 MACRO VISION ACADEMY BURHANPUR	SAMPLE PAPER-I (2025-26)		For Office Use Only
	Class:	XI MATHEMATICS	
	Time:	03:00 Hrs.	
	M.M:	100	

Personal Information

Student's Name:- _____ **Father's Name:-** _____

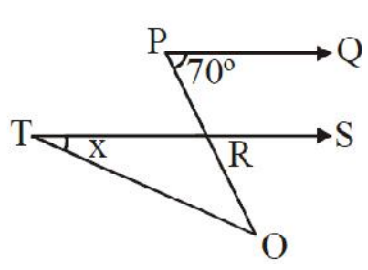
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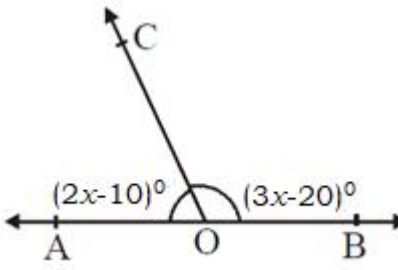
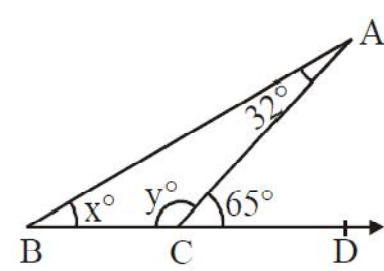
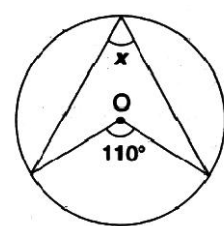
Studying in Class:- _____ **Appearing for class:-** _____ **Board:-** _____

Present School Name:- _____ **Category:-** _____

Section-A		Section-B				Total (100)
Maths (15)	English (05)	Maths (25)	Physics (20)	Chemistry (20)	English (15)	

Section-A Mathematics (15)		
Q.No.	Questions	Answers
	Instruction:- Q. 1 - Q. 15 carry 1 mark each.	
1.	$\left[\frac{(32)^{0.2} + (81)^{0.25}}{(256)^{0.5} - (121)^{0.5}} \right] = \text{_____}$	
2.	If $A = 4x^3 - 5x + 7$, $B = 2x^3 + x^2 + 3$ and $C = 5x^3 - 8x^2 + 10$, then $A - 2B - C$, is	
3.	Find the remainder when the expression $3x^3 + 8x^2 - 6x + 1$ is divided by $x + 3$.	
4.	The LCM of $x^2 - 16$ and $2x^2 - 9x + 4$ is	
5.	In the given figure $PQ \parallel RS$, $\angle QPR = 70^\circ$, $\angle ROT = 20^\circ$, then the value of x .	



6.	If we join the points $(-2,0)$, $(0,1)$, $(2,0)$ and $(0,-1)$ then which type of quadrilateral is formed?	
7.	$\sqrt{20\frac{1}{4}} - \sqrt{1\frac{32}{49}} = \underline{\hspace{2cm}}$.	
8.	If $\frac{5x}{4} + \frac{6-x}{8} = \frac{6(x+3)}{3} - \frac{1}{6}$, then $x = ?$	
9.	Factors of $(42 - x - x^2)$ are	
10.	If $x = \left(\frac{3}{2}\right)^2 \times \left(\frac{2}{3}\right)^{-4}$, find the value of x^2 .	
11.	Simplify: $(3x^2 + x - 11) \times (7x^3 + 12)$	
12.	<p>In the given figure, AOB is a straight line and the ray OC stands on it.</p> <p>If $\angle AOC = (2x - 10)^\circ$ and $\angle BOC = (3x - 20)^\circ$, find the value of x.</p> 	
13.	<p>In the figure, find values of x and y.</p> 	
14.	Solve: $3x + 4y - 1 = 0$; $2x - \frac{8}{3}y + 5 = 0$	
15.	<p>Find the angle marked as x in given figure where O is the centre of the circle.</p> 	

English (05)

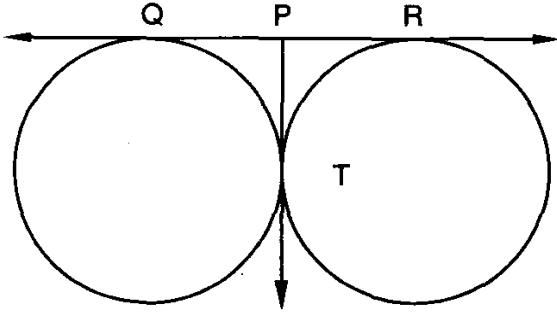
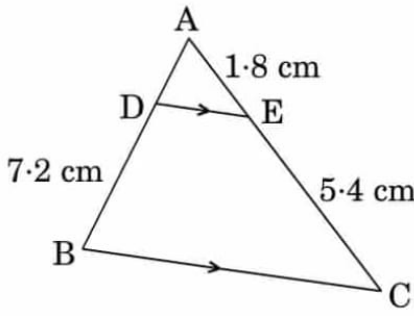
16. If you were the education minister what are the changes you want to bring in our education system. **(05 Marks)**

Ans.

Section-B**Mathematics (25)**

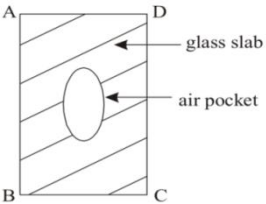
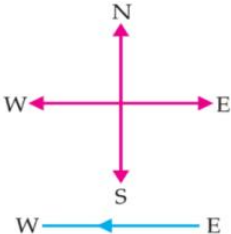
Instruction:- Q. 17 – Q. 31 carry 1 mark each.

17.	The value of $\frac{\tan 45^\circ}{\operatorname{cosec} 30^\circ} + \frac{\sec 60^\circ}{\cot 45^\circ} - \frac{5 \sin 90^\circ}{2 \cos 0^\circ}$ is _____.	
18.	If roots of quadratic equation $4kx^2 - 2x + 3 = 0$ are equal, then the value of k is _____.	
19.	A ladder 15 metres long just reaches the top of a vertical wall. If the ladder makes an angle of 60° with the wall, then the height of the wall is _____.	
20.	Write a quadratic polynomial, sum of whose zeros is $2\sqrt{3}$ and their product is 2.	
21.	The point on the x -axis which is equidistant from $(2, -5)$ and $(-2, 9)$ is _____.	

22.	For what values of k the system of equations $x + ky = 0, 2x - y = 0$ has a unique solution.	
23.	If the surface area of a sphere is the same as the curved surface area of a cone having the radius of the base as 120 cm and height 160 cm, then the radius of the sphere is _____.	
24.	<p>In Fig., two equal circles touch each other at T, if $QP = 4.5\text{ cm}$, then the length of QR is _____.</p> 	
25.	If the coordinates of the point of the vertex of a triangle are $(1,1), (2,-3)$ and $(3,4)$, then the coordinate of centroid is _____.	
26.	The 10th term from the end of the A.P. 4, 9, 14, ..., 254 is _____.	
27.	<p>In the figure, $DE \parallel BC$. If $AE = 1.8\text{ cm}$, $BD = 7.2\text{ cm}$ and $CE = 5.4\text{ cm}$, then the length of side AD is ____.</p> 	
28.	If a flag pole 18 m high cast a shadow 9.6 m long, then the distance of the top of the pole from the far end of the shadow is _____.	
29.	A card is drawn at random from a pack of 52 cards. The probability that the card drawn is either a black card or a king is _____.	

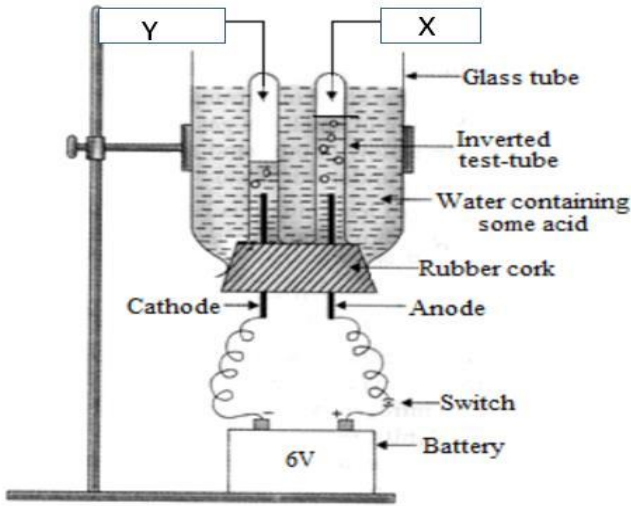
30.	<p>Assertion (A): The volume of two spheres are in the ratio 27 : 8 , then the surface area is in the ratio 3:2.</p> <p>Reason (R): Volume of sphere $= \frac{4}{3}\pi r^3$ and its surface area is $4\pi r^2$.</p> <p>(a) Both assertion and reason are correct and reason is correct explanation of the assertion.</p> <p>(b) Both assertion and reason are correct, but the reason is not the correct explanation of the assertion.</p> <p>(c) Assertion is correct, but reason is incorrect.</p> <p>(d) Assertion is incorrect, but reason is correct.</p>	
31.	<p>Assertion (A): The probability of an event that cannot happen or which is impossible, is equal to zero.</p> <p>Reason (R): The probability lies between 0 and 1. Hence, it cannot be negative.</p> <p>(a) Both assertion and reason are correct and reason is correct explanation of the assertion.</p> <p>(b) Both assertion and reason are correct, but the reason is not the correct explanation of the assertion.</p> <p>(c) Assertion is correct, but reason is incorrect.</p> <p>(d) Assertion is incorrect, but reason is correct.</p>	
Instruction:- Q. 32 – Q. 36 carry 2 marks each.		
32.	<p>If $\sin(A - B) = \frac{1}{2}$ and</p> <p>$\cos(A + B) = \frac{1}{2}, 0^\circ < A + B \leq 90^\circ, A > B$, find A and B.</p>	
33.	<p>If $x + 1, 3x$ and $4x + 2$ are in A.P., then the value of x is _____.</p>	
34.	<p>If the roots of $px^2 + qx + 7 = 0$ are reciprocal of each other, then the value of ' p ' is _____.</p>	
35.	<p>α and β are zeroes of the quadratic polynomial $x^2 - 6x + k$. If $3\alpha + 2\beta = 20$, then the value of 'k' is _____.</p>	

36.	Arun is 2 years older than Bharat who is twice as old as Charat. If the total of the ages of Arun, Bharat and Charat be 27 years, then the current age of Bharat is _____.	
Physics (20)		
Instruction:- Q. 37 – Q. 56 carry 1 mark each.		
37.	A battery of 6V is connected in series with resistors of 0.1 ohm, 0.15 ohm, 0.2 ohm, 0.25 ohm and 6 ohm. How much current would flow through the 0.3 ohm resistor? (a) 0.895A (b) 2.22A (c) 1A (d) none of these	
38.	The magnetic field inside a long straight solenoid-carrying current (a) is zero. (b) decreases as we move towards its end. (c) increases as we move towards its end. (d) is the same at all points.	
39.	Which of the following correctly describes the magnetic field near a long straight current carrying wire? (a) The field consists of straight lines perpendicular to the wire. (b) The field consists of straight lines parallel to the wire. (c) The field consists of radial lines originating from the wire. (d) The field consists of concentric circles centered at wire.	
40.	An object is placed at a distance f in the front of a convex mirror. If focal length of the mirror is f , then distance of image from pole of the mirror is (a) f (b) 2f (c) f/2 (d) f/4	
41.	The stars appear shifted from their actual position due to the phenomenon of _____.	

42.	A boy is wearing glasses and says that he cannot see the object kept at large distance without glasses. He is suffering from _____.	
43.	<p>During the fabrication of a glass slab an air pocket is left in the slab as shown in fig.</p>  <p>For a parallel beam of light incident on face AB of slab the emergent beam through face CD will be a :</p> <p>(a) Parallel beam (b) Converging beam (c) Diverging beam (d) None of these</p>	
44.	The focal length of a concave mirror is 50 cm. To obtain an inverted image two times the size of the object, the object should be placed at distance _____.	
45.	If an object is placed 21 cm from a converging lens, the image formed is slightly smaller than the object. If the object is placed at a distance of 19 cm from the lens, the image formed is slightly larger than the object. The approximate focal length of the lens is _____.	
46.	What is the pattern of magnetic field lines inside a solenoid?	
47.	<p>A constant current flowing in a horizontal wire in the plane of the paper from East to West is shown in Figure. The direction of magnetic field at a point above the wire will be _____.</p> 	
48.	An electric heater of resistance 8Ω takes a current of 15A from the mains supply line. Calculate the rate at which heat is developed in the heater.	

<p>49.</p>	<p>In the circuit diagram given below calculate the current through $8\ \Omega$ resistance.</p>	
<p>50.</p>	<p>If a wire of resistance R is melted and recast to double its length, the new resistance of the wire will be _____</p>	
<p>51.</p>	<p>A wire of resistance R is cut into n equal parts. These parts are then connected in parallel. The equivalent resistance of combination will be _____.</p>	
<p>52.</p>	<p>A conductor carries a current of 0.2A. Find the amount of charge that will pass through the cross-section of the conductor in 30 s.</p>	
<p>53.</p>	<p>Assertion: The magnetic field produced by a current carrying solenoid is independent of its length and cross sectional area.</p> <p>Reason: The magnetic field inside the solenoid is uniform.</p> <p>(a) Both assertion and reason are correct and reason is correct explanation of the assertion.</p> <p>(b) Both assertion and reason are correct, but the reason is not the correct explanation of the assertion.</p> <p>(c) Assertion is correct, but reason is incorrect.</p> <p>(d) Assertion is incorrect, but reason is correct.</p>	
	<p>Case Study: Based on the given information, answer the following questions.</p> <p>The ability of a lens to converge or diverge light rays depends on its focal length. For example, a convex lens of short focal length bends the light rays through large angles, by focussing them closer to the optical centre. Similarly, concave lens of very short focal length causes higher divergence than the one with longer focal length. The degree of convergence or divergence of light rays achieved by a lens is expressed in terms of its power. The power of a lens is defined as the reciprocal of its focal length. It is represented by the letter P. The power P of a lens of focal length f is given by $P = 1/f$</p> <p>The SI unit of power of a lens is ‘diopter’.</p> <p>It is denoted by the letter D. If f is expressed in metre, then, power is expressed in diopter. Thus, 1 dioptre is the power of a lens whose focal length is 1 metre. $1\text{D} = 1\text{m}^{-1}$. The power of a convex lens is positive and that of a concave lens is negative.</p>	

54.	The power of a diverging lens is -2.0 D. The focal length of lens is _____.	
55.	The focal length of a lens is +40cm. The power of lens is_____.	
56.	If the ratio of focal length of two convex lenses is 1 : 5 then what is the ratio of their power?	
Chemistry (20)		
	Instruction:- Q. 57 – Q. 76 carry 1 mark each.	
57.	<p>Consider the following statements and choose the correct option.</p> <p>(I) The gain of electrons increases the oxidation number.</p> <p>(II) Loss of electrons increases the positive charge.</p> <p>(III) The gain of electrons increases the negative charge.</p> <p>(IV) Loss of electrons decreases the oxidation number.</p> <p>(a) Statement (I) is correct and statement (II) is incorrect.</p> <p>(b) Statements (II) and (III) are correct.</p> <p>(c) Statements (II) and (IV) are correct.</p> <p>(d) Statements (II) and (III) are incorrect.</p>	
58.	<p>Identify the product formed by the reaction of propane with chlorine in the presence of sunlight?</p> <p>(a) $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$ only</p> <p>(b) $\text{CH}_3\text{CH}(\text{Cl})\text{CH}_3$ and $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$</p> <p>(c) $\text{CH}_3\text{CH}(\text{Cl})\text{CH}_2\text{CH}_2\text{Cl}$</p> <p>(d) $\text{CH}_3\text{CH}=\text{CH}_2\text{Cl}$</p>	
59.	<p>Which of the following options define the properties of soap?</p> <p>(a) They are potassium or sodium salts of long chain alcohols.</p> <p>(b) The ionic end is hydrophobic.</p> <p>(c) They form scum in hard water.</p> <p>(d) The two ends of soap have same properties.</p>	

<p>60.</p>	<p>The electronic configurations of three elements X, Y and Z are X - 2, 8; Y - 2, 8, 7 and Z - 2, 8, 2. Which of the following is correct?</p> <p>(a) X is a metal (b) Y is a metal (c) Z is a non-metal (d) Y is a non-metal and Z is a metal</p>	
<p>61.</p>	<p>Which of the following statements are correct about an aqueous solution of an acid and of a base?</p> <p>(i) Higher the pH, stronger the acid (ii) Higher the pH, weaker the acid (in) Lower the pH, stronger the base (iv) Lower the pH, weaker the base</p> <p>(a) (i) and (iii) (b) (ii) and (iii) (c) (i) and (iv) (d) (ii) and (iv)</p>	
<p>62.</p>	<p>Given below is a diagram showing an experimental set-up:</p>  <p>Identify the gases X and Y evolved during the experiment.</p>	
<p>63.</p>	<p>Complete the chemical equation of the reaction.</p> $2FeSO_4 \xrightarrow{Heat/\Delta} Fe_2O_3 + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$	
<p>64.</p>	<p>On heating copper powder in air, the surface of copper powder becomes coated with black substance. Write the name of product formed.</p>	

65.	Sodium hydrogen carbonate when added to hydrochloric acid, evolves a gas. Name the gas evolved?	
66.	On placing an iron nail in a test tube containing blue copper sulphate solution, what colour change of solution will you observed.	
67.	<p>Write the IUPAC name of -</p> $ \begin{array}{ccccccc} & & H & & & & \\ & & & & & & \\ CH_3 & - & C & - & CH_2 & - & CH - CH_3 \\ & & & & & & \\ & & CH_3 & & & & CH_3 \end{array} $	
68.	<p>Assertion (A): In the following reaction</p> $Fe_2O_3 + 2Al \rightarrow Al_2O_3 + 2Fe.$ <p>Fe_2O_3 undergoes reduction.</p> <p>Reason (R): Aluminium is a reducing agent that reduces Fe_2O_3 to Fe.</p> <p>(a) Both assertion and reason are correct and reason is correct explanation of the assertion.</p> <p>(b) Both assertion and reason are correct, but the reason is not the correct explanation of the assertion.</p> <p>(c) Assertion is correct, but reason is incorrect.</p> <p>(d) Assertion is incorrect, but reason is correct.</p>	
69.	<p>Assertion (A): In an acidic solution, the indicator phenolphthalein remains colourless.</p> <p>Reason (R): Phenolphthalein is an acid base indicator.</p> <p>(a) Both assertion and reason are correct and reason is correct explanation of the assertion.</p> <p>(b) Both assertion and reason are correct, but the reason is not the correct explanation of the assertion.</p> <p>(c) Assertion is correct, but reason is incorrect.</p> <p>(d) Assertion is incorrect, but reason is correct.</p>	

	<p>Case Study: Based on the given information, answer the following questions-</p> <p>pH is quite useful to us in a number of ways in daily life. Some of its applications are:</p> <p>Control of pH of the soil: - Plants require a specific pH range for their healthy growth. To find out the pH required for the healthy growth of a plant, you can collect the soil from various places and check the pH by using a universal indicator.</p> <p>pH in our digestive system: - During indigestion, the stomach produces too much acid and this causes pain and irritation. To get rid of this pain, people use bases called antacids.</p> <p>Self-defence by animals and plants: - Bee-sting leaves an acid which causes pain and irritation. The use of a mild base like baking soda on the stung area gives relief.</p>	
70.	The pH of soil X is 7.5 and that of soil Y is 4.5. Which of the two soils should be treated with chalk to adjust its pH?	Y
71.	Name an indicator which indicates the strength of acid and bases.	
72.	You have four solutions A, B, C and D. The pH of solution A is 2, B is 9, C is 12 and D is 7. State the change in colour of pH paper on dipping in solution C and D.	
73.	$2HNO_3 + Ca(OH)_2 \rightarrow Ca(NO_3)_2 + 2H_2O;$ <p>is an example of-</p> <p>(i) Displacement reaction (ii) Double displacement reaction (iii) Neutralisation reaction (iv) Combination reaction</p> <p>(a) (i) and (ii) (b) (ii) and (iii) (c) (iii) and (iv) (d) (i) and (iv)</p>	
74.	Write the chemical formula of following-	
	(i) Washing soda (ii) Quicklime	
75.	Observe the following pairs of organic compounds (i) C ₄ H ₉ OH and C ₅ H ₁₁ OH (ii) C ₇ H ₁₅ OH and C ₅ H ₁₁ OH (iii) C ₆ H ₁₃ OH and C ₃ H ₇ OH Which of these pair is a homologous series according to increasing order of carbon atom?	

76.	Match Column-I with Column-II and select the correct answer using the codes given below the columns.													
	<table border="1"> <thead> <tr> <th>Column I</th> <th>Column II</th> </tr> </thead> <tbody> <tr> <td>(A) Propane</td> <td>(p) C₂H₅OH</td> </tr> <tr> <td>(B) Ethyl alcohol</td> <td>(q) C₃H₈</td> </tr> <tr> <td>(C) Carboxylic acid</td> <td>(r) CH₃COOH</td> </tr> <tr> <td>(D) Ethyl ethanoate</td> <td>(s) CH₃COOC₂H₅</td> </tr> <tr> <td>(E) Butanone</td> <td>(t) CH₃CH₂COCH₃</td> </tr> </tbody> </table>	Column I	Column II	(A) Propane	(p) C ₂ H ₅ OH	(B) Ethyl alcohol	(q) C ₃ H ₈	(C) Carboxylic acid	(r) CH ₃ COOH	(D) Ethyl ethanoate	(s) CH ₃ COOC ₂ H ₅	(E) Butanone	(t) CH ₃ CH ₂ COCH ₃	
	Column I	Column II												
	(A) Propane	(p) C ₂ H ₅ OH												
	(B) Ethyl alcohol	(q) C ₃ H ₈												
	(C) Carboxylic acid	(r) CH ₃ COOH												
	(D) Ethyl ethanoate	(s) CH ₃ COOC ₂ H ₅												
(E) Butanone	(t) CH ₃ CH ₂ COCH ₃													
(a) A-(q), B-(p), C-(r), D-(s), E-(t)														
(b) A-(s), B-(p), C-(r), D-(q), E-(t)														
(c) A-(t), B-(p), C-(r), D-(s), E-(q)														
(d) A-(q), B-(r), C-(p), D-(s), E-(t)														

English (15)

Instruction:- Q. 77 – Q. 91 carry 1 mark each.

Read the following passage carefully.

It is a commonly held belief that quality and productivity are a function of technology or a set of new equipment. No doubt these are essential, but they alone are not sufficient for bringing about improvements in productivity or quality. It is the men and women behind the machines and the people who manage the technology who are critical in bringing about these improvements. It has been a strange paradox of India's economic development that even though people are our most abundant resource, they have so far either been neglected or treated as liabilities rather than as assets. Part of the reason for this has been outdated labour laws which have been a deterrent for industrialists and employers, leading them to establish capital intensive rather than labour intensive operations. The other reason has been a confrontationist attitude, both on the part of labour as well as managements. A change must come about in both these factors, outside representation and leadership of unions etc need to change. At the same time, the attitude of confrontation must change to one of cooperation and active collaboration.

Answer the following questions:

77.	Capital intensive operations can lead to: (a) strict labour laws (b) irrelevant labour laws (c) too many labour laws (d) new labour laws	
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<p>78.</p>	<p>Which of the following arguments has been emphasized in the paragraph?</p> <p>(a) Only technology or a new set of equipment can improve quality and productivity.</p> <p>(b) Only management behind any type of machines can improve quality and productivity.</p> <p>(c) By managing the new technology, labour can bring about improvements in quality and productivity.</p> <p>(d) Indian labour and management is neither quality nor productivity conscious.</p>	
<p>79.</p>	<p>The word 'critical' in the passage means:</p> <p>(a) crucial (b) judicial</p> <p>(c) analytical (d) judicious</p>	
<p>80.</p>	<p>Which of the following statements on confrontation between labour and management is false?</p> <p>(a) neglect of labour intensive operations</p> <p>(b) too much governmental interference between labour and management</p> <p>(c) conflicting attitude of labour and management</p> <p>(d) establishment of capital intensive industries</p>	
<p>81.</p>	<p>Labour intensive operations can lead to:</p> <p>(a) industrial process needing to employ many people</p> <p>(b) better relations between labour and management</p> <p>(c) fear of unemployment</p> <p>(d) none of these</p>	
<p>Read the following passage carefully.</p>		
	<p>It was clear that to climb 'Annapurna' the right men had to be sufficiently high up on the mountain to make their attempt on the peak while still fresh and strong. To ensure that, a chain of high camps must be established and the greater parts of the work done by the Sherpas, so that the mountaineers would not tire themselves before they were in a position to attack the peak. Like all other expeditions to the Himalayas, the Frenchmen were to realise the value of the hardy mountain people, without whom they would soon find themselves too helpless to achieve their goal.</p>	

Answer the following questions:	
82.	<p>Annapurna must be the name of</p> <p>(a) a mountain pass (b) a mountain summit</p> <p>(c) a mountain chain (d) a mountain scape</p>
83.	<p>The author is of the opinion that the French expedition would fail</p> <p>(a) if the mountaineers were deserted by the Sherpas</p> <p>(b) if the mountaineers did not remain fresh and strong</p> <p>(c) if the mountaineers did not establish a chain of high camps</p> <p>(d) if the mountaineers failed to realise the nature of the Sherpas</p>
84.	<p>The work of establishing a chain of high camps had to be mainly done by the Sherpas because</p> <p>(a) the Sherpas were particularly skilled</p> <p>(b) the Sherpas were particularly hardy</p> <p>(c) the mountaineers had to maintain their superior status</p> <p>(d) the mountaineers had to preserve their energy</p>
85.	<p>To make the final attempt to climb Annapurna, the work that was to be done first was</p> <p>(a) to have a station built on a high position of the mountain</p> <p>(b) to have the greater part of the work done by the Sherpa's</p> <p>(c) to realize the nature of the hardy mountain people</p> <p>(d) to remain fresh and strong</p>
86.	<p>In the given context the expression to attack the peak' means</p> <p>(a) to begin to climb the peak desperately</p> <p>(b) to begin the final phase of climbing the peak with all rigours</p> <p>(c) to rush upon the peak</p> <p>(d) to use all force to climb the peak</p>

Fill in the blanks in the paragraph given below with the help of options that follow.

The social (87) ___ of the Web lifestyle and work style are enormous. A lot of people (88) ___ that computers and the Internet will depersonalize experience, creating a world that is less warm. But these are unfounded as we know that some people were (89) ___ afraid that the telephone would reduce face-to-face contact and will (90) ___ society to fall apart. But the (91) ___ actually came true. Just as phone and e-mail have increased contact between people living in different communities and between people on the go, the PC and the Internet give us cheaper way to communicate.

87.	(a) groups	(b) needs	(c) factor	(d) teaching	
88.	(a) accept	(b) dare	(c) fear	(d) reject	
89.	(a) strongly	(b) initially	(c) always	(d) never	
90.	(a) let	(b) decay	(c) develop	(d) destroy	
91.	(a) opposite	(b) found	(c) finding	(d) different	

Rough Work