ENGLISH

Read the passage to answer questions 1-2

Visit any airport on the main air routes of the world and you will observe one of the greatest wonders of modern civilization. Imagine yourself in the departure lounge at Karachi Airport. The P.I.A. flight is just about to leave for London and New York. About a hundred people are trooping out to enter the gigantic jet-propelled airliner that will be at London Airport twelve hours from now, and will then fly the Atlantic Ocean to reach New York a mere six hours after leaving London. Two other huge airliners can be seen through the windows and one group of people in the lounge will be in Japan, and another in Norway, before the day is out. The doors of this room are gateways to all the countries of the world, few of which are more than a day's flying time away.

1. How much time an airliner takes to reach to New York from Karachi Airport through London in a non-stop flight?

   A. twelve hours
   B. six hours
   C. eighteen hours
   D. twenty hours

2. The underlined phrase "this room" refers to:

   A. Karachi airport
   B. Departure lounge
   C. Airliners
   D. London airport



Complete the sentences by choosing the most appropriate option, from the given lettered choices (A to D) below each.

3. Children depend _____ their parents for food and clothing.

   A. on
   B. of
   C. in
   D. off

4. I am very _____ that he passed because he worked very hard.

   A. thankful
   B. keen
   C. glad
   D. shocked

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Identify the word or phrase that needs to be changed for the sentence to be correct:

5. Mother (A) was pouring (B) out the tea (C) when I entered (D) the room. No error (E)

6. The (A) weather was far (B) to hot for us to think (C) of going for a walk. (D)
No error (E)

Choose the word most similar in meaning to the capitalized one.

7. ANXIETY:

A. worry
B. support
C. hope
D. comfort

8. ORIGINAL:

A. real
B. copied
C. idea
D. tired

Choose the lettered word or phrase that is most nearly opposite in meaning to the word in capital letters.

9. CALM:

A. nervous
B. peaceful
C. cool
D. relaxed

10. LOW:

A. short
B. high
C. minute
D. little

PHYSICS

11. A 3-cm length of wire is moved at right angles across a uniform magnetic field with a speed of 2.0 m/s. If the flux density is 5.0 teslas, what is the magnitude of the induced e.m.f.?

A. 0.03 V
B. 0.3 V
C. 0.6 V
D. 10 V
E. 20 V

12. A car going around a certain curve at a speed of 25 km/h has centripetal force acting on it of 100 N. If the speed of the car is doubled, the centripetal force:

A. is quadrupled
B. is doubled
C. is multiplied by the $\sqrt{2}$
D. is reduced to 1/2 of the original value
E. is reduced to 1/6 of the original value

13. A handball is tossed vertically upward with a velocity of 19.6 m/s. Approximately how high will it rise?

A. 15.8 m
B. 19.6 m
C. 25.6 m
D. 30 m
E. 60 m

14. One kilowatt-hour is equivalent by a factor ____ in Joules.

A. 1.2×10^5
B. 1.2×10^6
C. 3.6×10^5
D. 3.6×10^6

15. The resistivity in SI units is measured in:

A. Ω-m
B. Ω-m^2
C. Ω/m
D. Ω/m^2

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16. To trigger fission process in $_{92}U^{235}$ in a nuclear reactor, one needs to use:

A. slow protons
B. slow neutrons
C. fast protons
D. fast neutrons

17. The numerical value of Planck's constant is:

A. 6.63×10^{-34} J/K
B. 6.63×10^{-34} Js
C. 8.63×10^{-34} J/K
D. 8.63×10^{-34} Js

18. The vector product of position vector 'r' and Force 'F' is called:

A. weight
B. torque
C. normal reaction
D. tension

19. The force of attraction between earth with mass 'M' and another body with mass 'm' at a distance 'r' is:

A. Mm/r^2
B. GMm/r^2
C. Mm/Gr^2
D. Mmr^2/G

20. 1.6 A current flows from a battery for 10 minutes. How much charge (in C) flows through the circuit during this time?

A. 900
B. 890
C. 980
D. 960

21. Minimum Frequency below which no electrons are emitted from metal surface is called _____ frequency.

A. minimum
B. angular
C. maximum
D. threshold

22. If the area of cross section of a wire in a circuit is doubled, its resistivity:

A. becomes one fourth
B. becomes half
C. remains the same
D. doubles

23. The magnetic flux is measured in the units of:

A. Weber
B. Weber-m
C. Tesla
D. Weber/m

24. Consider a slit of width a producing a diffraction pattern, if 'm' is either positive or negative integer then diffraction minima occur under the condition:

A. $m\lambda = a\sin\theta$
B. $2m\lambda = a\sin\theta$
C. $m\lambda = 2a\sin\theta$
D. $(2m+1)\lambda = 2a\sin\theta$

25. If Q_1 is the heat absorbed from the hot body and Q_2 is the heat rejected to the cold body, the efficiency of a Carnot engine is given by:

A. $(Q_1-Q_2)/Q_2$
B. $(Q_2-Q_1)/Q_2$
C. $(Q_1-Q_2)/Q_1$
D. $(Q_2-Q_1)/Q_1$

26. Which one of the following groups contains all vector quantities?

A. velocity, acceleration, power
B. force, work, energy
C. speed, temperature, work
D. displacement, velocity, energy
E. displacement, velocity, momentum

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27. Which of the following is/are true for all transverse waves?

A. They are all electromagnetic.
B. They can all be polarized.
C. They can all travel through a vacuum.
D. They all involve the oscillation of atoms.

28. Three arms of a balanced Wheatstone Bridge are of 50 ohms resistance each. What is the resistance of fourth arm?

A. 100 ohms
B. 150 ohms
C. 200 ohms
D. 50 ohms
E. 270 ohms

29. Isotopes of a given element all have the same:

A. charge / mass ratio
B. neutron number
C. nucleon number
D. proton number

30. In the photoelectric effect, light falling on a metal surface causes electrons to be ejected from the surface. Which statement is correct?

A. Electrons are ejected only if the wavelength of the incident light is greater than some minimum value
B. The maximum energy of the electrons is independent of the intensity of the incident light
C. The maximum energy of the electrons is independent of the type of metal
D. The waves associated with the ejected electrons have the same wavelength as the incident light

31. An apple is dropped from the top of a building. If it takes 5 seconds to hit the ground. Find with what velocity will it strike the ground. ($g=9.8\ m/s^2$)

A. 29 m/s
B. 39 m/s
C. 49 m/s
D. 59 m/s
E. 19 m/s

32. What is the projection of $\vec{E}=2i-3j+6k$ onto the direction of vector $\vec{F}=i+2j+2k$.

A. 1/2
B. 8/3
C. 3/5
D. 5/7
E. 7/9

33. A 400 gram ball is tied to the end of a cord and whirled in a horizontal circle of radius 0.6 m. If the ball makes five complete revolutions in 2 s, what is the ball's linear speed?

A. 4.42 m/s
B. 5.42 m/s
C. 7.42 m/s
D. 8.42 m/s
E. 9.42 m/s

34. Find the gravitational force of attraction between two balls each weighing 10 kg, when placed at a distance of 1 meter apart.

A. 6.673×10^{-9} N
B. 7.71×10^{-9} N
C. 8.91×10^{-9} N
D. 9.91×10^{-9} N
E. 10.31×10^{-9} N

35. When a 7000 N elevator moves from street level to the top of a building 300 m above the street level, what is the change in gravitational potential energy?

A. 1.1×10^{6} J
B. 2.1×10^{6} J
C. 3.1×10^{6} J
D. 4.1×10^{6} J
E. 5.1×10^{6} J

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36. A body of mass 4 kg attached to a spring is
m from its equilibrium position and then rel
constant is 400 N/m. Find the time period o

A. 4.567 s
B. 3.416 s
C. 2.315 s
D. 1.325 s
E. 0.628 s

37. In SI units, the unit of Candela is used for t

A. Heat intensity
B. Light intensity
C. Energy/time
D. Energy/area

38. What will be the position of the object, whe
length 20 cm, is used to form an erect imag
large as the object?

A. The object is 2 cm from the lens
B. The object is 4 cm from the lens
C. The object is 6 cm from the lens
D. The object is 8 cm from the lens
E. The object is 10 cm from the lens

39. Find the heat transferred to or from the syst
thermodynamics system undergoes a proces
energy decreases by 300 J. If at the same ti
done on the system.

A. -120 J
B. -220 J
C. -320 J
D. -420 J
E. -520 J

40. What will be the energy in Joules, when an e
speed of 10^6 m/s?

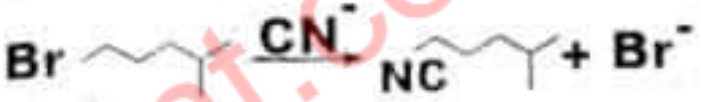
A. 3.61×10^{-19} J
B. 4.55×10^{19} J
C. 5.13×10^{19} J
D. 6.13×10^{-19} J
E. 8.71×10^{19} J

CHEMISTRY

41. Which of the following metals is the most reactive of all the s-block elements?

A. Li
B. Cs
C. Be
D. Ca
E. Na

42. Under the following conditions:



1- Bromo-4-methylpentane will most probably react via:

A. S_N1
B. S_N2
C. Both S_N1 and S_N2
D. Neither S_N1 nor S_N2

43. Scientist(s) made contributions in the field of developing a periodic table is/are:

A. Newland
B. Dobriener
C. Mendeleev & Mosley
D. All of the above

44. If absolute temperature of a gas is doubled and the pressure is reduced to one half the volume of gas will:

A. remain unchanged
B. increases four times
C. reduce to
D. be doubled

45. Which of the following liquid is more viscous than others?

A. Water
B. Ether
C. Ethanol
D. Mobile oil

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46. What volume in dm^3 of KCl is obtained in the following equation:

$$2KClO_3 \rightarrow 2KCl + 3O_2$$

A. $2\ dm^3$
B. $74.5\ dm^3$
C. $50\ dm^3$
D. $40\ dm^3$
E. $20\ dm^3$

47. The number of electrons present in n=2, l=1 and m=-1, 0, +1 are:

A. 2
B. 6
C. 8
D. 10
E. 18

48. If the difference between electronegativity values between two atoms is less than 1.7, the bond is necessarily:

A. ionic
B. covalent
C. electrovalent
D. polar
E. non-polar

49. Consider the following reaction

$N_{2(g)} + O_{2(g)} \leftrightarrow 2NO_{(g)}$ $K_c = 0.1$ at 2000°C

If original concentrations of N_2 and O_2 were 0.1M each. Calculate the concentrations of NO at equilibrium.

A. 0.028 M
B. 0.0012 M
C. 0.18 M
D. 0.0018 M
E. 0.002 M

50. IUPAC name of $(CH_3)_2 - CH - CH(C_2H_5) - C(CH_3)_3$ is:

A. 3-ethyl-2, 2, 4-trimethyl pentane
B. 4-ethyl-2, 2, 4-trimethyl pentane
C. 5-ethyl-2, 2, 4-trimethyl pentane
D. 2-ethyl-2, 2, 4-trimethyl pentane
E. 1-ethyl-2, 2, 4-trimethyl pentane

51. All are dehydrating agents for alcohols to produce alkene except:

A. Al_2O_3
B. P_2O_5
C. Dilute H_2SO_4
D. H_3PO_4

52. The change in concentration of reactant or product per unit time is called:

A. Rate constant
B. Rate of reaction
C. Rate equation
D. Rate law
E. Both A & D

53. A sample of gas weighs 1.25 g, at 28°C occupying a volume of 2.50×10^2 ml and its pressure is 715 torr. What is the molar mass in grams?

A. 131.1
B. 1.311
C. 1.212
D. 122.1

54. For which mechanism the first step involved is the same?

A. E_1 and E_2
B. S_N1 and E_2
C. E_1 and S_N2
D. E_1 and S_N1

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55. Which structures show a primary alcohol that cannot be dehydrated to form an alkene?

I. CH_3OH
II. CH_3CH_2OH
III. $CH_3CH(OH)CH_3$

A. Only I
B. Only I and II
C. Only II and III
D. Only I and III

56. Amylopectin has _____ linkage

A. α 1 – 4 glycosidic
B. β 1 – 4 and 1 – 6 glycosidic
C. α 1 – 4 and 1 – 6 glycosidic
D. β 1 – 4 glycosidic

57. Metaboric acid when heated produces:

A. B_2O_3
B. HBO_2
C. $H_2B_4O_7$
D. H_3BO_3

58. Common name of Octadecanoic acid is:

A. Propionic acid
B. Stearic acid
C. Palmitic acid
D. Formic acid
E. Acetic acid

59. Shape of the orbital occupied by an electron is defined by:

A. Principle quantum number
B. Azimuthal quantum number
C. Spin quantum number
D. Magnetic quantum number

60. In the end of periodic table _____ are found.

A. s block element
B. p block element
C. d block element
D. Noble gases

61. 10 dm^3 of sulphur reacts with sufficient amount of hydrogen. H_2S formed occupies the space, $S + H_2 \rightarrow H_2S$.

A. 5 dm^3
B. 10 dm^3
C. 15 dm^3
D. 20 dm^3
E. 25 dm^3

62. The radius of 2nd Bohr's orbit is greater than the 1st by 0.529Å multiplied by?

A. 2
B. 4
C. 6
D. 8
E. 9

63. Nitric oxide is prepared by the action of HNO_3 on:

A. Fe
B. Cu
C. Zn
D. Sn

64. Newlad called the regularity of elements as the law of _____.

A. Shell
B. Orbits
C. Octaves
D. Periods

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65. The elements of group IIIA, IVA, VA, VIA, VIIA and zero group are the members of _____ block elements.

A. s
B. p
C. d
D. f

66. Five words are shown below:

Homogeneous predominates solvent three nine

These words can be used in the spaces P, Q, R, S and T to complete the sentences below.

"A solution is a ___P___ mixture of the molecules, atoms or, ions of two or more components" The component that ___Q___ in the solution is usually referred to as the ___R___. Since there are ___S___ states of matter. There are ___T___ types of solutions: three gaseous solutions, three liquid solutions, and three solid solutions.

	solvent	nine	predominates	three	Homogeneous
A	S	Q	T	P	R
B	P	Q	S	R	T
C	S	P	Q	T	R
D	T	S	P	Q	R
E	R	T	Q	S	P

67. Which of the following series in H atom give spectral line of 9980 Å?

A. Lyman
B. Paschen
C. Balmer
D. Bracket
E. None of the above

68. The complete oxidation of ethanol produces first ethanal than:

A. Acetadehyde
B. Ethanoic acid
C. Benzoic acid
D. Propanaone

69. Which of the following is correct electronic configuration of Cu (Z=29)?

A. $[Ar]\ 4s^2, 3d^9$
B. $[Ar]\ 4s^1, 3d^9$
C. $[Ar]\ 4s^1, 3d^{10}$
D. $[Ar]\ 4s^2, 3d^8$

70. Which of the following is mathematical form of first law of thermodynamics?

A. $\Delta E = q - p$
B. $\Delta E = q \times w$
C. $q = \Delta E + w$
D. $\Delta E = q + w$

$q = \Delta E + w$

NIS HASSAN

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