Admission Tech

SET A

IUT ADMISSION TEST 2016-2017

QUESTION PAPER

PHYSICS

1. A truck is stopped at a traffic signal. When the light turns green, it accelerates at 2.5 $m.s^{-2}$. At the same instant, a car passes the truck going 15 $m.s^{-1}$. Where does the truck catch up with the car?
   A) 220 m B) 180 m C) 165 m D) 195 m

2. An airplane flies due west at 185 $km.h^{-1}$ with respect to the air. There is a wind blowing at 85 $km.h^{-1}$ to the northeast relative to the ground. What is the plane's speed with respect to the ground?
   A) 139 kmh^{-1} B) 230 kmh^{-1} C) 239 kmh^{-1} D) 179 kmh^{-1}

3. A tennis ball is thrown straight up with an initial speed of 22.5 $m.s^{-1}$. It is caught at the same distance above the ground. How high does the ball rise?
   A) 24.72 m B) 23.57 m C) 25.83 m D) 26.53 m

4. Engineers are developing new types of guns that might someday be used to launch satellites as if they were bullets. One such gun can give a small object a velocity of 3.5 $km.s^{-1}$, moving it through only 2.0 cm. Over what time interval does the acceleration take place?
   A) 11.43 μs B) 13.43 μs C) 10.43 μs D) 12.43 μs

5. On a planet with an unknown value of g, the period of a 0.65 m long pendulum is 2.8 s. What is g for this planet?
   A) 2.27 ms^{-2} B) 2.95 ms^{-2} C) 3.95 ms^{-2} D) 3.27 ms^{-2}

6. A student stands on a bathroom scale in an elevator at rest on the 64th floor of a building. The scale reads 836 N. As the elevator moves up, the scale reading increases to 936 N, then decreases back to 836 N. What is the acceleration of the elevator?
   A) 1.13 ms^{-2} B) 1.27 ms^{-2} C) 1.21 ms^{-2} D) 1.57 ms^{-2}

7. As a baseball is being caught, its speed goes from 30.0 $m.s^{-1}$ to 0.0 $m.s^{-1}$ in about 0.0050 s. The mass of the baseball is 0.145 kg. What is the magnitude of the force acting on the player who caught it?
   A) 890 N B) 870 N C) 780 N D) 980 N

8. A player kicks a football from ground level with an initial velocity of 27.0 $m.s^{-1}$, 30° above the horizontal. Find the range of ball (assume negligible air resistance).
   A) 63.42 m B) 62.42 m C) 61.42 m D) 64.42 m

9. A 5.00 g bullet is fired with a velocity of 100.0 $m.s^{-1}$ toward a 10.00 kg stationary solid block resting on a frictionless surface. What is the change in momentum of the bullet if it is embedded in the block?
   A) - 0.45 $kg.m.s^{-1}$ B) - 0.55 $kg.m.s^{-1}$ C) - 0.50 $kg.m.s^{-1}$ D) - 0.65 $kg.m.s^{-1}$

SET A

10. A 750 kg car moving at 23 $m.s^{-1}$ brakes to a stop. The brakes contain about 15 kg of iron, which absorbs the energy. What is the increase in temperature of the brakes? Specific heat of iron is 450 $J.(kg\,°C)^{-1}$.
A) 29.40 °C B) 39.40 °C C) 49.40 °C D) 19.40 °C

11. An electric motor develops 65 kW of power as it lifts a loaded elevator to 17.5 m in 35 s. How much force does the motorexert?
A) 1.75×10^5 N B) 1.30×10^5 N C) 1.45×10^5 N D) 1.95×10^5 N

12. The Earth is revolving around the Sun on an orbit of radius 1.5×10^8 km . If the time of one revolution is 3.156×10^7 s, what is the mass of the Sun? ($G=6.67\times10^{-11}$ Nm^2kg^{-2})
A) 3.0×10^{30} kg B) 1.5×10^{30} kg C) 2.0×10^{30} kg D) 2.5×10^{30} kg

13. Theintensity level of sound produced by one lathe machine is 90. 0 dB. If twosuch machines start operating at the same location, what is the intensity level of the sound produced by the machines?
A) 95.0 dB B) 93.0 dB C) 96.0 dB D) 99.0 dB

14. A man whose weight is 0.80 kN is standing upright. How much his thighbone shortened compared to when he is lying down. The length of his thighbone when lying is 43.0 cm and the area of the thighbone is 8.0 cm^2. (Young's modulus of the thighbone $Y=9.4\times10^9$ Pa).
A) 2.29×10^{-3} cm B) 3.29×10^{-3} cm C) 1.29×10^{-3} cm D) 4.57×10^{-3} cm

15. The equation of motion of particle experiencing simple harmonic motion is $x = 10\sin(10t - \pi/6)$ m. What is the velocity of the particle at $t = 0.1$ s?
A) 88.17 ms^{-1} B) 78.57 ms^{-1} C) 98.87 ms^{-1} D) 88.87 ms^{-1}

16. Two sources are producing sound in a medium with frequencies 480 Hz and 360 Hz, respectively. The difference in wavelength corresponding to those two frequencies is 2 m. What is the velocity of sound in that medium?
A) 2880 ms^{-1} B) 2980 ms^{-1} C) 2860 ms^{-1} D) 2580 ms^{-1}

17. A bubble rises from the bottom of a lake of depth 80.0 m where the temperature is 4 °C. The water temperature at the surface is 18 °C. If the bubble's initial diameter is 1.0 mm, what is diameter when it reaches the surface?
A) 2.35 mm B) 2.10 mm C) 2.50 mm D) 2.40 mm

18. An astronaut wears a new watch when in a journey at a speed of 2×10^8 $m.s^{-1}$ with respect to the earth. According to the mission control the trip lasts 12.0 h. How long is the trip as measured on the watch?
A) 8.34 h B) 8.15 h C) 8.94 h D) 8.39 h

19. A flash light is powered by two 1.5 V batteries in series with internal resistance of 0.1 Ω. The wire connecting the batteries with the lamp has a total resistance of 0.4 Ω and the lamp filament has a resistance of 9.70 Ω at normal operating temperature. What is the power absorbed by the lamp?
A) 815 mW B) 823 mW C) 875 mW D) 865 mW

SET A

20. A small fish is at a depth of 2.0 m below the surface of a still pond. What is the apparent depth of the fish as viewed by a kingfishernear the surfaceof the pond?
A) 1.75 m B) 1.45 m C) 1.50 m D) 1.65 m

21. A wild rose 1.2 cm in diameter is 90.0 cm from a camera's zoom lens. The focal length of the lens has a magnitude of 150.0 mm. What is the distance between the lens and the camera film where the image of the rose is formed?
A) 17.5cm B) 18.0 cm C) 19.5 cm D) 18.5 cm

22. The half life of ^{13}N is 9.965 min. If a sample contains 3.20×10^{12} ^{13}N atoms at t = 0, how many ^{13}N nuclei are present 40. 6min later?
A) 2.65×10^{11} B) 2.55×10^{11} C) 2.00×10^{11} D) 2.35×10^{11}

23. A doorbell has a transformer to deliver 8.5 V toit when connected to a 220 V mains. If there are 50 turns on the secondary of the transformer, howmany turnsdoesthe primary have?
A) 1350 B) 1222 C) 1322 D) 1250

24. An ideal transformer has 500 turns in the primary and 250 turns in the secondary. If the average power input to the primary is 100 W, what is the average output power?
A) 95 W B) 87 W C) 59 W D) 100 W

25. The nichrome heating element of a toaster has a resistance of 12.0 Ω when it is red hot (1200 °C). What is the resistance of the element at room temperature (27 °C)? (Temperature coefficient of resistance of nichrome is 0.4×10^{-3} °C^{-1}).
A) 8.167 Ω B) 10.167 Ω C) 9.167 Ω D) 7.167 Ω

26. A proton enters in a magnetic field of 6.0 μT with a velocity of 6.0×10^{7} m.s^{-1}. What is the magnetic force on the proton?
A) 5.76×10^{-17} B) 5.76×10^{-18} C) 4.76×10^{-17} D) 3.76×10^{-17}

27. A 125 m long power line is horizontal and carries a current of 2500 A. The earth's magnetic field at that location is 0.52 mT directed downward. What is magnetic force on the line?
A) 168.5 N B) 162.5 N C) 160.5 N D) 167.5 N

28. Three resistances, R_A=10 Ω, R_B=20 Ω and R_C=30 Ω are connected in series across a 60 V source. How much power is consumed by R_B?
A) 25 W B) 30 W C) 20 W D) 22 W

29. How high does a mercury barometer stand on a day when atmospheric pressure is 98.6 kPa?
A) 740 mm B) 760 mm C) 755mm D) 725 mm

30. An old wooden tool is found to contain only 6.0 % of $^{14}_{6}C$ that a sample of fresh wood contains. How old is the tool? (Half life of carbon is 5730 years).
A) 2.3×10^{3} B) 2.3×10^{4} C) 2.75×10^{4} D) 3.25×10^{4}

SET A

31. A power station contains a heat engine operating between two heat reservoirs, one containing steam at 100 °C and other containing water at 20 °C. What is the maximum amount of electrical energy which can be generated for eaeh Joule of the heat extracted fr om the steam?
A) 0.263 J B) 0.235 J C) 0.214 J D) 0.278 J

32. Two parallel circular platesof radius 0.08 m areplaced in air. The distance betweon the platesis 0.002 m and are kept at a potential differenee of 100 V. What is eleetrical energy storod in the system?
A) 493 μJ B) 437 μJ C) 475 μJ D) 445 μJ

33. A heater of resistance 110 Ω is immersed in a bucket containing 5 liter of water at 0°C. What is the temperature of water if the heater is kept on for 20 min using a 220 V mains? (Specific heat of water is 4.2 J.g °C^{-1}).
A) 26°C B) 25°C C) 27°C D) 29°C

34. The emitter and base current of a common emitter transistor circuit are respectively, 0.85 mA and 0.05 mA. What is β of the transistor?
A) 16 B) 18 C) 20 D) 10

35. A centrifuge in a medical laboratory rotates at an angular speed of 3,600 rpm. When the switch is off it rotates through 50 revolutions before coming to rest. What is the acceleration of the centrifuge.
A) 235 rad.s^{-2} B) 226 rad.s^{-2} C) 247 rad.s^{-2} D) 210 rad.s^{-2}

CHEMISTRY

36. Solubility product of $Al(OH)_3$ is 3.7×10^{-15}. What will be the solubility of $Al(OH)_3$ in g/L unit?
A) 8.424×10^{-3} B) 8.424×10^{-2} C) 7.424×10^{-3} D) 7.424×10^{-2}

37. Find the value of X_4 from the following nuclear reaction.

A) $^{226}_{88}Ra$ B) $^{214}_{82}Pb$ C) $^{230}_{90}Th$ D) $^{234}_{91}Pa$

38. Which one of the following proper ies is not the general property of d-block element?
A) All the d-block elementsare heavy metals.
B) d-block metals have high melting point and high boiling point.
C) The ioni zationenergy of d-block element is higher than that ofs-block element.
D) d-block metals are more electropositive thans-block metals.

39. If 4.25 mol H_2 and 4.75 mol I_2 is kept ata 1 L flask and heated to 300 °K then 6.7 mol HI is produced. Find the equili brium constant K_C and K_P.
A) 3.563, 3.563 B) 35.63, 35.63 C) 35.63, 876.5 D) 3.563, 87.65

SET A

40. What ratio of $\frac{[NH_3]}{[NH_4^+]}$ is required for a buffer solution that has $pH = 7.0$? K_a value of NH_4^+ ion $= 5.6 \times 10^{-10}$.

A) 5.6×10^{-3} B) 6.5×10^{-3} C) 177.83 D) 17.783

41. During the manufacturing process of a Sulphuric acid, As_2O_3 acts as a

A) Catalyst poison B) Positive catalyst C) Catalyst promoter D) Negative catalyst

42. According to Acid's strength, which one of the following statement is not true?

A) $HCL > H_2SO_3 > HNO_2$ B) $H_3PO_3 > H_3PO_4 > HCO_2H$

C) $HF > HNO_2 > CH_3CO_2H$ D) $H_3PO_3 > HNO_2 > HCO_2H$

43. If acid rain happens at IUT, what will you use to make the soil normal?

A) TSP B) $(NH_4)_2CO_3$ C) Dolomite D) KNO_3

44. Which of the following lights has the highest wavelength range?

A) Indigo B) Green C) Blue D) Orange

45. Which of the following salts is soluble in water?

A) $CaSO_4$ B) $ZnSO_4$ C) $CaCO_3$ D) $ZnCO_3$

46. Which one of the following groups is not true in the case of electro negativity order?

A) $F > Cl > Br > I$ B) $Br > Te > Sb > Sn$

C) $Ga > Pb > In > Cd$ D) $O > N > C > B$

47. At 27^0C temperature 1 molecule of a gas has an average kinetic energy of 5.621×10^{-14} erg. How many molecules are there in 2 mols of that gas?

A) 2.65×10^{23} B) 5.31×10^{23} C) 2.41×10^{23} D) 4.82×10^{23}

48. Following equation is a part of preparing

$$2CHClF_2 \xrightarrow{900^0C} CF_2 = CF_2 + 2HCl$$

A) Polythene B) Teflon C) Ploystyrene D) PVC

49. Which one of the followings is not a way to increase Octane Number?

A) Using Pyrolysis B) Alkylation C) To mix a fixed amount of TEL or TML D) Adding Gasoline

50. Which is not an advantage of Lithium Ion Battery?

A) Portability B) Voltage energy density C) Light weight D) Low internal resistance

SET A

MATHEMATICS

51. Findthe vector equation of the line that passes through the points $A(3,4,1)$, and $B(2,-3,5)$ crosses xy plane.

A) $r=\frac{7}{3}i+\frac{17}{3}j$ B) $r=\frac{23}{5}i+\frac{13}{5}j$ C) $r=\frac{13}{5}i+\frac{23}{5}j$ D) $r=\frac{17}{3}i+\frac{7}{3}j$

52. If $A=\begin{bmatrix}1 & 2\\ 3 & 4\end{bmatrix}$, $B=\begin{bmatrix}4 & 7\\ 3 & 5\end{bmatrix}$ and $AB^{-1}=\begin{bmatrix}1 & a\\ 3 & 5\end{bmatrix}$, then $a=?$

A) 1 B) -1 C) Cannot be found D) None of these

53. If $A=\begin{bmatrix}1 & 2\\ a & b\end{bmatrix}$ and $A^2=\begin{bmatrix}0 & 0\\ 0 & 0\end{bmatrix}$, then the values of a and b are:

A) 2 and 1 B) -2 and -1 C) $-\frac{1}{2}$ and -1 D) $\frac{1}{2}$ and 1

54. A ray of light coming from the point $(1,2)$ is reflected at a point A on the x-axis and then passes through the point $(5,3)$. Find the coordinates of the point A.

A) $(13,0)$ B) $\left(\frac{13}{5},0\right)$ C) $\left(\frac{11}{5},0\right)$ D) $\left(\frac{9}{5},0\right)$

55. Find the equation of the line passing through the point of intersection of the lines $4x+7y-3=0$ and $2x-3y+1=0$ that has the equal intercepts on the axes.

A) $13x+13y=6$ B) $13x+13y=1$ C) $6x+6y=13$ D) $6x+6y=1$

56. A circle passes through the origin and the point $(4,2)$; and its centre is on the line $x+y=1$. Theequationof the circle is:

A) $x^2+y^2-6x+2y=0$ B) $x^2+y^2-x-8y=0$

C) $x^2+y^2-8x+6y=0$ D) $x^2+y^2-2x-6y=0$

57. Find the equation(s) of the tangent(s) from the origin to the circle $x^2+y^2-5x-5y+10=0$.

A) $3x-y=0$ B) $x-3y=0$ C) None of these D) Both (A) and (B)

58. There are 6 boys who enter a boat with 8 seats of which 4 seats on eachside. In how many ways can they sit, if two boys A and B sit on the port side and another boy W sits on the starboard side?

A) 6 B) 240 C) 2880 D) 2200

59. How many triangles can be formed by 12 points, 7 of which lie on one line and other 5 on another parallel line?

A) 175 B) 31 C) 105 D) 70

60. $\tan\frac{1}{2}\left(\tan^{-1}x+\tan^{-1}\frac{1}{x}\right)=?$

A) $\frac{x-1}{2x}$ B) $\tan\frac{x-1}{2x}$ C) 1 D) $\sqrt{2}$

61. If $\tan^{-1}\frac{2x}{1-x^2}=\sin^{-1}\frac{2a}{1+a^2}-\cos^{-1}\frac{1-b^2}{1+b^2}$, then $x=?$

A) $\frac{a-b}{1+ab}$ B) $\frac{a+b}{1-ab}$ C) $\frac{2a}{1+ab}$ D) $\frac{2a}{1-ab}$

SET A

62. $\cot^{-1}(\tan 2x) + \cot^{-1}(-\tan 3x) = ?$.

A) $\frac{2}{3}x$ B) x C) $\frac{3}{2}x$ D) $2x$

63. A company produces 2 types of product. It uses 3 plantsfor the production. The 1st product requires one hour in plant 1 and 3 hours in plant 3 for producing 1 item. The 2nd product requires 2 hours each in plant 2 and 3 for one production. Total available hours in plants 1, 2 and 3 in a week are 4, 12, and 18, respectively. Profit for each item of product 1 is 3 thousand, and for product 2 is 5 thousand. The possible maximum weekly profit for the company is:

A) 18 thousand B) 33 thousand C) 36 thousand D) 39 thousand

64. Evaluate $\lim_{x\to 0} \frac{e^x - 1}{e^{2x} - 1}$.

A) $\frac{1}{4}$ B) 0 C) $\frac{1}{2}$ D) 1

65. $\frac{dy}{dy}\ln(\sec x + \tan x) = ?$

A) $\sec x$ B) $\tan x$ C) $\cot x$ D) $\cos x$

66. $\frac{d}{dx}\tan^{-1}\sqrt{\frac{1-\cos x}{1-\sin x}} = ?$

A) $\frac{1}{2}$ B) $\frac{1}{3}$ C) $\sin\frac{x}{2}$ D) $\cos\frac{x}{2}$

67. The total waste per mile in an electric conductor is

$$W = i^2R + \frac{K^2}{R},$$

where i is the current and R is the resistance. If the current is kept constant, then find the maximum value of W.

A) $2iK$ B) iK C) $\frac{K}{i}$ D) $\frac{2K}{i}$

68. A cylinder is expanding in such a way that its height h and radius r are both increasing at the rate of 1% per hour. Find the rate the volume, $V = \pi r^2 h$, is increasing per hour.

A) 1% B) 2% C) 3% D) 4%

69. $\int \frac{x^2}{\sqrt{1-x^2}}dx = ?$

A) $\frac{1}{2}x\sqrt{1-x^2} + C$ B) $\frac{1}{2}\cos^{-1}x + \frac{1}{2}x\sqrt{1-x^2} + C$

C) $\frac{1}{2}x^2\sqrt{1-x^2} + C$ D) $\frac{1}{2}\sin^{-1}x + \frac{1}{2}x\sqrt{1-x^2} + C$

70. $\int_0^{\frac{\pi}{2}} \cos^3 x \sin^2 x\, dx = ?$

A) $\frac{2}{15}$ B) $\frac{2}{13}$ C) $\frac{\pi}{4}$ D) $\frac{\pi}{2}$

71. The area bounded bythe curves $y^2 = x$ and $y = x - 2$ is:

A) $\frac{7}{2}$ B) $\frac{9}{2}$ C) $\frac{11}{2}$ D) $\frac{5}{2}$

SET A

72. Find the condition that one root of the quadratic equation $px^2 - qx + p = 0$ is 1 more than the other
A) $p^2 - 4q^2 = 0$ B) $q^2 - 5p^2 = 0$ C) $q^2 - 4p^2 = 0$ D) $p^2 - 5q^2 = 0$

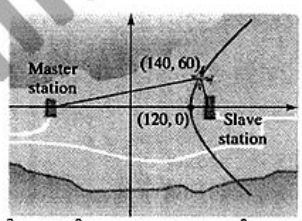
73. The positive integers are bracketed as follows:
$$(1), (2, 3), (4, 5, 6), \ldots$$
where there are r integers in the r-th bracket. The sum of all integers in the 20-th brackets is:
A) 2010 B) 4210 C) 4010 D) 2005

74. In the expansion of $\left(1 + \frac{1}{x}\right)^{-1}$, when $-1 < x < 1$, the coefficient of x^7 is:
A) 1 B) -1 C) $\frac{1}{2}$ D) $-\frac{1}{2}$

75. The point in a lunar orbit nearest the surface of the moon is called *perilune* and the point farthest from the surface is called *apolune*. The *Apollo 11* spacecraft was placed in an elliptical lunar orbit with the perilune altitude 110 km and apolune altitude 314 km (above the moon). Find the equation of the ellipse if the radius of the moon is 1728 km and the centre of the moon is at one focus.

A) $\frac{x^2}{37,63,600} + \frac{y^2}{41,69,764} = 1$ B) $\frac{x^2}{37,63,600} + \frac{y^2}{37,53,196} = 1$
C) $\frac{x^2}{33,78,244} + \frac{y^2}{37,53,196} = 1$ D) $\frac{x^2}{33,78,2441} + \frac{y^2}{41,69,7644} = 1$

76. Long-range navigation (LORAN) is a radio navigation system developed during World War II. The system enables a pilot to guide aircraft by maintaining a constant difference between the aircraft's distances from two fixed points: the master station and the slave station. Write an equation for the hyperbola depicted in the following figure.

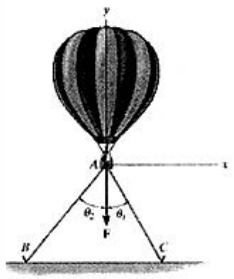


A) $\frac{x^2}{3600} - \frac{13y^2}{19600} = 1$ B) $\frac{x^2}{19600} - \frac{y^2}{3600} = 1$ C) $\frac{x^2}{14400} - \frac{y^2}{19600} = 1$ D) $\frac{x^2}{14400} - \frac{13y^2}{129600} = 1$

77. Suppose you decide to drop a melon from rest from the first observation platform of the Eiffel Tower which is 58.3 m above the head of your friend who is standing just below you. Your friend shoots an arrow straight up at the same time with an initial velocity of 25.1 ms^{-1}. What height above your friend's head does the collision occur?
A) 31.92 m B) 26.27 m C) 46.93 m D) 22.32 m

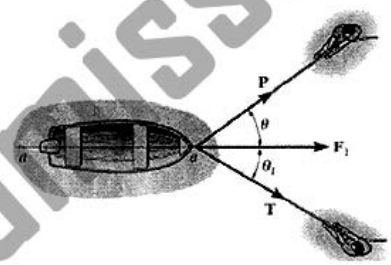
SET A

78. A resultant force F equal to 350 lb is necessary to hold the balloon in place. Assume that $\theta_1 = 30^0$ and $\theta_2 = 40^0$. The force is applied along the lines AB and AC as shown in the following figure. The magnitude of forces along the lines AB and AC are?



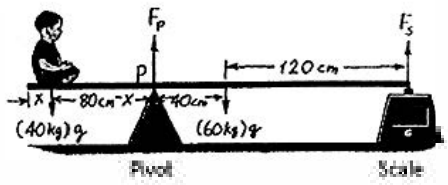
A) 186 lb and 239 lb B) 76 lb and 239 lb C) 268 lb and 322 lb D) 285 lb and 322 lb

79. The boat shown in the following figure is to be pulled onto the shore using two ropes. If the resultant force is to be $F_1 = 80$ lb directed along the line aa, determine the magnitudes of the force P so that the magnitude of P is minimum. T acts at an angle $\theta_1 = 30^0$ from the line aa. The force P will be minimum for a certain angle between P and T.



A) 40 lb B) 56.56 lb C) 69.3 lb D) 77.27 lb

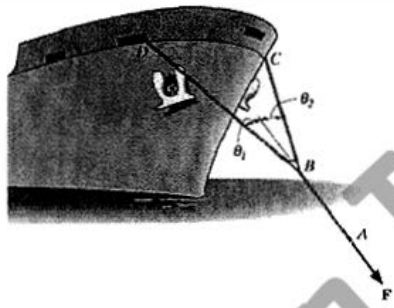
80. A 2.4 m long 60 kg uniform tabletop is supported by a pivot 80 cm from the left end and by a scale at the right end as shown in the following figure. How far from the left end should a 40 kg child sit if the scale is to read zero?



A) 70 cm B) 60 cm C) 20 cm D) 10 cm

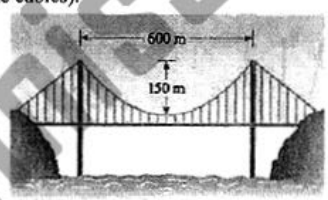
SET A

81. The ship shown in the following figure is moving at a constant velocity by a tugboat applying a force $F_1 = 50$ KN. Determine the force in each of BC and BD assuming $\theta_1 = 20^0$ and $\theta_2 = 30^0$.



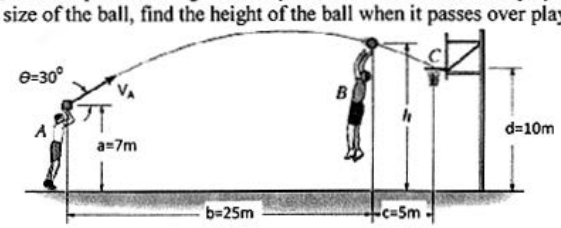
A) 25.25 and 12.54 KN
B) 22.32 and 32.64 KN
C) 62.32 and 82.64 KN
D) 102.32 and 32.64 KN

82. In a suspension bridge the shape of the suspension cables is parabolic. The bridge shown in the following figure has tower that are 600 m apart, and the lowest point of the suspension cables is 150 m below the top of the tower. Find the equation of the parabolic part of the cables, placing the origin of the coordinate system at the vertex (that is, the lowest point of the cables).



A) $x^2 = 600y$ B) $x^2 = 300y$ C) $x^2 = 150y$ D) $y^2 = 300x$

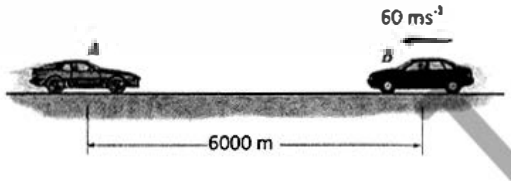
83. Measurements of a shot recorded on a videotape during a basketball game are shown in the following figure. The ball passed through the hoop even though it barely cleared the hands of the player B who attempted to block it. Neglecting the size of the ball, find the height of the ball when it passes over player B.



A) 7.40 m
B) 4.72 m
C) 11.48 m
D) 9.40 m

SET A

84. Car A starts from rest at $t = 0$ and travels along a straight road with a constant acceleration of $6\ ms^{-2}$ until it reaches a speed of $80\ ms^{-1}$. Afterwards it maintains this speed. In contrast, at $t = 0$, car B located $6000\ m$ down the road is traveling towards A at a constantspeed of $60\ ms^{-1}$. Find the distance traveled by car A when they pass each other.



A) $2400\ m$ B) $3400\ m$ C) $2800\ m$ D) $3200\ m$

85. On a multiple-choice examination with four choices for each question, a student either knows the answer to a question or marks it randomly. The probability that he or she knows the answer is $\frac{2}{3}$. If a question was marked correctly, what is the probability that he or she knows the answer?

A) $\frac{8}{9}$ B) $\frac{1}{4}$ C) $\frac{3}{4}$ D) $\frac{7}{9}$

ENGLISH

Questions 86-90:
Choose the appropriate word / words for the blank space to complete the sentence.

86. Abdur Rahim and Liaqat went to the bank and ..... made a deposit.

A) he B) they C) it D) their

87. In 1980, the Netherlands agreed to limit fishing in certain Atlantic Ocean beds, but in 1981, ...

A) they terminated the agreement. B) they decided to terminate the agreement.
C) it terminated the agreement. D) it was terminated.

88. While brokers, as a rule, are not permitted toknowexecutiveaccess codes, in many instances .....

A) they are widely known B) they are widely known to be
C) they are widely known by many D) the codes are widely known

89. The numberof workers ..... each year.

A) have increased steadily B) steadily have increased
C) have been increasingsteadily D) has increasedsteadily

90. The commercial airliner flew too close to the military base, an act that the army saw ..... a violation of itsair spacc.

A) as B) as if it was C) to be D) that it was

Questions 91-93:
The questions in this group are based on the content of a passage. After reading the passage, choose the best answer to each question on the basis of what is stated or implied in the passage.

91. "In an effort to reduce the amount of fat and the number of calories that they consume, many citizens are making significant changes in their diets. For them staying in shape and looking fit now take precedence over eating foods that are filling and that taste good. It is likely that if they maintain these new priorities with consistent regard for other health issues, the length and quality of their lives will increase significantly."

Which one of the followingis an assumption upon which the argument is based?

A) Eating foods that are filling and tastes good is inconsistent with staying in shape and looking fit.
B) Controlling the quality of one's life requires more than mere dietary adjustments.
C) A combination of diet and exercise is necessary if one wishes to stay in shape and look fit.
D) Many citizens of the United States have only recently discovered the importance of diet to living a longer, healthier life.

92. "Singing in the Rain Umbrella Corporation plans to institute a marketing campaign in which it sells umbrellas at theexitsof subway stationsduring rainy weather. The umbrellas will be sold at a price thatis slightlyhigher than normal. The company thinks the sales of these higher – priced umbrellas will be greater than normal sales of umbrellas, because the purchasersof theseumbrellas will be forced to buy them if they do not want to get wet."

The author assumes which of the following about the purchasers of the umbrellas in predicting the sales of the umbrellas?

A) Customers who do not feel immediate pressure to purchase will not do so.
B) Normally priced umbrellas are not profitable for singing in the Rain Umbrellas Corporation.
C) Very few people buy Singing in the Rain's normally priced umbrellas.
D) Singing in the Rain Umbrellas Corporation will have to stop selling normally priced umbrellas when it starts selling higher priced umbrellas.

93. "A leading cement manufacturer has been having problems processing manufacturing and delivery records since it expanded its operations. To solve this problem it plans to install a new platform on its central computing system which will run its tracking program five times faster than the current system does."

Which oneof the followingcastes themost serious doubt onthe manufacturer's plan?

A) Not all computer platforms can make the company's tracking programs run more quickly.
B) The cost of the new computer platform will require the cement manufacture to raise prices for its products.
C) The cement company's computer system does not have the capability to run the new platform and cannot be updated.
D) The company has been increasing the sales of cement by 1.5 percent a month for the past 18 months.

Admission Tech

SET A

Questioos 94 – 97:
Identify the correct *synonym* by looking for word roots, prefixes, or suffixes. Choose the word that means the same or about thesame as the italicized word.

94. An *incoherent* answer
A) not understandable B) not likely C) undeniable D) challenging

95. Covered with *debris*
A) good excuses B) transparent material C) scattered rubble D) protective material

96. *Inadvertently* left
A) mistakenly B) purposely C) cautiously D) carefully

97. *Compatible* workers
A) gifted B) competitive C) harmonious D) experienced

Questions: 98 -100:
Choose the word that means the *opposite* of the italicized word.

98. *Capable* employee
A) unskilled B) absurd C) apt D) able

99. *Zealous* pursuit
A) envious B) eager C) idle D) comical

100. *Exorbitant* prices
A) expensive B) unexpected C) reasonable D) outrageous