain heat energy.  
Reason: The minimum temperature to which a fuel must be heated so that it may catch fire and start burning is known as ignition temperature.

**Answer/Explanation**

Answer: b  
Explanation:  
(b) The Assertion and the Reason are correct but the Reason is not the correct explanation of the Assertion.

45. Assertion: The major constituent of biogas is methane.  
Reason: Biogas is produced by the aerobic degradation by animal wastes like cow ding in the presence of water.

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Assertion is true but the Reason is false.

46. Assertion: Wind energy farms cannot be established every where.  
Reason: The wind energy farms can be established only at those places where wind blows for most part of the year.

**Answer/Explanation**

Answer: a  
Explanation:  
(a) Both the Assertion and the Reason are correct and the Reason is the correct explanation of the Assertion.

47. Assertion: Coke is a better fuel than coal.  
Reason: Burning of coke cause air pollution.

**Answer/Explanation**

Answer: c  
Explanation:  
(c) Assertion is true but the Reason is false.

48. Assertion: Non-conventional sources of energy are the major source of energy for generating electricity in power plants.  
Reason: Coal and petroleum are non- conventional energy sources.

**Answer/Explanation**

Answer: d  
Explanation:  
(d) The statement of the Assertion is false but the Reason is true.

49. Mirrors used for solar cooker are \_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

**Answer/Explanation**

Answer:  
Explanation: convex

50. A fuel is a good one if its \_\_\_\_\_\_\_\_\_\_\_\_\_\_ value is high.

**Answer/Explanation**

Answer:  
Explanation: Butane

51. Geothermal energy is widely trapped in USA and \_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

**Answer/Explanation**

Answer:  
Explanation: New Zealand

52. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ reaction is more powerful than a fission reaction.

**Answer/Explanation**

Answer:  
Explanation: Fusion

53. Ocean thermal energy is used to boil \_\_\_\_\_\_\_\_\_\_\_\_\_\_ before running the turbine.

**Answer/Explanation**

Answer:  
Explanation: Ammonia

54. Artificial satellites and space probes are electrified using \_\_\_\_\_\_\_\_\_\_\_\_\_\_ .

**Answer/Explanation**

Answer:  
Explanation: Solar cells

55. Fossil fuels do not cause pollution. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

56. Acid rain is formed by acidic oxides of carbon, sulphur and nitrogen. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

57. The use of turbine is essential for the production of electrical energy. [True/F alse]

**Answer/Explanation**

Answer:  
Explanation: True

58. The approximate percentage of energy met by India with the use of hydel energy is 25%. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

59. Windmills require giant structural erection and vast space. [True/False]

**Answer/Explanation**

Answer:  
Explanation: True

60. New Zealand is called as “Country of Winds”. [True/False]

**Answer/Explanation**

Answer:  
Explanation: False

Direction (Q49 to Q50): Match Column I with Column II.  
61.

|  |  |
| --- | --- |
| Column I | Column II |
| (a) Fossil fuels | (i) Renewable |
| (b) Silicon | (ii) Electrical energy |
| (c) Geothermal energy | (iii) Depleting |
| (d) Turbine | (iv) Solar cells |

**Answer/Explanation**

Answer:  
Explanation:  
(a) (iii)  
(b) (iv)  
(c) (i)  
(d) (ii)

62.

|  |  |
| --- | --- |
| Column I | Column II |
| (a) Black surface | (i) Water heaters |
| (b) Turbine | (ii) Solar cell |
| (c) Semi conductors | (iii) Generators |
| (d) Digestor | (iv) Bio gas |

**Answer/Explanation**

Answer:  
Explanation:  
(a) (i)  
(b) (iii)  
(c) (ii)  
(d) (iv)

63. Define source of energy.

**Answer/Explanation**

Answer:  
Explanation:  
A source of energy is one which can provide sufficient amount of energy in convenient manner over a long period of time.

64. Why are the coal, petroleum and natural gas called fossil fuels?

**Answer/Explanation**

Answer:  
Explanation:  
Coal, petroleum and natural gas, the common sources of energy, being organic (biotic) in their origin and formed over a long period of time are called fossil fuels.

65. If you could use any source of energy for heating your food which one would you prefer? State one reason for your choice.

**Answer/Explanation**

Answer:  
Explanation:  
LPG because it does not leave any residue on burning.

66. What do you mean by the term ‘thermal power plant’?

**Answer/Explanation**

Answer:  
Explanation:  
Thermal power plant is the power plant where coal is burnt to produce heat energy which is converted into electrical energy.

67. The cost of production of electricity in a thermal power station located in Bihar/ Jharkhand/Orissa is lesser than in Gujarat/ Maharashtra. Do you agree? Justify your answer. [HOTS]

**Answer/Explanation**

Answer:  
Explanation:  
Yes, it is because in Bihar/Jharkhand/Orissa, coal for thermal power plant is locally available whereas it has to be transported for any thermal power plant to be located in Gujrat/Maharashtra.

68. Which of the following power plants to produce electricity involves more running expenses and why? Thermal power station, hydro power station, an array of solar panel, wind energy farm or geothermal source.

**Answer/Explanation**

Answer:  
Explanation:  
Thermal power stations involve more running cost due to continuous use of coal.

69. What is acid rain? [CBSE 2013]

**Answer/Explanation**

Answer:  
Explanation:  
The rain containing the acidic oxides such as oxides of carbon and traces of nitrogen and sulphur.

70. List two non-conventional source of energy. [Delhi 2014, DoE]

**Answer/Explanation**

Answer:  
Explanation:  
Geothermal, solar, biomass, water, wind are the non-convention source of energy, (any two)

71. How does technology help in the transformation of energy?

**Answer/Explanation**

Answer:  
Explanation:  
Technologoy help us to provide the various means to transform the energy obtained from different source into useful form of energy.

72. Justify that the hydropower is a renewable source of energy.

**Answer/Explanation**

Answer:  
Explanation:  
Hydropower is generated from water flowing out of the dam and water in the reservoir would be refilled each time it rains through the high altitude rivers on which dam is constructed.

73. Why the dams for generating hydroelectricity can be built only in the hilly areas or at the foothill?

**Answer/Explanation**

Answer:  
Explanation:  
It is because to generate hydroelectricity water can fall from a considerable height.

74. State the main difference between thermal power and hydropower plants based on electricity generation.

**Answer/Explanation**

Answer:  
Explanation:  
In thermal power plant, chemical energy of fossil fuel is used while potential energy of stored water is used in hydropower plant to produced electricity.

75. Write the energy conversion that takes place in a hydropower plant. [CBSE 2018]

**Answer/Explanation**

Answer:  
Explanation:  
The energy transformation taking place at hydropower plants is shown below:

76. Name the kind of energy possessed by wind and the device used to harness it.

**Answer/Explanation**

Answer:  
Explanation:  
Kinetic energy, wind mill.

77. What is the minimum speed of wind to run a windmill to maintain the necessary speed of turbine of an electric generator?

**Answer/Explanation**

Answer:  
Explanation: 15 km/h.

78. Name the place in India where the largest wind energy farm has been established and how much electricity does it generate?

**Answer/Explanation**

Answer:  
Explanation:  
It is established near Kanyakumari is Tamil Nadu and it generates 380 MW of electricity.

79. Which country ranked first in harmessing wind energy for the production of electricity.

**Answer/Explanation**

Answer:  
Explanation: Germany.

80. How much land area is needed to establish a wind energy farm for generating 1 MW of electricity?

**Answer/Explanation**

Answer:  
Explanation:  
About 2 hectares of land.

81. Which country is known as ‘country of winds’?

**Answer/Explanation**

Answer:  
Explanation: Denmark.

82. Why a solar cooker painted black form outside? [CBSE 2014]

**Answer/Explanation**

Answer:  
Explanation:  
Black surface absorbs more heat as compared to white or reflecting surface under identical conditions.

83. Which metal is used to connect various solar cells?

**Answer/Explanation**

Answer:  
Explanation: Silver.

84. A solar cell transforms energy of one form into another. What are these two ferm of energy?

**Answer/Explanation**

Answer:  
Explanation:  
A solar cell transform solar energy into electrical energy.

85. Name any two elements that are used in fabricating solar cells. [CBSE 2014, 2012]

**Answer/Explanation**

Answer:  
Explanation: Germanium, Silicon.

86. Define solar panel.

**Answer/Explanation**

Answer:  
Explanation:  
A group of solar cells arranged in a definite pattern is called a solar panel.

87. What is the voltage developed by a typical solar cell?

**Answer/Explanation**

Answer:  
Explanation:  
A voltage of about 0.5 V to 1 V is developed by a typical solar cell.

88. How do satellites get energy to operate all the devices ?

**Answer/Explanation**

Answer:  
Explanation:  
From solar energy conversion using solar cell panels.

89. Name the main component of solar cell. [DoE]

**Answer/Explanation**

Answer:  
Explanation:  
Solar cell consists of different thin layers of silicon.

90. Name a device which can be used for cooking so as to save fuel.

**Answer/Explanation**

Answer:  
Explanation: Solar cooker.

91. Which gas is formed by decomposing plant and animal matter in masting areas?

**Answer/Explanation**

Answer:  
Explanation: Methane.

92. Name the part of a biogas plant where reactions take place in the absence of oxygen. [CBSE 2014]

**Answer/Explanation**

Answer:  
Explanation: Digester chamber.

93. Bio-gas is also known as gobar gas. Justify. [DoE] [CBSE 2011]

**Answer/Explanation**

Answer:  
Explanation:  
Starting material for biogas is mainly cow-dung. So, it is also known as gobar gas.

94. Name the microorganism which decompose slurry into biogas.

**Answer/Explanation**

Answer:  
Explanation: Anaerobic bacteria.

95. List two nutrients that the slurry left behind in the biogas plant contain. [CBSE 2011]

**Answer/Explanation**

Answer:  
Explanation: Nitrogen and phosphorous.

96. Aspart from cow-dung, name other materials which can be used for making bio gas.

**Answer/Explanation**

Answer:  
Explanation:  
Various plant materials like the residue after harvesting the crops, vegetable waste and sewage.

97. Why is CNG considered as environmental friendly fuel?

**Answer/Explanation**

Answer:  
Explanation:  
CNG does not produce any harmful gases on burning. So atmosphere does not gets polluted.

Fill in the Blanks

1. In the wind energy farms, the wind speed should be higher than ………. to maintain the required speed of  
the turbine.  
2. The energy produced during controlled ………. reactions is used for generating electricity at nuclear  
power plants.  
3. The energy available due to the difference in the temperature of water at the surface of the ocean and at  
deeper levels is called ………. .  
4. Biogas is produced by the ………. of animal wastes or plant wastes in the presence of water.  
5. Biogas is an excellent fuel as it contains 75% ………. along with other gases like ………., ………. and ………. .

Answers

1. 15 km/h  
2. nuclear fission  
3. Ocean thermal energy  
4. anaerobic degradation  
5. methane, carbon dioxide, hydrogen and hydrogen sulphide