PHYSICS

BOOKS - MCGROW HILL EDUCATION

PHYSICS (HINGLISH)

HEAT

Elementary Questions

1. The unit for the coefficient of real expansion is

A. cm

B. $cm/.^{\circ} C$

C. $cm.^{\circ} C$

D. $/.^{\circ} C$

Answer: D

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2. The unit for the coefficient of apparent expansion is

A. cm

B. $cm/.^{\circ} C$

C. $cm.^{\circ} C$

D. $/.^{\circ} C$

Answer: D

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3. With the increase in temperature, the density of a substance, in general,

A. increases

B. increases

C. first increase then decreases

D. first decrease then increases

Answer: B

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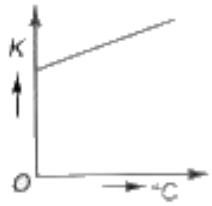
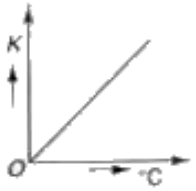
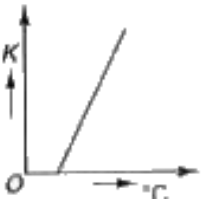
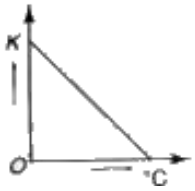
4. A graph was plotted taking the temperature in $.^{\circ} C$ along the X-axis and the corresponding temperature in Kelvin along

the Y-axis. Which of the curves in Fig, 6.1 most correctly represents this behaviour?

A. 

B. 

C. 

D. 

Answer: A

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5. If a graph is plotted taking the temperature in Fahrenheit along the Y-axis and the corresponding temperature in Celsius along the X-axis, it will be a straight line

A. having a positive intercept on the Y-axis

B. having a positive intercept on the X-axis

C. passing through the origin

D. having negative intercepts on the X and Y axes

Answer: A

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6. The normal temperature of the human body is

A. $37^\circ C$

B. $38^\circ C$

C. $36.8^\circ C$

D. none of these

Answer: A

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7. Two spheres of the same size are made of the same metal, but one is hollow and the other is solid. They are heated to the same temperature. Then,

A. the hollow sphere will expand more

B. the solid sphere will expand more

C. both spheres will expand almost equally

D. only the solid sphere will expand

Answer: C

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8. Water evaporates under atmospheric pressure. Without changing the temperature,

the same water is placed in partial vacuum. The rate of evaporation will

A. increase

B. drop to zero

C. decrease

D. remain unaffected

Answer: A

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9. A mercury thermometer, with a concave reflector behind the bulb, is placed in front of an electric fire. Which of the following combinations will cause the smallest reading on the thermometer?

A. Black reflector, black bulb

B. Black reflector, shiny bulb

C. Shiny reflector, shiny bulb

D. Temperature will remain same for any combination

Answer: B

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10. A block of wood is floating on water at $0^\circ C$, with a certain volume V above water level. The temperature of water is slowly raised from $0^\circ C$. How will the volume V change with the rise of temperature?

A. V will be unchanged

B. V will decrease from 0° C

C. V will decrease till $4^{\circ}C$ and then increase

D. V will increase till 4°C and then decrease

Answer: D

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11. The SI unit for the coefficient of linear expansion is

A. . $^{\circ}C$

B. $\text{per.}^{\circ} C$

C. $\text{cm}^2 / .^{\circ} C$

D. none of these

Answer: D

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12. The SI unit for the coefficient of cubical expansion is

A. $.^{\circ} C$

B. $\text{per.}^{\circ} C$

C. $\text{cm} / .^{\circ} C$

D. none of these

Answer: D

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13. Coefficient of linear expansion always ____ with the increase in temperature.

A. increases

B. decreases

C. remains the same

D. doubles itself

Answer: C

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14. Choose the correct statement:

A. $\alpha : \beta : \gamma : : 1 : 3 : 2$

B. $\alpha : \beta : \gamma : : 3 : 2 : 1$

C. $\alpha : \beta : \gamma : : 2 : 3 : 1$

D. $\alpha : \beta : \gamma : : 1 : 2 : 3$

Answer: D

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15. A thermometer is used to measure

A. heat

B. thermal capacity

C. water equivalent

D. temperature

Answer: D

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16. A graph is plotted taking $.^{\circ} C$ along the Y-axis and $.^{\circ} F$ along the X-axis. It is a/an

A. parabola

B. straight line

C. ellipse

D. circle

Answer: B

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17. A circular disc of copper has a symmetrical hole at its centre. The disc is uniformly heated. The diameter of the hole will

A. increase

B. decrease

C. remain the same

D. become indeterminate

Answer: A

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18. When water is heated from $0^\circ C$, its volume

A. increases

B. decreases till $4^\circ C$

C. remains the same

D. first increases then decreases

Answer: B

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19. The most commonly used thermometric substance is

A. water

B. alcohol

C. mercury

D. none of these

Answer: C

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20. In summer, the clocks

A. become slow

B. become fast

C. gives correct time

D. lose time

Answer: A

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21. Therm is the unit of

A. heat

B. temperature

C. thermometry

D. work

Answer: A

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22. Absolute zero corresponds to

A. -273 K

B. 273° C

C. $273^\circ R$

D. none of these

Answer: D

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23. If 10 g of ice at $0^\circ C$ mixes with 10 g of water at $10^\circ C$, then the final temperature t is given by

A. (10 x 80) + 10 (t-0) =10 (10-t)

B. 10 x 80 = 10 (10-t) + 10 (t-0)

C. $t = 5^\circ$ C

D. $t = 0^\circ C$

Answer: D

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24. The temperature of water at the bottom of a large waterfall is higher than that of the water at the top, because

A. the falling water absorbs heat from the sun

B. the KE of the falling water is converted into heat

C. the water at the bottom has greater PE

D. rocks on the bed of the river give out heat

Answer: B

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25. When salt is properly mixed with ice, the melting point of ice

A. is lowered

B. is raised

C. remains the same

D. becomes infinite

Answer: A

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26. Steam at $100^{\circ} C$ causes more severe burns than water at the same temperature because

A. steam is a gas

B. steam cannot do work

C. steam can provide more heat

D. steam is highly combustible

Answer: C

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27. When an inflated type bursts, the air escaping out

A. will get heated up

B. will be cooled

C. will not undergo any change in its temperature

D. will be liquefied

Answer: B

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28. A thermos bottle containing coffee is vigorously shaken. If the coffee is considered as a system, then the temperature of the coffee will

A. increase slightly

B. fall

C. remain the same

D. never be determined

Answer: A

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29. A container having some gas was kept in a moving train. The temperature of the gas in the container will

A. increase slightly

B. decrease

C. remain the same

D. become infinite

Answer: A

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30. Two glass tumblers have been stuck together (one into the other). They can be separated by

A. placing hot water in the inner tumbler

B. placing the tumblers in cold water

C. placing the outer tumbler in hot water

D. hammering them vigorously

Answer: C

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31. The quantity of heat required to raise the temperature of 2000 g of water from $10^{\circ}C$ to $50^{\circ}C$ is

A. 80 cal

B. 80,000 cal

C. 8000 cal

D. none of these

Answer: A

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32. A test tube containing some water is surrounded by melting ice (pure). Then, the water in the test tube will

A. not freeze into ice

B. freeze into ice

C. boil ultimately

D. become steam ultimately

Answer: C

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33. Glaciers always melt at the _____ first.

A. top surface

B. sides

C. bottom

D. middle surface

Answer: C

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34. Heat flows as a result of difference of

A. temperatures

B. weights

C. masses

D. none of these

Answer: A

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35. The unit of specific heat is

A. $\mathrm{cal}^{\circ} C$

B. $\mathrm{cal}/\mathrm{g}.^{\circ} C$

C. cal/g

D. none of these

Answer: B

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36. The unit of thermal capacity is

A. $\mathrm{cal}\ /^{\circ} C$

B. cal/g

C. $\mathrm{cal}/\mathrm{g}/.^{\circ}\ C$

D. none of these

Answer: A

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37. The unit of latent heat is

A. cal-g

B. $\mathrm{cal}/.^{\circ} C$

C. cal/g

D. none of these

Answer: C

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38. If the thermal capacity of a body is infinity, then

A. heat can never be added to it

B. heat can never be extracted from it

C. the temperature of the body cannot be altered by adding or extracting any amount of heat

D. it has infinite amount of heat

Answer: C

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39. Calorimeters are generally made of

A. copper

B. brass

C. aluminium

D. zinc

Answer: A

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40. When 1 g of water at 100° C gets converted into steam at the same temperature, the change in volume is approximately

A. 1 cc

B. 1000 cc

C. 1500 cc

D. 1666 cc

Answer: D

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41. The amount of heat required for the above operation is

A. 380 cal

B. 500 cal

C. 4.2 cal

D. none of these

Answer: D

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42. One joule is approximately equal to

A. 0.28 cal

B. 0.32 cal

C. 0.24 cal

D. 4.2 cal

Answer: C

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43. M g of ice at $0^\circ C$ is to be converted to water at $0^\circ C$. If L is the latent heat of fusion of ice, the quantity of heat required for the above operation would be

A. ML cal

B. $\frac{M}{L}$

C. $\frac{L}{M}$ cal

D. none of these

Answer: A

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44. Two bodies A and B are said to be in thermal equilibrium with each other if they have same

A. heat flows from A to B

B. heat flows from B to A

C. both the bodies lose equal amounts of heat to the atmosphere

D. heat does not flow from either A or B

Answer: D

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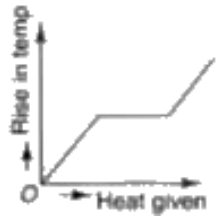
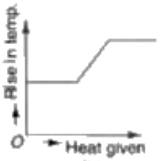
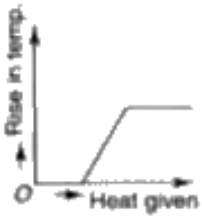
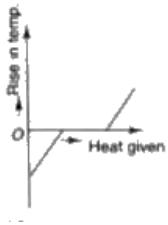
45. 100 g of ice at $-15^{\circ}C$ was heated. The rise in temperature of ice was plotted against the heat given to ice. Which of the following graphs (Fig. 6.2) correctly depicts this behaviour?

A. 

B. 

C. 

D. 

Answer: D

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46. If a substance contracts on heating, its coefficient of linear expansion is

A. $+ve$

B. $-ve$

C. zero

D. infinity

Answer: B

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47. When air is saturated, it cannot hold

A. more water vapour

B. more air

C. more carbon dioxide

D. more oxygen

Answer: A

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48. The units of RH are

A. $kg - m^{-3}$

B. kg

C. $kg - m^2$

D. none of these

Answer: D

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49. If RH is high

A. we feel sultry

B. we perspire less

C. clothes do not dry easily

D. all the above are correct

Answer: D

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50. When it is raining, the dew point is

A. $0^{\circ} C$

B. $50^{\circ} C$

C. $100^{\circ} C$

D. room temperature

Answer: D

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51. At dew point. RH is

A. $10\ \%$

B. $20\ \%$

C. $50\ \%$

D. $100\ \%$

Answer: D

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52. The most comfortable value for RH is about

A. $10\ \%$

B. $30\ \%$

C. $50\ \%$

D. $90\ \%$

Answer: C

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53. When the temperature of water rises, the rate of evaporation

A. increases

B. decreases

C. remains the same

D. first decrease then increases

Answer: A

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54. The first thermometer was developed by

A. Joule

B. Fahrenheit

C. Galileo

D. Watt

Answer: C

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55. Burning of a meteorite in the earth's atmosphere is an example of change of

A. heat energy into kinetic energy

B. kinetic energy into heat energy

C. kinetic energy into potential energy

D. potential energy into heat energy

Answer: B

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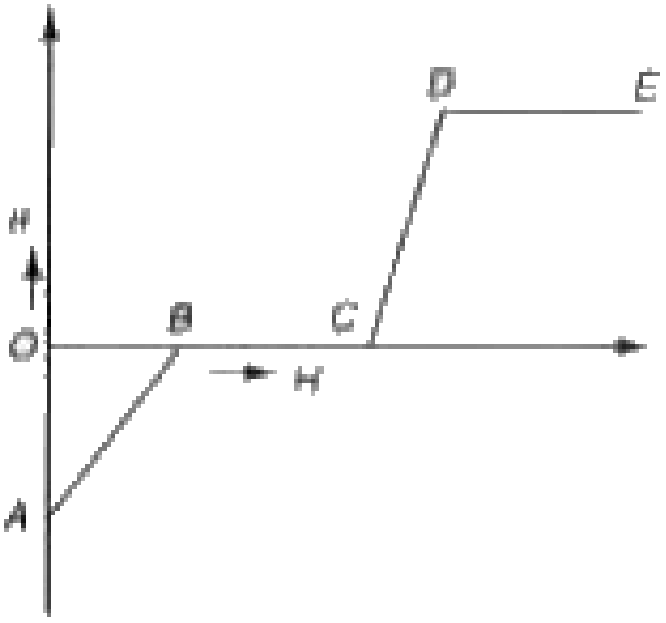
56. Heat given (H) to a substance was plotted against rise in temperature (θ). Which of the following parts of the graph (Fig. 6.3), most correctly depicts the latent heat of the substance?



A. AB

B. BC only

C. CD

D. BC and DE

Answer: D

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57. Soda bottles are made of thick glass so that they can withstand the

A. pressure in summer

B. temperature in summer

C. decrease in viscosity

D. increase in potential energy

Answer: A

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58. The relative humidity is 50%, if air contains about

A. 2.55 g of water vapour at $40^\circ C$

B. 25.5 g of water vapour at $40^\circ C$

C. 2.55 kg of water vapour at $40^\circ C$

D. 25.5 kg of water vapour at $40^\circ C$

Answer: B

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59. Relative humidity is the percentage of the

A. absolute humidity value to the amount of humidity actually present

B. increase of humidity/absolute humidity

C. amount of humidity actually present to the absolute humidity

D. none of these

Answer: C

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60. Evaporation is the process of changing liquid into vapour

A. at any temperature

B. above its boiling point

C. at its boiling point

D. below its boiling point

Answer: D

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61. When we cool a gas below its condensation point, the KE of its molecules

A. increases

B. decreases

C. remains the same

D. first increases then decreases

Answer: B

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62. A piece of ice at $0^\circ C$ is added to a vessel containing water at $0^\circ C$, then

A. all of the ice will melt

B. some ice will melt

C. no ice will melt

D. the temperature will decrease further

Answer: C

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63. At high temperature, the molecules of a substance

A. move more vigorously

B. move less vigorously

C. become stationary

D. are attracted strongly

Answer: A

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64. Fahrenheit scale divides two fixed points into

A. 180 parts

B. 212 parts

C. 100 parts

D. 32 parts

Answer: A

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65. Celsius scale divides two fixed points into

A. 180 parts

B. 212 parts

C. 100 parts

D. 32 parts

Answer: C

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66. In hot water bottles, water is used because

A. its specific heat is low

B. its specific heat is high

C. it is cheap

D. it is easily available

Answer: B

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67. Two rods, one of iron and the other of aluminium, are heated to the same temperature. Then,

A. the iron rod will expand less

B. the iron rod will expand more

C. both rods will expand equally

D. the iron rod will not expand at all

Answer: A

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68. When steam condenses into water its

A. temperature remains the same

B. heat dissipates

C. temperature increases

D. temperature decreases

Answer: B

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69. Two blocks of steel A and B, A being two times heavier than B, are at $40^{\circ}C$. The ratio of heat content of A to B is

A. 1

B. 4

C. 2

D. $\frac{1}{2}$

Answer: C

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70. When 60 calories of heat are supplied to 15 g of water, the rise in temperature is

A. $75^\circ C$

B. $900^\circ C$

C. $4^\circ C$

D. $0.25^\circ C$

Answer: C

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71. A 10 kg storage battery has an average specific heat of $0.2\text{kcal/kg.}^\circ C$. When fully charged, the energy content of the battery is 1

kcal. If the entire energy were used to raise the temperature, then the temperature would increase by

A. $0.2^\circ C$

B. $0.5^\circ C$

C. $200^\circ C$

D. $20^\circ C$

Answer: B

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72. When water is heated from $0^\circ C$ to $10^\circ C$, its volume

A. increases for the full given range (from $0^\circ C$ to $10^\circ C$)

B. decreases up to $4^\circ C$, then increases

C. increases up to $4^\circ C$, then decreases

D. decreases for the full range (from $0^\circ C$ to $10^\circ C$)

Answer: B

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73. 233 K is equal to

A. $40^\circ F$

B. $-40^\circ F$

C. $172^\circ F$

D. $-172^\circ F$

Answer: B

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74. The volume of mole of a perfect gas at NTP is

A. 22.4 litres

B. 2.24 litres

C. 100 litres

D. none of these

Answer: D

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75. $-40^{\circ} F$ on absolute scale is equal to

A. 0 K

B. 233 K

C. 273 K

D. 313 K

Answer: B

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76. A temperature difference of $27^{\circ}C$ on the Kelvin scale is

A. 27 K

B. 300 K

C. -246 K

D. zero

Answer: A

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77. A temperature difference of $15^\circ C$ on the Fahrenheit scale is equal to a difference of

A. $27^\circ F$

B. $59^\circ F$

C. $-27^\circ F$

D. $-59^\circ F$

Answer: A

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78. At what temperature do the Fahrenheit and Celsius scales give the same reading?

A. -40°

B. 0°

C. 574.25°

D. 273°

Answer: A

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79. When 1 g of ice melts at $0^\circ C$

A. 80 cal of heat is liberated

B. 80 cal of heat is absorbed

C. no heat is required

D. none of these

Answer: B

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80. A beaker contains 40 g of water at $20^\circ C$. Now 50 g of ice is put into the beaker. The resulting temperature will be

A. $-7^\circ C$

B. $0^\circ C$

C. $10^\circ C$

D. $1.5^\circ C$

Answer: B

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81. 5 g of ice at $0^\circ C$ and 20 g of water at $45^\circ C$ are mixed. The temperature of the mixture will be

A. $10^\circ C$

B. $20^\circ C$

C. $30^\circ C$

D. $40^\circ C$

Answer: B

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82. The amount of heat required to raise the temperature of a body by $1^{\circ} C$ is called

A. latent heat

B. specific heat

C. thermal capacity

D. none of these

Answer: C

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83. If temperature scale is changed from $'^{\circ} C$ to $'^{\circ} F$, the numerical value of specific heat

A. increase

B. decrease

C. remain unchanged

D. nothing can be said

Answer: B

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84. The amount of heat required to convert 1 g of ice (specific heat 0.5 cal $g^{-1}.^{\circ} C^{-1}$) at $-10^{\circ} C$ to steam at $100^{\circ} C$ is

A. 721 cal

B. 636 cal

C. 716 cal

D. none of these

Answer: A

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85. How much ice must be added to 100 g water at $30^\circ C$ in order to reduce its temperature to $20^\circ C$?

A. 10 g

B. 80 g

C. 400 g

D. None of these

Answer: A

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86. Two liquids have the densities in the ratio of 1:2 and specific heats in the ratio of 2:1. The ratio of thermal capacity of equal volume of those liquids is

A. $1:1$

B. $1:4$

C. $4:1$

D. $2:1$

Answer: A

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87. Which of the following has the highest specific heat?

A. iron

B. water

C. copper

D. mercury

Answer: B

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88. When temperature is gradually decreased, the specific heat of a substance is

A. decreased

B. increased

C. remain unchanged

D. nothing can be said

Answer: A

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89. 2 kg ice at $0^\circ C$ is mixed with 8 kg of water at $20^\circ C$. The final temperature is

A. $0^\circ C$

B. $20^\circ C$

C. $80^\circ C$

D. none of these

Answer: A

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90. Two bodies are in thermal equilibrium if they have same

A. temperature

B. amount of heat

C. specific heat

D. thermal capacity

Answer: A

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91. A piece of ice at $0^\circ C$ is put into a vessel containing water at $0^\circ C$. The ice will

A. melt

B. not melt

C. slightly melt

D. vanish in no time

Answer: B

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92. A fan produces a feeling of comfort during hot weather, because

A. fan supplies cold air

B. our perspiration evaporates rapidly

C. our body radiates more heat in air

D. conductivity of air increases

Answer: B

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93. Freezing mixture is a mixture

A. which solidifies water

B. freezes at 0° C

C. which produces very low temperature

D. which is used in medicine

Answer: C

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94. Water can be made to boil at $0^{\circ}C$. If the pressure of the surroundings is

A. 76 cm of Hg

B. 5 cm of Hg

C. 0.1 cm of Hg

D. 4.6 mm of Hg

Answer: D

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95. The saturation vapour pressure of water at $100^\circ C$ is

A. 750 mm of Hg

B. 760 mm of Hg

C. 76 mm of Hg

D. 7.6 mm of Hg

Answer: B

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96. It is a common notion that the earth's magne tism is due to the

A. presence of a huge permanent magnet in the interior of the earth

B. presence of electric currents circulating in the interior of the earth

C. influence of the sun's magnetic field

D. influence of a nuclear explosion

Answer: B

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97. The force between two parallel wires carrying currents has been used to define

A. ampere

B. coulomb

C. volt

D. watt

Answer: A

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98. A magnetic field cannot exert any force on a

A. moving magnet

B. moving charge

C. stationary magnet

D. stationary charge

Answer: D

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99. The force of rcpulsion between two parallel wires is f when each one of them carries a certain current I. If the current in each is doubled, the force between them would be

A. 4/f

B. 4f

C. 2f

D. f

Answer: B

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100. An electric iron draws a current of 4 A when connected to a 220 V mains. Its resistance must

A. 1000Ω

B. 44Ω

C. 55Ω

D. none of these

Answer: C

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101. The resistance of a conductor is reduced to half its initial value. In doing so the heating effects in the conductor will become

A. half

B. double

C. one-fourth

D. four times

Answer: A

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102. The coil of a heater is cut into two cqual halves and only one of them is used in the heater. The ratio of the heat produced by this half of the coil to that produced by the original coil is

A. $2:1$

B. $4:1$

C. $1:2$

D. $1:4$

Answer: A

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103. An electric current is always accompained by a magnetic field', was discovered by

A. Oersted

B. Maxwell

C. Faraday

D. Ohm

Answer: A

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104. Ampere rule is used to find the

A. direction of current

B. direction of magnetic field

C. direction of motion of the conductor

D. magnitude of current

Answer: B

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105. A magnetic field can exert force on a

A. stationary magnet only

B. moving charge only

C. moving magnet only

D. all the above

Answer: D

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106. A compass needle just above a wire in which electrons are moving towards cast, will point

A. east

B. west

C. north

D. south

Answer: D

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107. Choose the correct statement:

A. Lines of force are not imaginary lines

B. Lines of force cannot be mapped on paper

C. Lines of force do not intersect each other

D. Lines of force always intersect each other

Answer: C

Watch Video Solution

108. A motor converts

A. mechanical energy into electrical energy

B. mechanical energy into sound energy

C. clectrical energy into mechanical energy

D. electrical energy into sound energy

Answer: C

Watch Video Solution

109. A dynamo converts

A. mechanical energy into sound energy

B. mechanical energy into electrical energy

C. electrical energy into mechanical energy

D. electrical energy into sound energy

Answer: B

Watch Video Solution

110. By inserting a soft iron piece into a solenoid, the strength of the magnetic field

A. increases

B. decreases

C. first increases then decreases

D. remains unchanged

Answer: A

 Watch Video Solution

111. By increasing the number of turns in the coil, the strength of the magnetic field.

A. decreases

B. increases

C. first decreases then increases

D. remains unchanged

Answer: B

 Watch Video Solution

112. If current in the core decreases, the strength of the magnetic field

A. decreases

B. increases

C. sometimes decreases and sometimes increases

D. remains unchanged

Answer: A

Watch Video Solution

113. The unit of magnetic flux is

A. Weber

B. Gauss

C. Tesla

D. Weber/m2

Answer: A

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114. Fleming's right hand rule gives

A. the magnitude of the induced emf

B. the magnitude of the magnetic field

C. the direction of the induced emf

D. both magnitude and direction of the in duced emf

Answer: C

Watch Video Solution

115. The unit of induced emf is

A. ampere

B. volt

C. joule

D. electron volt

Answer: B

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116. The phenomenon of electromagnetic induction was discovered by

A. Lenz

B. Maxwell

C. Fleming

D. Faraday

Answer: D

Watch Video Solution

117. For making an electromagnet the best material to be used is

A. stainless steel

B. silver

C. soft iron

D. nickel

Answer: C

Watch Video Solution

118. The intensity of a magnetic field is defined as the force experienced by a

A. standard compass

B. unit positive charge

C. unit negative charge

D. unit north pole

Answer: D

Watch Video Solution

119. A copper ring is moved towards the north pole of a bar magnet. Then

A. the ring will not be affected

B. the ring will tend to get warm

C. an alternating current will flow in the ring

D. the ring will be positively charged

Answer: B

Watch Video Solution

120. A circular coil and a bar magnet recede from cach other with the same velocity. Then

A. there will be no induced emf in the coil

B. there will be an induced emf in the coil

C. an emf will be induced in the magnet

D. none of these

Answer: A

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121. The splitring in motion is called

A. armature

B. rotor

C. commutator

D. core

Answer: C

Watch Video Solution

122. In a bydel station, the motion produced in tur bines is due to the

A. burning of coal

B. burning of diesel

C. flow of water

D. production of steam

Answer: C

Watch Video Solution

123. The frequency of AC mains in India is

A. 100 Hz

B. 50 Hz

C. 1/100 Hz

D. 1/50 Hz

Answer: B

Watch Video Solution

124. At grid sub-stations the voltage is stepped up to reduce loss of

A. current

B. electrical energy

C. Power

D. resistance

Answer: C

Watch Video Solution

125. A switch is always connected to the

A. earth wire

B. neutral wire

C. live wire

D. none of these

Answer: C

Watch Video Solution

126. A fuse wire is always connected to the

A. earth wire

B. neutral wire

C. live wire

D. none of these

Answer: C

Watch Video Solution

127. Electricians use rubber gloves while working because

A. rubber is an insulator

B. rubber is a good conductor

C. it is easy to work while wearing gloves

D. none of these

Answer: A

 Watch Video Solution

128. Faraday's laws of electrolysis are related to the

A. Faraday

B. Maxwell

C. Lenz

D. Bohr

Answer: A

Watch Video Solution

129. $\frac{4}{25}$ coulomb of charge contains electrons.

A. 10^{15}

B. 10^{18}

C. 10^{20}

D. none of these

Answer: B

Watch Video Solution

130. Laws of heating are given by

A. Joule

B. Ohm

C. Maxwell

D. Faraday

Answer: A

Watch Video Solution

131. An electric iron is based upon the principle of

A. heating effect of current

B. magnetic effect of current

C. chemical effect of current

D. none of these

Answer: A

Watch Video Solution

132. An electric bulb converts electrical energy into

A. sound energy

B. mechanical energy

C. nuclear energy

D. none of these

Answer: D

Watch Video Solution

133. Choose the wrong statement:

A. magnetic poles always exist in pairs

B. magnetic poles are always of equal strengths

C. like poles repel each other

D. unlike poles repel each other

Answer: D

Watch Video Solution

134. The force which a magnet exerts on iron and steel is called the

A. electric force

B. magnetic force

C. nuclear force

D. gravitational force

Answer: B

Watch Video Solution

135. Magnetite is a/an

A. natural magnet

B. electromagnet

C. U-shaped magnet

D. none of these

Answer: A

Watch Video Solution

136. Magnetic lines of force

A. are mere directions

B. have no physical reality

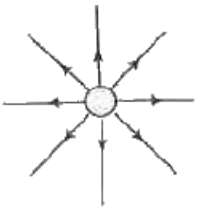
C. can be used to indicate the direction of the magnetic field at point

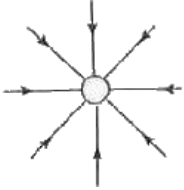
D. all the above are correct

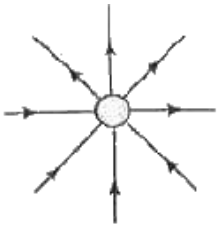
Answer: D

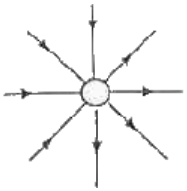
Watch Video Solution

137. Which of the following figures represents the magnetic lines of force due to an isolated north pole?

A. 

B. 

C. 

D. 

Answer: A

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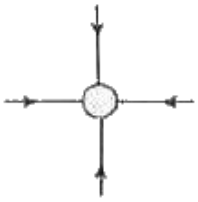
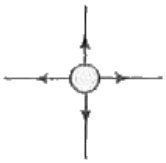
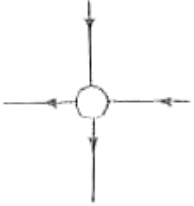
138. Which of the following figures represents the magnetic lines of force due to an isolated south pole ?

A. 

B. 

C. 

D. 

Answer: A

Watch Video Solution

139. Magnetic lines of force

A. form closed circuits

B. cannot intersect

C. are crowded together near the poles

D. all the above are correct

Answer: D

Watch Video Solution

140. The magnetic effect of electric current was discovered by

A. Maxwell

B. Oersted

C. Ampere

D. none of these

Answer: B

Watch Video Solution

141. A coil carrying current behaves as a/an

A. magnet

B. motor

C. dynamo

D. electric dipole

Answer: A

Watch Video Solution

142. An electric current predominantly produces _field around it.

A. magnetic

B. electric

C. gravitational

D. all the above

Answer: A

Watch Video Solution

143. Electromagnets are used in

A. electric bells only

B. telephones only

C. dynamos only

D. all the above

Answer: D

Watch Video Solution

144. A carbon microphone is best used in a

A. dynamo

B. telephone

C. transformer

D. none of these

Answer: B

Watch Video Solution

145. I gauss is equalt to

A. $10^4 T$

B. $10^{-4} T$

C. $10^3 T$

D. none of these

Answer: B

Watch Video Solution

146. 1 T equals

A. $1NA^{-1}m^{-1}$

B. $1NA^{-1}T$

C. $1NAm^2$

D. none of these

Answer: A

Watch Video Solution

147. If a bar magnet is cut lengthwise into 3 parts, the total number of poles will be

A. 2

B. 3

C. 4

D. 6

Answer: D

 Watch Video Solution

148. A compass needle placed just above a wire in which electrons are moving towards west, will point

A. east

B. north

C. west

D. south

Answer: B

Watch Video Solution

149. The wire having a red plastic covering is a

A. live wire

B. neutral wire

C. earth wire

D. none of these

Answer: A

Watch Video Solution

150. The wire having a black plastic covering is a

A. live wire

B. neutral wire

C. earth wire

D. none of these

Answer: B

Watch Video Solution

151. The wire having a green plastic covering is a

A. live wire

B. neutral wire

C. earth wire

D. none of these

Answer: C

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Higher Order Thinking Questions

1. The freezing point of ice is

A. $0^\circ C$

B. $4^\circ C$

C. $-4^\circ C$

D. none of these

Answer: C

Watch Video Solution

2. The melting point of ice

A. $0^\circ C$

B. $4^\circ C$

C. $-4^\circ C$

D. none of these

Answer: A

 Watch Video Solution

3. A pendulum clock becomes

A. slower in winter

B. faster in summer

C. slower in summer and faster in winter

D. nothing can be decided

Answer: C

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4. The amount of heat required to raise the temperature of the entire body by $1^{\circ}C$ is called

A. specific heat

B. latent heat

C. thermal capacity

D. none of these

Answer: C

Watch Video Solution

5. The specific heat of water is

A. $1\text{cal}/\text{g}.^\circ C$

B. $4.2\,\text{joule}/\text{g}.^\circ C$

C. $4200\,\text{joule}/\text{g}.^\circ C$

D. all of the above

Answer: D

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6. If specific heat of a substance is infinite, it means

A. heat is given out

B. heat is taken in

C. no change in temperature takes place whether heat is given out or taken in

D. nothing can be decided

Answer: C

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7. 336 g of ice at $0^\circ C$ is mixed with 336 g of water at $80^\circ C$. What is the final temperature of the mixture?

A. $0^\circ C$

B. $40^\circ C$

C. $80^\circ C$

D. $85^\circ C$

Answer: A

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8. Which of the following has the highest specific heat?

A. Water

B. Copper

C. Silver

D. Hydrogen

Answer: D

Watch Video Solution

9. Water is used as a collent because

A. lower density

B. high specific heat

C. low specific heat

D. easy availability

Answer: B

 Watch Video Solution

10. Boiling water is changing into steam. Under this condition the specific heat of water is

A. unity

B. zero

C. less than unity

D. infinity

Answer: D

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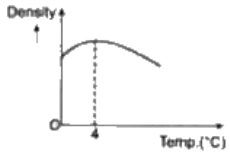
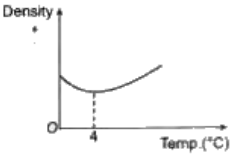
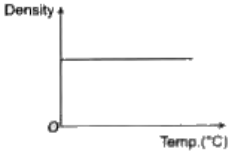
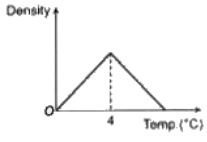
11. Which of the following graphs shows variation between density of water and temperature?

A. 

B. 

C. 

D. 

Answer: A

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12. A bottle of water at $0^{\circ}C$ is opened on the surface of moon. What will happen?

A. Water will boil

B. Water freezes

C. Water decomposes into O_2 and H_2

D. None of these

Answer: A

View Text Solution

13. In a pressure cooker, cooking is faster because the increases in vapour pressure

A. increases the boiling point

B. increases the specific heat

C. decreases the boiling point

D. decreases the specific heat

Answer: A

Watch Video Solution

14. Two blocks of ice when pressed together join to form one block. It happens because

A. melting point falls with pressure

B. melting point rises with pressure

C. heat gets absorbed from outside

D. heat is rejected to outside

Answer: A

View Text Solution

15. SI unit of heat is

A. erg

B. joule

C. calorie

D. none of these

Answer: B

Watch Video Solution

16. none of these

A. 8J

B. 4J

C. 2

D. zero

Answer: A

View Text Solution

17. Two heating wires of equal length are first con nected in series and then in parallel to a constant voltage source. The rate of heat produced in the two cases is

A. $1:2$

B. $1:4$

C. $4:1$

D. $2:1$

Answer: B

Watch Video Solution

18. Of the bulbs in a house, one glows brighter than the other, which of the two has a large resistance.

A. The dim bulb

B. The bright bulb

C. Both have the same resistance

D. the brightness does not depend upon the resistance

Answer: A

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19. An electric fan and a heater are marked as 100 watt , 220 volt and 1000 watt , 220 volt respectively. The resistance of the heater is

A. lesser than that of fan

B. greater than that of fan

C. equal to that of fan

D. nothing can be decided

Answer: A

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20. If a 2 kW boiler is used everyday for 1 hour, then electrical energy consumed by boiler in thirty days is

A. 120 units

B. 100 units

C. 80 units

D. 60 units

Answer: D

Watch Video Solution

21. Appliances based on heating effect of current work on

A. only d.c.

B. only a.c.

C. both d.c. and a.c.

D. none of these

Answer: C

Watch Video Solution

22. Heat developed in an electric wire of resistance Rohm by current / ampere for a time t second is

A. $\left(\frac{I^2Rt}{4.2}\right)$ cal

B. $\left(\frac{I^2t}{4.2R}\right)$ cal

C. $\left(\frac{I^2R}{4.2t}\right)$ cal

D. $\left(\frac{Rt}{4.2I^2}\right)$ cal

Answer: A

 Watch Video Solution

23. If R_1 and R_2 are respectively the filament resistances of a 200 watt bulb and 100 watt bulb designed to operate on the same voltage, then

A. $R_1 = 2R_2$

B. $R_1 = 4R_2$

C. $R_1 = \frac{R_2}{2}$

D. $R_1 = \frac{R_2}{4}$

Answer: C

Watch Video Solution

24. Two electric bulbs A and B are disigned for the same voltage. Their power ratings are P_A and P_B respectively with $P_A < P_B$. If they are joined in series across a V-volt supply

A. A will draw more power than B

B. B will dray more power than A

C. A and B will draw the same power

D. nothing can be decided

Answer: A

 Watch Video Solution

25. Five equal risistors when connected in series dissipted 5 W power. If they are connected in parallel, the power dissipated will be

A. 125 W

B. 96 W

C. 68 W

D. 32 W

Answer: D

Watch Video Solution

26. Two heaters, eacch maked 1000 W, 250 V are connected in series with a 250 V supply. Assuming that their resistance remains

constant, their combined rate of heating will be

A. 250 W

B. 500 W

C. 1000 W

D. 2000 W

Answer: B

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27. Two bulbs, one of 50 watt and another of 25 watt are connected in series to the mains. The ratio of the currents through them is

A. $1:1$

B. $1:2$

C. $2:1$

D. $3:2$

Answer: A

Watch Video Solution

28. 1 joule equals

A. AVs^{-1}

B. $AV^{-1}s$

C. Avs

D. $A^{-1}Vs$

Answer: C

Watch Video Solution

29. You have the following appliances each of 500 W running 220 V ac.

(i) Electric iron

(ii) Electric lamp

(iii) Electric room heaater

The electric resistance is

A. maximum for room heater

B. maximum for electric iron

C. maximum for electric lamp

D. same in all the three cases

Answer: D

 Watch Video Solution

30. An electric lamp is marked 60 W, 240 V. If it operats at 200, V the current through it will be

A. $0.18A$

B. $0.21A$

C. $0.30A$

D. $0.36A$

Answer: B

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31. Which of the following can be used to express energy ?The symbols used have their usual meanings for the units of physical quantities.

(i) Wh **(ii) VC**

(iii) AVs^2

(iv) $A^2\Omega s$

A. (i) and (iii)

B. (i) , (ii), (iv)

C. (ii), (iii), (iv)

D. (i),(ii),(iv)

Answer: B

View Text Solution

32. Two metallic wires of the same material and same length have different diameters. If we connect them in series across a battery, the

heat produced is H_1. If we connect them in parallel to the same battery the heat produced during the same time is H_2. From the above, we infer that

A. $H_1 > H_2$

B. $H_1 < H_2$

C. $H_1 = H_2$

D. nothing can be decided

Answer: B

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33. In the above question 73, when the wires are connected in parallel, the heat produced in thinner wire is H_1 and that in thicker wire is H_2. Which of the following is correct ?

A. $H_1 > H_2$

B. $H_1 < H_2$

C. $H_1 = H_2$

D. nothing can be decided

Answer: B

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34. Two equal resistances are connected in seires across a battery and consume a power P If these are connected in parallel, then power consumed will be

A. $4.0P$

B. 2.0

C. $\frac{P}{2}$

D. $\frac{P}{4}$

Answer: A

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35. Heat produced in a wire of resistance R due to current flowing at constant potential difference is proportional to

A. R

B. R^2

C. $\frac{1}{R}$

D. $\frac{1}{R^2}$

Answer: C

Watch Video Solution

36. The heat dissipated across a resistenace R and 10 V is 20 joules per second. The value of R is

A. 3Ω

B. 4Ω

C. 5Ω

D. 8Ω

Answer: C

Watch Video Solution

37. A moving charge produces

A. a magnetic field

B. an electric field

C. no field at all

D. both (a) and (b)

Answer: A

Watch Video Solution

38. The ratio of SI to cgs units of magnetic field is

A. 10^4

B. 10^2

C. 10^{-4}

D. 10^5

Answer: A

Watch Video Solution

39. Tesla is the SI unit of

A. electric field

B. magnetic field

C. pole strength

D. none of these

Answer: B

Watch Video Solution

40. Ampere-metre is used to represent

A. magnetic field

B. electric field

C. pole strength

D. none of these

Answer: C

View Text Solution

41. The source of magnetic field is

A. current carrying conductor

B. moving charged particle

C. permanent magnet

D. all of the above

Answer: D

 Watch Video Solution

42. The effect of magnetic field on stationary charge Is

A. maximum

B. minimum but not zero

C. maximum but not infinity

D. zero

Answer: D

 Watch Video Solution

43. When an electric charge is moving in free space

A. only magnetic field is produced

B. only electric field is produced

C. neither (a) nor (b)

D. both (a) and (b)

Answer: D

View Text Solution

44. When an electric current is passing through a conductor, there is no electric field produced because the conductor is

A. positively charged

B. negatively charged

C. electrically neutral

D. none of these

Answer: C

View Text Solution

45. If the lines of magnetic induction in a region are crowded together, the magnetic field strength in that region will be

A. weak

B. strong

C. infinite

D. zero

Answer: B

 Watch Video Solution

46. In case of a uniform magnetic field, the lines of magnetic induction are

A. non-parallel

B. curved

C. equidistant and parallel

D. all of the above

Answer: C

 Watch Video Solution

47. A current is passed through a straight wire. The magnetic field established around it has its lines of forces

A. circular

B. elliptical

C. parabolic

D. none of these

Answer: A

View Text Solution

48. When a charged particle moves in a magnetic field, does its kinetic energy always remain constant? Explain.

A. decreases

B. increases

C. remains constant

D. nothing can be decided

Answer: C

Watch Video Solution

49. A magnetic field

A. always exerts a force on a charged particle

B. never exerts a force on a charged particle

C. exerts a force, if the charged particle is moving along the magnetic field lines

D. exerts a force, if the charged particle is moving across the magnetic field lines

Answer: D

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