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4. 1. Liz Taylor isn't just unlucky in love.
- A. She, and husband Larry Fortensky, will have to pay the tab — \$4,32,600 in court costs.
 - B. The duo claimed that a 1993 story about a property dispute damaged their reputations.
 - C. Taylor has just filed a defamation suit against the *National Enquirer*.
 - D. She is unlucky in law too.
6. Alas, all levels of the California court system disagreed.
- a. CDAB
 - b. DCAB
 - c. DABC
 - d. CDBA
5. 1. Hiss was serving as Head of the Endowment on August 3, 1948, when Whittaker Chambers reluctantly appeared before the House Un-American Activities Committee.
- A. Chambers, a portly ruffled man with a melodramatic style, had been a Communist courier but had broken with the party in 1938.
 - B. When Nixon arranged a meeting of the two men in New York, Chambers repeated his charges and Hiss his denials.
 - C. Summoned as a witness, Hiss denied that he had ever been a Communist or had known Chambers.
 - D. He told the Committee that among the members of a secret Communist cell in Washington during the 1930s was Hiss.
6. Then, bizarrely, Hiss asked Chambers to open his mouth.
- a. CBAD
 - b. ADBC
 - c. ADCB
 - d. ACDB
6. 1. Since its birth, rock has produced a long string of guitar heroes.
- A. It is a list that would begin with Chuck Berry and continue with Hendrix, Page and Clapton.
 - B. These are musicians celebrated for their sheer instrumental talent, and their flair for expansive, showy and sometimes self-indulgent solos.
 - C. It would also include players of more recent vintage, like Van-Halen and Living Colour's Vernon Reid.
 - D. But with the advent of alternative rock and grunge, guitar heroism became uncool.
6. Guitarists like Peter Buck and Kurt Cobain shy away from exhibitionism.
- a. ACBD
 - b. ABCD
 - c. BCAD
 - d. BADC
7. 1. For many scientists, oceans are the cradle of life.
- A. But all over the world, chemical products and nuclear waste continue to be dumped into them.
 - B. Coral reefs, which are known to be the most beautiful places of the submarine world, are fast disappearing.
 - C. The result is that many species of fish die because of this pollution.
 - D. Of course man is the root cause behind these problems.
6. Man has long since ruined the places he visits — continents and oceans alike.
- a. ACBD
 - b. BACD
 - c. ABDC
 - d. BCAD

Direction for questions 16 to 23: In each of the following questions a pair of capitalised words is followed by four pair of words. You are required to mark as the answer the pair of words which have a relationship between them most similar to the relationship between the capitalised pair.

16. Liquid : Gaseousness
a. Serum : Fume
c. Thaw : Distil
b. Humid : Arid
d. Smoke : Cloud
17. Fission : Fusion
a. Implosion : Explosion
c. Intrusion : Extrusion
b. Separation : Combination
d. Enemy : Friend
18. Doubt : Faith
a. Atheist : Religion
c. Iconoclast : Idol
b. Sceptic : Pious
d. Apostate : State
19. Brick : Building
a. Word : Dictionary
c. Platoon : Soldier
b. Alphabet : Letter
d. Idiom : Language
20. Dulcet : Raucous
a. Sweet : Song
c. Palliative : Exacerbating
b. Crazy : insane
d. Theory : Practical
21. Action : Reaction
a. Introvert : Extrovert
c. Diseased : Treatment
b. Assail : Defend
d. Death : Rebirth
22. Malapropism : Words
a. Anachronism : Time
c. Jinxanthropism : Apes
b. Ellipsis : Sentence
d. Catechism : Religion
23. Anterior : Posterior
a. In : Out
c. Head : Tail
b. Top : Bottom
d. Front : Rear

Direction for questions 24 to 29: In each of the following questions, a part of a sentence is left blank. Choose from among the four options given below each question, the one which would best fill the blanks.

24. When we call others dogmatic, what we really object to is ____.
- a. their giving the dog a bad name
 - b. their holding dogmas that are different from our own
 - c. the extremism that goes along with it
 - d. the subversion of whatever they actually believe in concomitantly

25. I am an entertainer ____, I have to keep smiling because in my heart laughter and sorrow have an affinity.
- a. Even if I have tears in my eyes
 - b. Even though I am depressed inside
 - c. While entertaining people
 - d. In the entertainment business
26. The stock markets ____. The state they are in right now speaks volumes about this fact.
- a. is the barometer of public confidence
 - b. are the best indicators of public sentiment
 - c. are used to trade in expensive shares
 - d. are not used to taking stock of all markets
27. Political power is just as permanent as today's newspaper. Ten years down the line, ____ the most powerful man in any state today.
- a. who cares
 - b. nobody will remember what was written in today's newspaper or
 - c. few will know, or care about
 - d. when a lot of water will have passed under the bridge, who will care
28. ____, the more they remain the same.
- a. People all over the world change
 - b. The more people change
 - c. The more they are different
 - d. The less people change
29. Although, it has been more than 50 years since Satyajit Ray made *Pather Panchali*, ____ refuse to go away from the mind.
- a. the haunting images
 - b. its haunting images
 - c. its haunted images
 - d. the haunt of its images.

Direction for questions 30 to 35: In each of the following questions, a part of the paragraph or sentences has been underlined. From the choices given to you, you are required to choose the one which would best replace the underlined part.

30. The Romanians may be restive under Soviet direction — but they are tied to Moscow by ideological and military links.
- a. they are tied to Moscow by ideological and military links
 - b. they are preparing for a great revolution
 - c. secretly they rather enjoy the prestige of being protected by the mighty Soviets
 - d. there is nothing they can do about it
31. In a penetrating study, CBS-TV focuses on these people without hope, whose bodies are cared for by welfare aid, but whose spirit is often neglected by a disinterested society.
- a. whose bodies are cared for by welfare aid
 - b. who do not have enough to eat
 - c. whose hopelessness may be alleviated
 - d. who may be physically satiated
32. Contemplating whether to exist with an insatiable romantic temperament, he was the author and largely the subject of a number of memorable novels.
- a. Contemplating whether to exist
 - b. Combining realistic details
 - c. Miscegenating a brilliant mind
 - d. Aware that he had been born

Section – II

Directions for questions 51 to 100: Read each of the following passages carefully and answer the questions that follow.

Passage – 1

I want to stress this personal helplessness we are all stricken with in the face of a system that has passed beyond our knowledge and control. To bring it nearer home, I propose that we switch off from the big things like empires and their wars to more familiar little things. Take pins for example! I do not know why it is that I so seldom use a pin when my wife cannot get on without boxes of them at hand; but it is so; and I will therefore take pins as being for some reason specially important to women.

There was a time when pinmakers would buy the material; shape it; make the head and the point; ornament it; and take it to the market, and sell it and the making required skill in several operations. They not only knew how the thing was done from beginning to end, but could do it all by themselves. But they could not afford to sell you a paper of pins for the farthing. Pins cost so much that a woman's dress allowance was calling pin money.

By the end of the 18th century Adam Smith boasted that it took 18 men to make a pin, each man doing a little bit of the job and passing the pin on to the next, and none of them being able to make a whole pin or to buy the materials or to sell it when it was made. The most you could say for them was that at least they had some idea of how it was made, though they could not make it. Now as this meant that they were clearly less capable and knowledgeable men than the old pin-makers, you may ask why Adam Smith boasted of it as a triumph of civilisation when its effect had so clearly a degrading effect. The reason was that by setting each man to do just one little bit of the work and nothing but that, over and over again, he became very quick at it. The men, it is said, could turn out nearly 5000 pins a day each; and thus pins became plentiful and cheap. The country was supposed to be richer because it had more pins, though it had turned capable men into mere machines doing their work without intelligence and being fed by the spare food of the capitalist just as an engine is fed with coals and oil. That was why the poet Goldsmith, who was a farsighted economist as well as a poet, complained that 'wealth accumulates, and men decay'.

Nowadays Adam Smith's 18 men are as extinct as the diplodocus. The 18 flesh-and-blood men have been replaced by machines of steel which spout out pins by the hundred million. Even sticking them into pink papers is done by machinery. The result is that with the exception of a few people who design the machines, nobody knows how to make a pin or how a pin is made: that is to say, the modern worker in pin manufacture need not be one-tenth so intelligent, skilful and accomplished as the old pinmaker; and the only compensation we have for this deterioration is that pins are so cheap that a single pin has no expressible value at all. Even with a big profit stuck on to the cost-price you can buy dozens for a farthing; and pins are so recklessly thrown away and wasted that verses have to be written to persuade children (without success) that it is a sin to steal, if even it's a pin.

Many serious thinkers, like John Ruskin and William Morris, have been greatly troubled by this, just as Goldsmith was, and have asked whether we really believe that it is an advance in wealth to lose our skill and degrade our workers for the sake of being able to waste pins by the ton. We shall see later on, when we come

to consider the Distribution of Leisure, that the cure for this is not to go back to the old free for higher work than pin-making or the like. But in the meantime the fact remains that the workers are now not able to make anything themselves even in little bits. They are ignorant and helpless, and cannot lift their finger to begin their day's work until it has all been arranged for them by their employer's who themselves do not understand the machines they buy, and simply pay other people to set them going by carrying out the machine maker's directions.

The same is true for clothes. Earlier the whole work of making clothes, from the shearing of the sheep to the turning out of the finished and washed garment ready to put on, had to be done in the country by the men and women of the household, especially the women; so that to this day an unmarried woman is called a spinster. Nowadays nothing is left of all this but the sheep shearing; and even that, like the milking of cows, is being done by machinery, as the sewing is. Give a woman a sheep today and ask her to produce a woollen dress for you; and not only will she be quite unable to do it, but you are likely to find that she is not even aware of any connection between sheep and clothes. When she gets her clothes, which she does by buying them at the shop, she knows that there is a difference between wool and cotton and silk, between flannel and merino, perhaps even between stockinet and other wefts; but as to how they are made, or what they are made of, or how they came to be in the shop ready for her to buy, she knows hardly anything. And the shop assistant from whom she buys is no wiser. The people engaged in the making of them know even less; for many of them are too poor to have much choice of materials when they buy their own clothes.

Thus the capitalist system has produced an almost universal ignorance of how things are made and done, whilst at the same time it has caused them to be made and done on a gigantic scale. We have to buy books and encyclopaedias to find out what it is we are doing all day; and as the books are written by people who are not doing it, and who get their information from other books, what they tell us is twenty to fifty years out of date knowledge and almost impractical today. And of course most of us are too tired of our work when we come home to want to read about it; what we need is cinema to take our minds off it and feel our imagination.

It is a funny place, this world of capitalism, with its astonishing spread of education and enlightenment. There stand the thousands of property owners and the millions of wage workers, none of them able to make anything, none of them knowing what to do until somebody tells them, none of them having the least notion of how it is made that they find people paying them money, and things in the shops to buy with it. And when they travel they are surprised to find that savages and Esquimaux and villagers who have to make everything for themselves are more intelligent and resourceful! The wonder would be if they were anything else. We should die of idiocy through disuse of our mental faculties if we did not fill our heads with romantic nonsense out of illustrated newspapers and novels and plays and films. Such stuff keeps us alive, but it falsifies everything for us so absurdly that it leaves us more or less dangerous lunatics in the real world.

Excuse my going on like this; but as I am a writer of books and plays myself, I know the folly and peril of it better than you do. And when I see that this moment of our utmost ignorance and helplessness, delusion and folly, has been stumbled on by the blind forces of capitalism as the moment for giving votes to everybody, so that the few wise women are hopelessly overruled by the thousands whose political minds, as far as they can be said to have any political minds at all, have been formed in the cinema, I realise that I had better stop writing plays for a while to discuss political and social realities in this book with those who are intelligent enough to listen to me.

51. A suitable title to the passage would be
- You Can't Hear a Pin-drop Nowadays.*
 - Capitalism and Labour Disintegration: Pinning the Blame.*
 - The Saga of the Non Safety Pins.*
 - Reaching the Pinnacle of Capitalistic Success.*
52. Why do you think that the author gives the example of Adam Smith?
- Because he thinks that Adam Smith was a boaster without any facts to back his utterance.
 - Because he wants to give us an example of something undesirable that Adam Smith was proud of.
 - Because he is proud to be a believer in a tenet of production that even a great man like Adam Smith boasted about.
 - Because he feels that Adam Smith was right when he said that it took 18 men to make a pin.
53. Which of the following is true as far as pins are concerned?
- The cost of pins is more nowadays to produce.
 - Earlier, workmen made pins with a lot of love and care.
 - Pinball machines are the standard pin producing gadgets nowadays.
 - It took much longer to make a pin earlier.
54. The reason that children have to be taught that stealing a pin is wrong is that
- they have an amazing proclivity to steal them right from childhood.
 - pins are so common and cheap that taking one would not even be considered stealing by them.
 - stealing a pin would lead to stealing bigger and bigger things in the future.
 - stealing an insignificant thing like a pin smacks of kleptomania.
55. It may be inferred from the passage that the author
- is a supporter of the craftsmanship over bulk mechanised production.
 - is a supporter of assembly line production over socialistic systems of the same.
 - is a defender of the faith in capitalistic production.
 - None of the above
56. Which of the following is not against the modern capitalistic system of mass production?
- John Ruskin
 - Goldsmith
 - Adam Smith
 - William Morris
57. Goldsmith's dictum, "wealth accumulates, and men decay," in the context of the passage, probably means
- the more wealthy people get, they become more and more corrupt.
 - the more rich people get, they forget the nuances of individual ability.
 - people may have a lot of money, but they have to die and decay someday.
 - the more a company gets wealthy the less they take care of people.
58. When the author says that a woman now is likely to know about any connection between sheep and clothes, he is probably being
- vindictive.
 - chauvinistic.
 - satirical.
 - demeaning.

59. Which of the following can be a suitable first line to introduce the hypothetical next paragraph at the end of the passage?
- The distribution of leisure is not a term that can be explained in a few words.
 - If people wear clothes they hardly seem to think about the method of production.
 - Machines are the gods of our age and there seems to be no atheists.
 - None of the above.

Passage – 2

Now let us turn back to inquire whether sending our capital abroad, and consenting to be taxed to pay emigration fares to get rid of the women and men who are left without employment in consequence, is all that capitalism can do when our employers, who act for our capitalists in industrial affairs, and are more or less capitalists themselves in the earlier stages of capitalistic development, find that they can sell no more of their goods at a profit, or indeed at all, in their own country.

Clearly they cannot send abroad the capital they have already invested, because it has all been eaten up by the workers, leaving in its place factories and railways and mines and the like; and these cannot be packed into a ship's hold and sent to Africa. It is only the freshly saved capital that can be sent out of the country. This, as we have seen, does go abroad in heaps of finished products. But the British land held by him on long lease, must, when once he has sold all the goods at home that his British customers can afford to buy, either shut up his works until the customers have worn out their stock of what they have bought, which would bankrupt him (for the landlord will not wait), or else sell his superfluous goods somewhere else; that is, he must send them abroad. Now it is not easy to send them to civilized countries, because they practise Protection, which means that they impose heavy taxes (customs duties) on foreign goods. Uncivilized countries, without Protection, and inhabited by natives to whom gaudy calicoes and cheap showy brassware are dazzling and delightful novelties, are the best places to make for at first.

But trade requires a settled government to put down the habit of plundering strangers. This is not a habit of simple tribes, who are often friendly and honest. It is what civilized men do where there is no law to restrain them. Until quite recent times it was extremely dangerous to be wrecked on our own coasts, as wrecking, which meant plundering wrecked ships and refraining from any officious efforts to save the lives of their crews, was a well-established business in many places on our shores. The Chinese still remember some astonishing outbursts of looting perpetrated by English ladies of high position, at moments when law was suspended and priceless works of art were to be had for the grabbing. When trading with aborigines begins with the visit of a single ship, the cannons and cutlasses carried may be quite sufficient to overawe the natives if they are troublesome. The real difficulty begins when so many ships come that a little trading station of white men grows up and attracts the white ne'er-do-wells and violent roughs who are always being squeezed out of civilization by the pressure of law and order. It is these riff-raff who turn the place into a sort of hell in which sooner or later missionaries are murdered and traders plundered. Their home governments are appealed to put a stop to this. A gunboat is sent out and inquiry made. The report after the inquiry is that there is nothing to be done but set up a civilized government, with a post office, police, troops and the navy in the offing. In short, the place is added to some civilized Empire. And the civilized taxpayer pays the bill without getting a farthing of the profits.

Of course the business does not stop there. The riff-raff who have created the emergency move out just beyond the boundary of the annexed territory, and are as great a nuisance as ever to the traders when they have exhausted the purchasing power of the included natives and push on after fresh customers. Again they call on their home government to civilize a further area; and so bit by bit the civilized Empire grows at the expense of the home taxpayers, without any intention or approval on their part, until at last although all their real patriotism is centred on their own people and confined to their own country, their own rulers, and their own religious faith; they find that the centre of their beloved realm has shifted to the other hemisphere. That is how we in the British Islands have found our centre moved from London to the Suez Canal, and are now in the position that out of every hundred of our fellow-subjects, in whose defence we are expected to shed the last drop of our blood, only 11 are whites or even Christians. In our bewilderment some of us declare that the Empire is a burden and a blunder, whilst others glory in it as a triumph. You and I need not argue with them just now, our point for the moment being that, whether blunder or glory, the British Empire was quite unintentional. What should have been undertaken only as a most carefully considered political development has been a series of commercial adventures thrust on us by capitalists forced by their own system to cater to foreign customers before their own country's needs were one-tenth satisfied.

60. It may be inferred that the passage was written
- when Britain was still a colonial power.
 - when the author was in a bad mood.
 - when the author was working in the foreign service of Britain.
 - when the author's country was overrun by the British.
61. According to the author, the habit of plundering the strangers
- is usually not found in simple tribes but civilized people.
 - is usually found in the barbaric tribes of the uncivilized nations.
 - is a habit limited only to English ladies of high position.
 - is a usual habit with all white-skinned people.
62. Which of the following does not come under the aegis of capital already invested?
- Construction of factories
 - Development of a mine
 - Trade of finished products
 - All of the above
63. Which of the following may be called the main complaint of the author?
- The race of people he belongs to are looters and plunderers.
 - The capitalists are taking over the entire world.
 - It is a way of life for English ladies to loot and plunder.
 - The English taxpayer has to pay for the upkeep of territories he did not want.
64. Why do the capitalistic traders prefer the uncivilized countries to the civilized ones?
- Because they find it easier to rule them.
 - Because civilized countries would make them pay protection duties.
 - Because civilized countries would make their own goods.
 - Because uncivilized countries like the cheap and gaudy goods of bad quality all capitalists produce.

65. The word 'officious', in the context of the passage, means
a. self-important. b. official. c. rude. d. oafish.
66. According to the author, the main reason why capitalist go abroad to sell their goods is
a. that they want to civilize the under developed countries of the world by giving them their goods.
b. that they have to have new places to sell their surplus goods some where in new markets.
c. that they actually want to rule new lands and selling goods is an excuse.
d. None of the above

Passage – 3

That the doctrines connected with the name of Mr Darwin are altering our principles has become a sort of commonplace thing to say. And moral principles are said to share in this general transformation. Now, to pass by other subjects, I do not see why Darwinism need change our ultimate moral ideas. It was not to modify our conception of the end, either for the community, or the individual, unless we have been holding views, which long before Darwin were out of date. As to the principles of ethics I perceive, in short, no sign of revolution. Darwinism has indeed helped many to truer conception of the end, but I cannot admit that it has either originated or modified that conception.

And yet in ethics Darwinism after all perhaps be revolutionary, it may lead not to another view about the end, but to a different way of regarding the relatively importance of the means. For in the ordinary moral creed those means seem estimated on no rational principle. Our creed appears rather to be an irrational mixture of jarring elements. We have the moral code of Christianity, accepted in part; rejected practically by all save a few fanatics. But we do not realise how in its very principle the Christian ideals is false. And when we reject this code for another and in part a sounder morality, we are in the same condition of blindness and of practical confusion. It is here that Darwinism, with all the tendencies we may group under that name, seems destined to intervene. It will make itself felt, I believe, more and more effectually. It may force on us in some points a correction of our moral views, and a return to a non-Christian and perhaps a Hellenic ideal. I propose to illustrate here these general statements by some remarks on Punishment.

Darwinism, I have said, has not even modified our ideas of the Chief Good. We may take that as — the welfare of the community realised in its members. There is, of course, a question as to meaning to be given to welfare. We may identify that with mere pleasure, or gain with mere system, or may rather view both as inseparable aspects of perfection and individuality. And the extent and nature of the community would once more be a subject for some discussion. But we are forced to enter on these controversies here. We may leave welfare undefined, and for present purpose need not distinguish the community from the state. The welfare of this whole exists, of course, nowhere outside the individuals, and the individuals again have rights and duties only as members in the whole. This is the revived Hellenism — or we may call it in the organic view of things — urged by German Idealism early in the present century.

67. What is most probably the author's opinion of the existing moral principles of the people?
a. He thinks they have to be revamped in the light of Darwinism.
b. He thinks that they are okay as they are and do not need any major change.
c. He thinks that it may be a good idea to have a modicum of the immortal Darwinism in us.
d. Cannot be determined from the passage.

68. According to the author, the doctrines of Mr Darwin
- have changed our physical and moral principles.
 - have to be re-evaluated to correct the faults endemic in them.
 - do not have to change our moral ideas.
 - are actually new versions of old moral rules.
69. What, according to the passage, is the Chief Good?
- Being good and kind to all fellow human beings.
 - The greatest good of the greatest number.
 - The welfare of the community realised in its members.
 - Cannot be determined from the passage.
70. It is implied in the passage that
- a Hellenic ideal is not a proper substitute of the Christian ideal.
 - what mankind needs is a Hellenic ideal rather than a Christian one.
 - Darwinism is more Christian than Hellenic.
 - fanatics do not understand what Darwinism really is.
71. According to the author, the moral code of Christianity
- is not followed by most people.
 - is in danger due to opposition of Darwinism.
 - is followed by a vast majority of people.
 - is totally ignored by all true Christians.

Passage – 4

Governments looking for easy popularity have frequently been tempted into announcing give-aways of all sorts; free electricity, virtually free water, subsidised food, cloth at half price, and so on. The subsidy culture has gone to extremes. The richest farmers in the country get subsidised fertiliser. University education, typically accessed by the wealthier sections, is charged at a fraction of cost. Postal services are subsidised, and so are railway services. Bus fares cannot be raised to economical levels because there will be violent protests, so bus travel is subsidised too. In the past, price control on a variety of items, from steel to cement, meant that industrial consumers of these items got them at less than actual cost, while the losses of the public sector companies that produced them were borne by the taxpayer! A study, done a few years ago, came to the conclusion that subsidies in the Indian economy total as much as 14.5 per cent of gross domestic product. At today's level, that would work out to about Rs. 1,50,000 crore.

And who pays the bill? The theory — and the political fiction on the basis of which it is sold to unsuspecting voters — is that subsidies go to the poor, and are paid for by the rich. The fact is that most subsidies go to the 'rich' (defined in the Indian context as those who are above the poverty line), and much of the tab goes indirectly to the poor. Because the hefty subsidy bill results in fiscal deficits, which in turn push up rates of inflation — which, as everyone knows, hits the poor the hardest of all. Indeed, that is why taxmen call inflation the most regressive form of taxation.

The entire subsidy system is built on the thesis that people cannot help themselves, therefore governments must do so. That people cannot afford to pay for a variety of goods and services, and therefore the government must step in. This thesis has been applied not just in the poor countries but in the rich ones as well; hence the birth of the welfare state in the West, and an almost Utopian social security system; free medical care, food aid, old age security, et al. But with the passage of time, most of the wealthy nations have discovered that their economies cannot sustain this social safety net, which in fact reduces the desire among people to pay their own way, and takes away some of the incentive to work. In short, the bill was unaffordable, and their societies were simply not willing to pay. To the regret of many, but because of the laws of economics are harsh, most Western societies have been busy pruning the welfare bill.

In India, the lessons of this experience — over several decades, and in many countries — do not seem to have been learnt. Or, they are simply ignored in the pursuit of immediate votes. People who are promised cheap food or clothing do not in most cases look beyond the gift horses — to the question of who picks up the tab. The uproar over higher petrol, diesel and cooking gas prices ignored this basic question: if the user of cooking gas does not want to pay for its cost, who should pay? Diesel in the country is subsidised, and if the trucker or owner of a diesel generator does not want to pay for its full cost, who does he or she think should pay the balance of the cost? It is a simple question, nevertheless it remains unasked.

The Deve Gowda government has shown some courage in biting the bullet when it comes to the price of petroleum products. But it has been bitten by a much bigger subsidy bug. It wants to offer food at half its cost to everyone below the poverty line, supposedly estimated at some 380 million people. What will be the cost? And, of course, who will pick up the tab? The Andhra Pradesh Government has been bankrupted by selling rice at Rs. 2 per kg. Should the Central Government be bankrupted too, before facing up to the question of what is affordable and what is not? Already, India is perennially short of power because the subsidy on electricity has bankrupted most electricity boards, and made private investment wary unless it gets all manner of state guarantees. Delhi's subsidised bus fares have bankrupted the Delhi Transport Corporation., whose buses have slowly disappeared from the capital's streets. It is easy to be soft and sentimental, by looking at programmes that will be popular. After all, who doesn't like a free lunch? But the evidence is surely mounting that the lunch isn't free at all. Somebody is paying the bill. And if you want to know who, take a look at the country's poor economic performance over the years.

72. Which of the following should not be subsidised now, according to the passage?
- | | |
|-------------------------|---------------------|
| a. University education | b. Postal services |
| c. Steel | d. All of the above |
73. The statement that subsidies are paid for by the rich and go to the poor is
- | | |
|-----------------------------------|--------------------------------------|
| a. fiction. | b. fact. |
| c. fact, according to the author. | d. fiction, according to the author. |
74. Why do you think that the author calls the Western social security system Utopian?
- The countries' belief in the efficacy of the system was bound to turn out to be false.
 - The system followed by these countries is the best available in the present context.
 - Every thing under this system was supposed to be free but people were charging money for them.
 - The theory of system followed by these countries was devised by Dr Utopia.

75. It can be inferred from the passage that the author
- believes that people can help themselves and do not need the government.
 - believes that the theory of helping with subsidy is destructive.
 - believes in democracy and free speech.
 - is not a successful politician.
76. Which of the following is not a victim of extreme subsidies?
- The poor
 - The Delhi Transport Corporation
 - The Andhra Pradesh Government
 - None of these
77. What, according to the author, is a saving grace of the Deve Gowda government?
- It has realised that it has to raise the price of petroleum products.
 - It has avoided been bitten by a bigger subsidy bug.
 - Both (a) and (b).
 - Neither (a) and (b).
78. A suitable title to the passage would be-
- There's No Such Thing as a Free Lunch.*
 - The Economic Overview.*
 - Deve Gowda's Government and its Follies.*
 - It Takes Two to Tango.*
79. Which of the following is not true, in the context of the passage?
- Where subsidies are concerned, the poor ultimately pay the tab.
 - Inflation is caused by too much subsidies.
 - Experts call subsidies the most regressive form of taxation.
 - Fiscal deficits are caused due to heavy subsidy bills.

Passage – 5

The membrane-bound nucleus is the most prominent feature of the eukaryotic cell. Schleiden and Schwann, when setting forth the cell doctrine in the 1830s, considered that it had a central role in growth and development. Their belief has been fully supported even though they had only vague notions as to what that role might be, and how the role was to be expressed in some cellular action. The membraneless nuclear area of the prokaryotic cell, with its tangle of fine threads, is now known to play a similar role.

Some cells, like the sieve tubes of vascular plants and the red blood cells of mammals, do not possess nuclei during the greater part of their existence, although they had nuclei when in a less differentiated state. Such cells can no longer divide and their life span is limited. Other cells are regularly multinucleate. Some, like the cells of striated muscles or the latex vessels of higher plants, become so through cell fusion. Some, like the unicellular protozoan paramecium, are normally binucleate, one of the nuclei serving as a source of hereditary information for the next generation, the other governing the day-to-day metabolic activities of the cell. Still other organisms, such as some fungi, are multinucleate because cross walls, dividing the mycelium into specific cells, are absent or irregularly present. The uninucleate situation, however, is typical for the vast minority of cells, and it would appear that this is the most efficient and most economical manner of partitioning living substance into manageable units. This point of view is given credence not only by the prevalence of uninucleate cells, but because for each kind of cell there is a ratio maintained between the volume of the nucleus and that

of the cytoplasm. If we think of the nucleus as the control centre of the cell, this would suggest that for a given kind of cell performing a given kind of work, one nucleus can 'take care of' a specific volume of cytoplasm and keep it in functioning order. In terms of material and energy, this must mean providing the kind of information needed to keep flow of materials and energy moving at the correct rate and in the proper channels. With the multitude of enzymes in the cell, materials and energy can of course be channelled in a multitude of ways; it is the function of some information molecules to make channels of use more preferred than others at any given time. How this regulatory control is exercised is not entirely clear.

The nucleus is generally a rounded body. In plant cells, however, where the centre of the cell is often occupied by a large vacuole, the nucleus may be pushed against the cell wall, causing it to assume a lens shape. In some white blood cells, such as polymorphonucleated leukocytes, and in cells of the spinning gland of some insects and spiders, the nucleus is very much lobed. The reason for this is not clear, but it may relate to the fact that for a given volume of nucleus, a lobate form provides a much greater surface area for nuclear-cytoplasmic exchanges, possibly affecting both the rate and the amount of metabolic reactions. The nucleus, whatever its shape, is segregated from the cytoplasm by a double membrane, the nuclear envelope, with the two membranes separated from each other by a perinuclear space of varying width. The envelope is absent only during the time of cell division, and then just for a brief period. The outer membrane is often continuous with the membranes of the endoplasmic reticulum, a possible retention of an earlier relationship, since the envelope, at least in part, is formed at the end cell division by coalescing fragments of the endoplasmic reticulum. The cytoplasmic side of the nucleus is frequently coated with ribosomes, another fact that stresses the similarity and relation of the nuclear envelope to the endoplasmic reticulum. The inner membrane seems to possess a crystalline layer where it abuts the nucleoplasm, but its function remains to be determined.

Everything that passes between the cytoplasm and the nucleus in the eukaryotic cell must transverse the nuclear envelope. This includes some fairly large molecules as well as bodies such as ribosomes, which measure about 25 nm in diameter. Some passageway is, therefore, obviously necessary since there is no indication of dissolution of the nuclear envelope in order to make such movement possible. The nuclear pores appear to be reasonable candidates for such passageways. In plant cells these are irregularly, rather sparsely distributed over the surface of the nucleus, but in the amphibian oocyte, for example, the pores are numerous, regularly arranged, and octagonal and are formed by the fusion of the outer and inner membrane.

80. Which of the following kinds of cells never have a nuclei?
- a. Sieve Tubes
 - b. Red blood cells of mammals
 - c. Prokaryotic cells
 - d. None of these
81. According to the first paragraph, the contention of Schleiden and Schwann that the nucleus is the most important part of the cell has
- a. been proved to be true.
 - b. has been true so far but false in the case of the prokaryotic cell.
 - c. is only partially true.
 - d. has been proved to be completely false.
82. It may be inferred from the passage that the vast majority of cells are
- a. multinucleate.
 - b. binucleate.
 - c. uninucleate.
 - d. anucleate.

83. What is definitely a function of the nuclei of the normally binucleate cell?
- To arrange for the growth and nourishment of the cell.
 - To hold hereditary information for the next generation.
 - To make up the basic physical structure of the organism.
 - To fight the various foreign diseases attacking the body.
84. The function of the crystalline layer of the inner membrane of the nucleus is
- generation of nourishment of the cell.
 - holding together the disparate structures of the endoplasmic reticulum.
 - helping in transversal of the nuclear envelope.
 - Cannot be determined from the passage
85. Why, according to the passage, is the polymorphonucleated leukocyte probably lobed?
- Because it is quite convoluted in its functions.
 - Because it is the red blood cell which is the most important cell in the body.
 - Because it provides a greater area for metabolism reactions.
 - Because it provides greater strength to the spider web due to greater area.
86. Why, according to the passage, are fungi multinucleate?
- Because they need more food to survive.
 - Because they frequently lack walls dividing the mycelium.
 - Because the mycelium is areawise much bigger than other cells.
 - Cannot be determined from the passage

Passage – 6

The second plan to have to examine is that of giving to each person what she deserves. Many people, especially those who are comfortably off, think this is what happens at present: that the industrious and sober and thrifty are never in want, and that poverty is due to idleness, improvidence, drinking, betting, dishonesty, and bad character generally. They can point to the fact that a labourer whose character is bad finds it more difficult to get employment than one whose character is good; that a farmer or country gentleman who gambles and bets heavily, and mortgages his land to live wastefully and extravagantly, is soon reduced to poverty; and that a man of business who is lazy and does not attend to it becomes bankrupt. But this proves nothing that you cannot eat your cake and have it too; it does not prove that your share of the cake was a fair one. It shows that certain vices make us rich. People who are hard, grasping, selfish, cruel, and always ready to take advantage of their neighbours, become very rich if they are clever enough not to overreach themselves. On the other hand, people who are generous, public spirited, friendly, and not always thinking of the main chance, stay poor when they are born poor unless they have extraordinary talents. Also as things are today, some are born poor and others are born with silver spoons in their mouths: that is to say, they are divided into rich and poor before they are old enough to have any character at all. The notion that our present system distributes wealth according to merit, even roughly, may be dismissed at once as ridiculous. Everyone can see that it generally has the contrary effect; it makes a few idle people very rich, and a great many hardworking people very poor.

On this, intelligent Lady, your first thought may be that if wealth is not distributed according to merit, it ought to be; and that we should at once set to work to alter our laws so that in future the good people shall be rich in

proportion to their goodness and the bad people poor in proportion to their badness. There are several objections to this; but the very first one settles the question for good and all. It is, that the proposal is impossible and impractical. How are you going to measure anyone's merit in money? Choose any pair of human beings you like, male or female, and see whether you can decide how much each of them should have on her or his merits. If you live in the country, take the village blacksmith and the village clergyman, or the village washerwoman and the village schoolmistress, to begin with. At present, the clergyman often gets less pay than the blacksmith; it is only in some villages he gets more. But never mind what they get at present: you are trying whether you can set up a new order of things in which each will get what he deserves. You need not fix a sum of money for them: all you have to do is to settle the proportion between them. Is the blacksmith to have as much as the clergyman? Or twice as much as the clergyman? Or half as much as the clergyman? Or how much more or less? It is no use saying that one ought to have more the other less; you must be prepared to say exactly how much more or less in calculable proportion.

Well, think it out. The clergyman has had a college education; but that is not any merit on his part: he owns it to his father; so you cannot allow him anything for that. But through it he is able to read the New Testament in Greek; so that he can do something the blacksmith cannot do. On the other hand, the blacksmith can make a horse-shoe, which the parson cannot. How many verses of the Greek Testament are worth one horse-shoe? You have only to ask the silly question to see that nobody can answer it.

Since measuring their merits is no use, why not try to measure their faults? Suppose the blacksmith swears a good deal, and gets drunk occasionally! Everybody in the village knows this; but the parson has to keep his faults to himself. His wife knows them; but she will not tell you what they are if she knows that you intend to cut off some of his pay for them. You know that as he is only a mortal human being, he must have some faults; but you cannot find them out. However, suppose he has some faults he is a snob; that he cares more for sport and fashionable society than for religion! Does that make him as bad as the blacksmith, or twice as bad, or twice and quarter as bad, or only half as bad? In other words, if the blacksmith is to have a shilling, is the parson to have six pence, or five pence and one-third, or two shillings? Clearly these are fools' questions: the moment they bring us down from moral generalities to business particulars it becomes plain to every sensible person that no relation can be established between human qualities, good or bad, and sums of money, large or small. It may seem scandalous that a prize-fighter, for hitting another prize-fighter so hard at Wembley that he fell down and could not rise within ten seconds, received the same sum that was paid to the Archbishop of Canterbury for acting as Primate of the Church of England for nine months; but none of those who cry out against the scandal can express any better in money the difference between the two. Not one of the persons who think that the prize-fighter should get less than the Archbishop can say how much less. What the prize-fighter got for his six or seven months' boxing would pay a judge's salary for two years; and we all agree that nothing could be more ridiculous, and that any system of distributing wealth which leads to such absurdities must be wrong. But to suppose that it could be changed by any possible calculation that an ounce of archbishop of three ounces of judge is worth a pound of prize-fighter would be sillier still. You can find out how many candles are worth a pound of butter in the market on any particular day; but when you try to estimate the worth of human souls the utmost you can say is that they are all of equal value before the throne of God. And that will not help you in the least to settle how much money they should have. You must simply give it up, and admit that distributing money according to merit is beyond mortal measurement and judgement.

87. Which of the following is not a vice attributed to the poor by the rich?
a. Idleness b. Drug addition c. Gambling d. Alcoholism
88. What, according to the author, do the generous and public spirited people need to become rich?
a. A criminal mind b. To be born with silver spoons
c. Extraordinary talents d. Strength of character
89. In the passage, which kind of people are not mentioned as likely to get rich quickly?
a. Selfish people b. Grasping people
c. Hard people d. Ambitious people
90. What, according to the author, is the main problem in distributing wealth according to the goodness or badness of human beings?
a. Because the bad people will as always, cheat the good people of their fair share of the money.
b. Because there are too many people in the world and it will take a long time to categorise them into good or bad.
c. Because there are no standards by which to judge good or bad in relation to money.
d. None of the above
91. Which of the following about the author's thinking may be inferred from the passage?
a. The poor should work hard to become rich.
b. The present system of distribution of wealth is biased in favour of the rich.
c. The honest men should resort to trickery if they want to become rich.
d. The present system of government should give way to a more progressive one.
92. This passage most probably is a part of
a. a newspaper article. b. an anthropological document.
c. a letter to someone. d. an ecclesiastical liturgy.
93. The word 'improvidence' in the context of the passage, means
a. extravagance. b. lasciviousness. c. corruption. d. indelicacy.
94. The author gives the example of the Archbishop of Canterbury and the prize-fighter to
a. prove that there cannot be any division of wealth based on moral standards.
b. prove that in this day and age might always scores over religion and love.
c. prove the existence of a non-discriminating god.
d. prove that a pound of butter is worth more than any amount of candles any day.

Passage – 7

The conventional wisdom says that this is an issue-less election. There is no central personality of whom voters have to express approval or dislike; no central matter of concern that makes this a one-issue referendum like so many elections in the past; no central party around which everything else revolves — the Congress has been displaced from its customary pole position, and no one else has been able to take its place. Indeed, given that all-seeing video cameras of the Election Commission, and the detailed pictures they are putting together on campaign expenditure, there isn't even much electioneering: no slogans on the walls, no loudspeakers blaring forth at all hours of the day and night, no cavalcades of cars heralding the arrival of a candidate at the local bazaar. Forget it being an issue-less election, is this an election at all?

Perhaps the 'fun' of an election lies in its featuring someone whom you can love or hate. But Narasimha Rao has managed to reduce even a general election, involving nearly 600 million voters, to the boring non-event that is the trademark of his election rallies, and indeed of everything else that he does. After all, the Nehru-Gandhi clan has disappeared from the political map, and the majority of voters will not even be able to name P.V.Narasimha Rao as India's Prime Minister. There could be as many as a dozen prime ministerial candidates ranging from Jyoti Basu to Ramakrishna Hegde, and from Chandra Shekar to (believe it or not) K.R.Narayanan. The sole personality who stands out, therefore, is none of the players, but the umpire: T.N.Seshan.

As for the parties, they are like the blind men of Hindustan, trying in vain to gauge the contours of the animal they have to confront. But it doesn't look as if it will be the mandir-masjid, nor will it be Hindutva or economic nationalism. The Congress will like it to be stability, but what does that mean for the majority? Economic reform is a non-issue for most people with inflation down to barely 4 per cent, prices are not top of the mind either. In a strange twist, after the hawala scandal, corruption has been pushed off the map too.

But ponder for a moment, isn't this state of affairs astonishing, given the context? Consider that so many ministers have had to resign over the hawala issue; that a governor who was a cabinet minister has also had to quit, in the wake of judicial displeasure; that the prime minister himself is under investigation for his involvement in not one scandal but two; that the main prime ministerial candidate from the opposition has had to bow out because he too has been changed in the hawala case; and that the head of the 'third force' has his own little (or not so little) fodder scandal to face. Why then is corruption not an issue — not as a matter of competitive politics, but as an issue on which the contenders for power feel that they have to offer the prospect of genuine change? If all this does not make the parties (almost all of whom have broken the law, in not submitting their audited accounts every year to the income tax authorities) realise that the country both needs — and is ready for-change in the Supreme Court; the assertiveness of the Election Commission, giving new life to a model code of conduct that has been ignored for a quarter century; the independence that has been thrust upon the Central Bureau of Investigation; and the fresh zeal on the part of tax collectors out to nab corporate no-gooders. Think also that at no other point since the Emergency of 1975-77 have so many people in power been hounded by the system for their misdeeds.

Is this just a case of a few individuals outside the political system doing the job, or is the country heading for a new era? The seventies saw the collapse of the national consensus that marked the Nehruvian era, and ideology took over in the Indira Gandhi years. That too was buried by Rajiv Gandhi and his technocratic friends. And now, we have these issue-less elections. One possibility is that the country is heading for a period of constitutionalism as the other arms of the state reclaim some of the powers they lost, or yielded, to the political

establishment. Economic reform free one part of Indian society from the clutches of the political class. Now, this could spread to other parts of the system. Against such a dramatic backdrop, it should be obvious that people (voters) are looking for accountability, for ways in which to make a corrupted system work again. And the astonishing thing is that no party has sought to ride this particular wave; instead all are on the defensive, desperately evading the real issues. No wonder this is an 'issue-less' election.

95. Why does the author probably say that the sole personality who stands out in the elections is T.N.Seshan?
- Because all the other candidates are very boring.
 - Because all the other candidates do not have his charisma.
 - Because the shadow of his strictures are looming large over the elections.
 - None of the above
96. A suitable title to the passage would be
- Elections: A Overview.*
 - The Country's Issue-less Elections.*
 - T.N.Seshan — the Real Hero.*
 - Love or Hate Them, But Vote For Them.*
97. Which of the following are not under scrutiny for alleged corruption, according to the passage?
- The opposition prime ministerial candidate
 - P.V. Narasimha Rao
 - The leader of the 'third force'
 - Ramakrishna Hegde
98. Why does the author say that almost all parties have broken the law?
- Because they all indulge in corrupt electoral process.
 - Because they all have more income than recorded sources.
 - Because they are all indicted on various charges.
 - Because they have failed to submit audited accounts to tax authorities.
99. According to the passage, which of the following has not been responsible for the winds of change blowing throughout the country?
- Greater awareness on the part of the general public.
 - Enforcement of a model code of conduct by the Election Commission.
 - Greater independence to the Central Bureau of Investigation.
 - Fresh zeal on the part of tax collectors.
100. According to the passage, which of the following is not mentioned as even having the potential to be an issue in the current elections?
- The mandir-masjid issue
 - The empowerment of women
 - Economic nationalism
 - Hindutva

Section – III

Direction for questions 101 to 105: Answer the questions based on the following information.

The data given in the table shows the investment details in country 'Fortune Land' of companies A, B, C, D, E and F. Figures in the table are in US dollars in billions.

	A	B	C	D	E	F
Year 1	2.5	4.6	5.8	3.11	10.6	7.8
Year 2	6.7	7.5	12.5	5.6	17.4	25.3
Year 3	11.5	18.7	21.2	7.7	29.8	60.1

101. What is the percentage increase in investment of B, C, D and E from year 1 to year 3?
a. 121% b. 321% c. 221% d. 300%
102. What is the ratio of investments of E to F for the years 1 to 3?
a. 31 : 19 b. 19 : 31 c. 20 : 29 d. 41 : 53
103. What is D's contribution as a percentage of total investments in year 2?
a. 8.2% b. 4.5% c. 7.4% d. 9.2%
104. For which company is investment not increased from year 1 to year 3?
a. C b. D c. F d. None of these
105. What is the percentage difference in investments of companies A, B, C and companies D, E, F in year 2?
a. 75% b. 81% c. 67.5% d. 42.3%
106. If a number 774958A96B is to be divisible by 8 and 9, the respective values of A and B will be
a. 7 and 8 b. 8 and 0 c. 5 and 8 d. None of these
107. Which of the following values of x do not satisfy the inequality $(x^2 - 3x + 2 > 0)$ at all?
a. $1 \leq x \leq 2$ b. $-1 \geq x \geq -2$ c. $0 \leq x \leq 2$ d. $0 \geq x \geq -2$

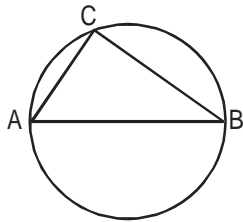
Direction for questions 108 and 109: Answer the questions based on the following information.

In a locality, there are five small cities: A, B, C, D and E. The distances of these cities from each other are as follows.

AB = 2 km AC = 2km AD > 2 km AE > 3 km BC = 2 km
BD = 4 km BE = 3 km CD = 2 km CE = 3 km DE > 3 km

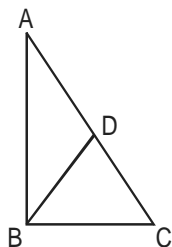
108. If a ration shop is to be set up within 2 km of each city, how many ration shops will be required?
a. 2 b. 3 c. 4 d. 5
109. If a ration shop is to be set up within 3 km of each city, how many ration shops will be required?
a. 1 b. 2 c. 3 d. 4

117. The cost of diamond varies directly as the square of its weight. Once, this diamond broke into four pieces with weights in the ratio 1 : 2 : 3 : 4. When the pieces were sold, the merchant got Rs. 70,000 less. Find the original price of the diamond.
- a. Rs. 1.4 lakh
b. Rs. 2 lakh
c. Rs. 1 lakh
d. Rs. 2.1 lakh
118. If n is any odd number greater than 1, then $n(n^2 - 1)$ is
- a. divisible by 96 always
b. divisible by 48 always
c. divisible by 24 always
d. None of these
119. The figure shows a circle of diameter AB and radius 6.5 cm. If chord CA is 5 cm long, find the area of $\triangle ABC$.



- a. 60 sq. cm
b. 30 sq. cm
c. 40 sq. cm
d. 52 sq. cm
- Direction for questions 120 and 121:** Answer the questions based on the following information.
A watch dealer incurs an expense of Rs. 150 for producing every watch. He also incurs an additional expenditure of Rs. 30,000, which is independent of the number of watches produced. If he is able to sell a watch during the season, he sells it for Rs. 250. If he fails to do so, he has to sell each watch for Rs. 100.
120. If he is able to sell only 1,200 out of 1,500 watches he has made in the season, then he has made a profit of
- a. Rs. 90,000
b. Rs. 75,000
c. Rs. 45,000
d. Rs. 60,000
121. If he produces 1,500 watches, what is the number of watches that he must sell during the season in order to break-even, given that he is able to sell all the watches produced?
- a. 500
b. 700
c. 800
d. 1,000
122. Once I had been to the post office to buy five-rupee, two-rupee and one-rupee stamps. I paid the clerk Rs. 20, and since he had no change, he gave me three more one-rupee stamps. If the number of stamps of each type that I had ordered initially was more than one, what was the total number of stamps that I bought?
- a. 10
b. 9
c. 12
d. 8

123. In $\triangle ABC$, $\angle B$ is a right angle, $AC = 6$ cm, and D is the mid-point of AC . The length of BD is



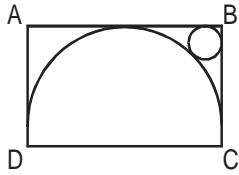
- a. 4 cm b. $\sqrt{6}$ cm c. 3 cm d. 3.5 cm

Direction for questions 124 and 125: Answer the questions based on the following information.

A salesman enters the quantity sold and the price into the computer. Both the numbers are two-digit numbers. But, by mistake, both the numbers were entered with their digits interchanged. The total sales value remained the same, i.e. Rs. 1,148, but the inventory reduced by 54.

124. What is the actual price per piece?
 a. Rs. 82 b. Rs. 41 c. Rs. 6 d. Rs. 28
125. What is the actual quantity sold?
 a. 28 b. 14 c. 82 d. 41
126. In a locality, two-thirds of the people have cable TV, one-fifth have VCR, and one-tenth have both. What is the fraction of people having either cable-TV or VCR?
 a. $\frac{19}{30}$ b. $\frac{2}{3}$ c. $\frac{17}{30}$ d. $\frac{23}{30}$
127. Find the value of $\frac{1}{1 + \frac{1}{3 - \frac{1}{2 + \frac{1}{3 - \frac{1}{2}}}}} + \frac{3}{3 - \frac{4}{3 + \frac{1}{2 - \frac{1}{2}}}}$
 a. $\frac{13}{7}$ b. $\frac{15}{7}$ c. $\frac{11}{21}$ d. $\frac{17}{28}$
128. Given the quadratic equation $x^2 - (A - 3)x - (A - 2)$, for what value of A will the sum of the squares of the roots be zero?
 a. -2 b. 3 c. 6 d. None of these

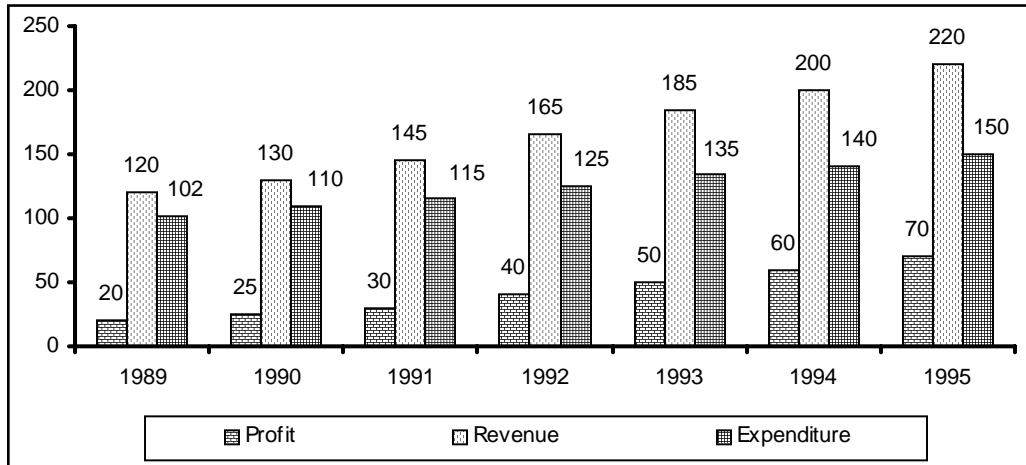
129. The figure shows the rectangle ABCD with a semicircle and a circle inscribed inside it as shown. What is the ratio of the area of the circle to that of the semicircle?



- a. $(\sqrt{2} - 1)^2 : 1$ b. $2(\sqrt{2} - 1)^2 : 1$ c. $(\sqrt{2} - 1)^2 : 2$ d. None of these
130. I bought 5 pens, 7 pencils and 4 erasers. Rajan bought 6 pens, 8 erasers and 14 pencils for an amount which was half more what I had paid. What per cent of the total amount paid by me was paid for the pens?
- a. 37.5% b. 62.5% c. 50% d. None of these
131. In a mile race, Akshay can be given a start of 128 m by Bhairav. If Bhairav can give Chinmay a start of 4 m in a 100 m dash, then who out of Akshay and Chinmay will win a race of one and half miles, and what will be the final lead given by the winner to the loser? (One mile is 1,600 m.)
- a. Akshay, $\frac{1}{12}$ mile b. Chinmay, $\frac{1}{32}$ mile
- c. Akshay, $\frac{1}{24}$ mile d. Chinmay, $\frac{1}{16}$ mile
132. Two liquids A and B are in the ratio 5 : 1 in container 1 and 1 : 3 in container 2. In what ratio should the contents of the two containers be mixed so as to obtain a mixture of A and B in the ratio 1 : 1?
- a. 2 : 3 b. 4 : 3 c. 3 : 2 d. 3 : 4
133. A man travels three-fifths of a distance AB at a speed $3a$, and the remaining at a speed $2b$. If he goes from B to A and return at a speed $5c$ in the same time, then
- a. $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$ b. $a + b = c$ c. $\frac{1}{a} + \frac{1}{b} = \frac{2}{c}$ d. None of these
134. A man travels from A to B at a speed x km/hr. He then rests at B for x hours. He then travels from B to C at a speed $2x$ km/hr and rests for $2x$ hours. He moves further to D at a speed twice as that between B and C. He thus reaches D in 16 hr. If distances A-B, B-C and C-D are all equal to 12 km, the time for which he rested at B could be
- a. 3 hr b. 6 hr c. 2 hr d. 4 hr
135. Out of two-thirds of the total number of basketball matches, a team has won 17 matches and lost 3 of them. What is the maximum number of matches that the team can lose and still win more than three-fourths of the total number of matches, if it is true that no match can end in a tie?
- a. 4 b. 6 c. 5 d. 3

Section – IV

Direction for questions 146 to 150: Answer the questions based on the following information.



146. The average revenue collected in the given 7 years is approximately
 a. Rs. 164 lakh b. Rs. 168 lakh c. Rs. 171 lakh d. Rs. 175 lakh
147. The expenditure for the 7 years together form what per cent of the revenues during the same period?
 a. 75% b. 67% c. 62% d. 83%
148. Which year showed the greatest percentage increase in profit as compared to the previous year?
 a. 1993 b. 1994 c. 1990 d. 1992
149. In which year was the growth in expenditure maximum as compared to the previous year?
 a. 1993 b. 1995 c. 1991 d. 1992
150. If the profit in 1996 shows the annual rate of growth as it had shown in 1995 over the previous year, then what approximately will be the profit in 1996?
 a. Rs. 72 lakh b. Rs. 82 lakh c. Rs. 93 lakh d. Rs. 78 lakh

Direction for questions 151 to 155: Answer the questions based on the following information, which gives data about certain coffee producers in India.

	Production ('000 tonnes)	Capacity utilisation (%)	Sales ('000 tonnes)	Total sales value (Rs. in crores)
Brooke Bond	2.97	76.50	2.55	31.15
Nestle	2.48	71.20	2.03	26.75
Lipton	1.64	64.80	1.26	15.25
MAC	1.54	59.35	1.47	17.45
Total (including others)	11.60	61.30	10.67	132.80

151. What is the maximum production capacity (in '000 tonnes) of Lipton for coffee?
 a. 2.53 b. 2.85 c. 2.24 d. 2.07
152. Which company out of the four companies mentioned above has the maximum unutilised capacity (in '000 tonnes)?
 a. Lipton b. Nestle c. Brooke Bond d. MAC
153. What is the approximate total production capacity (in '000 tonnes) for coffee in India?
 a. 18 b. 20 c. 18.7 d. Data insufficient
154. The highest price for coffee per kilogram is for
 a. Nestle b. MAC c. Lipton d. Data insufficient
155. What percent of the total market share (by sales value) is controlled by 'others'?
 a. 60% b. 32% c. 67% d. insufficient data

Direction for questions 156 to 160: Answer the questions based on the following information.

Mulayam Software Co., before selling a package to its clients, follows the given schedule.

Month	Stage	Cost (Rs. '000 per man /month)
1-2	Specification	40
3-4	Design	20
5-8	Coding	10
9-10	Testing	15
11-15	Maintenance	10

The number of people employed in each month is:

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number of people employed	2	3	4	3	4	5	5	4	4	1	3	3	1	1	1

156. Due to overrun in 'design', the design stage took 3 months, i.e. months 3, 4 and 5. The number of people working on design in the fifth month was 5. Calculate the percentage change in the cost incurred in the fifth month. (Due to improvement in 'coding' technique, this stage was completed in months 6-8 only.)
 a. 225% b. 150% c. 275% d. 240%
157. With reference to the above question, what is the cost incurred in the new 'coding' stage? (Under the new technique, 4 people work in the sixth month and 5 in the eighth.)
 a. Rs. 1,40,000 b. Rs. 1,50,000 c. Rs. 1,60,000 d. Rs. 1,70,000

158. What is the difference in cost between the old and the new techniques?
 a. Rs. 30,000 b. Rs. 60,000 c. Rs. 70,000 d. Rs. 40,000
159. Under the new technique, which stage of software development is most expensive for Mulayam Software Co.?
 a. Testing b. Specification c. Coding d. Design
160. Which five consecutive months have the lowest average cost per man-month under the new technique?
 a. 1-5 b. 9-13 c. 11-15 d. None of these

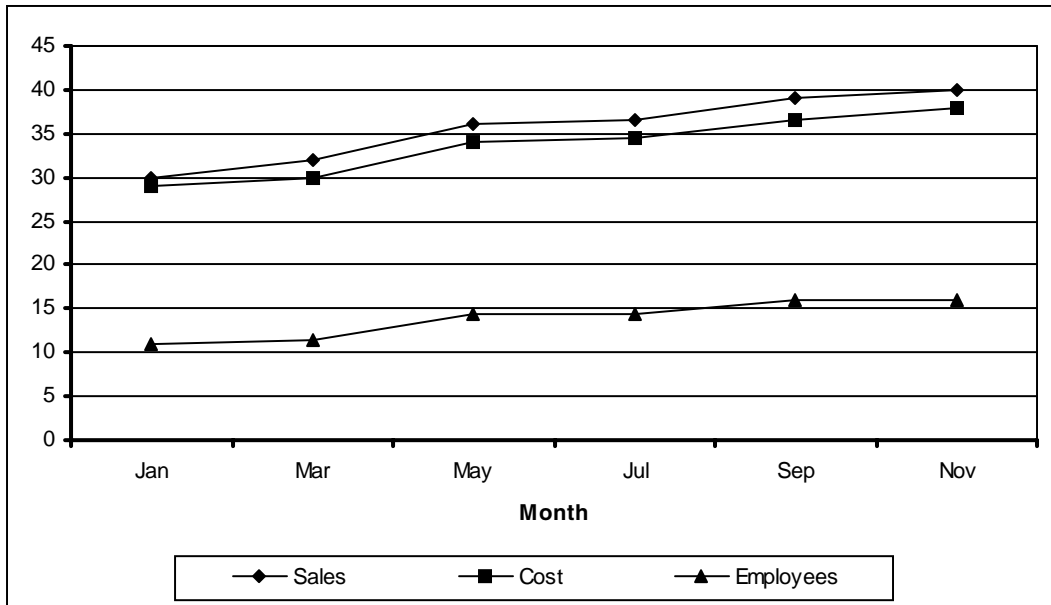
Direction for questions 161 to 165: Answer the questions based on the following information.

The amount of money invested (rupees in crores) in the core infrastructure areas of two districts, Chittoor and Khammam of Andhra Pradesh, is as follows.

Chittoor district			Khammam district		
Core area	1995	1996	Core area	1995	1996
Electricity	815.2	1054.2	Electricity	2065.8	2365.1
Chemical	389.5	476.7	Chemical	745.3	986.4
Thermal	632.4	565.9	Thermal	1232.7	1026.3
Solar	468.1	589.6	Solar	1363.5	1792.1
Nuclear	617.9	803.1	Nuclear	1674.3	2182.1
Total	2923.1	3489.5	Total	7081.6	8352.0

161. By what per cent was the total investment in the two districts more in 1996 as compared to 1995?
 a. 14% b. 21% c. 24% d. 18%
162. The investment in electricity and thermal energy in 1995 in these two districts formed what per cent of the total investment made in that year?
 a. 41% b. 47% c. 52% d. 55%
163. In Khammam district, the investment in which area in 1996 showed the highest percentage increase over the investment in that area in 1995?
 a. Electricity b. Chemical c. Solar d. Nuclear
164. Approximately how many times was the total investment in Chittoor to the total investment in Khammam?
 a. 2.8 b. 2 c. 2.4 d. 1.7
165. If the total investment in Khammam shows the same rate of increase in 1997, as it had shown from 1995 to 1996, what approximately would be the total investment in Khammam in 1997?
 a. Rs. 9,850 crore b. Rs. 10,020 crore c. Rs. 9,170 crore d. Rs. 8,540 crore

Direction for questions 166 to 170: Answer the questions based on the following graph.



Employees in thousands

Sales – Cost = Profit

166. Which month records the highest profit?
 a. September
 b. July
 c. March
 d. May
167. In which month is the total increase in the cost highest as compared to two months ago?
 a. March
 b. September
 c. July
 d. May
168. In which month is the percentage increase in sales two months before, the highest?
 a. March
 b. September
 c. July
 d. May
169. Which month has the highest profit per employee?
 a. September
 b. July
 c. January
 d. March
170. Assuming that no employees left the job, how many more people did the company take on in the given period?
 a. 4,600
 b. 5,000
 c. 5,800
 d. 6,400

Direction for questions 171 to 175: Answer the questions based on the following information.

The first table gives the percentage of students in MBA class, who sought employment in the areas of finance, marketing and software. The second table gives the average starting salaries of the students per month, (rupees in thousands) in these areas. The third table gives the number of students who passed out in each year.

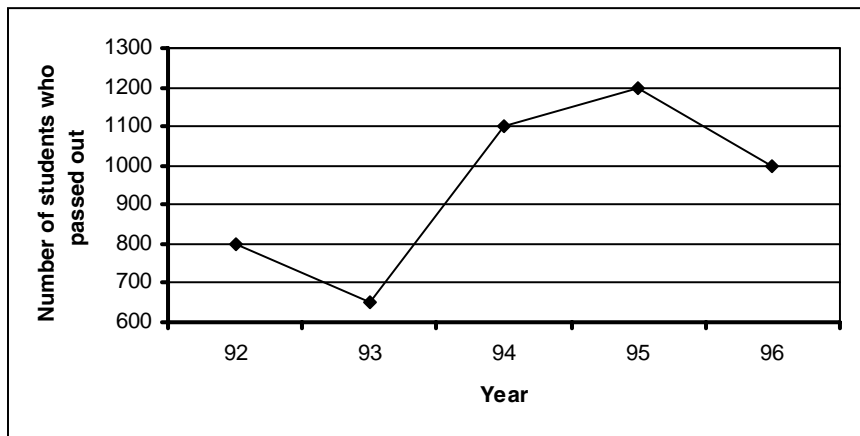
First table

	Finance	Marketing	Software	Others
1992	22	36	19	23
1993	17	48	23	12
1994	23	43	21	13
1995	19	37	16	28
1996	32	32	20	16

Second table

	Finance	Marketing	Software
1992	5450	5170	5290
1993	6380	6390	6440
1994	7550	7630	7050
1995	8920	8960	7760
1996	9810	10220	8640

Third table



171. The number of students who get jobs in finance is less than the students getting marketing jobs, in the 5 years, by
a. 826 b. 650 c. 750 d. 548
172. What is the percentage increase in the average salary of finance from 1992 to 1996?
a. 60% b. 32% c. 96% d. 80%
173. The average annual rate at which the initial salary offered in software increases is
a. 21% b. 33% c. 15.9% d. 65%
174. What is the average monthly salary offered to a management graduate in 1993?
a. Rs. 6,403 b. Rs. 6,330 c. Rs. 6,333 d. Cannot be determined
175. In 1994, students seeking jobs in finance earned ____ more than those opting for software (per annum).
a. Rs. 43 lakh b. Rs. 33.8 lakh c. Rs. 28.4 lakh d. Rs. 38.8 lakh

- Direction for questions 176 to 185:** Each question is followed by two statements, I and II. Mark the answer as
- if the question cannot be answered even with the help of both the statements taken together.
 - if the question can be answered by any one of the two statements.
 - if each statement alone is sufficient to answer the question, but not the other one (e.g. statement I alone is required to answer the question, but not statement II and vice versa).
 - if both statements I and II together are needed to answer the question.

176. A tractor travelled a distance 5 m. What is the radius of the rear wheel?
- The front wheel rotates 'N' times more than the rear wheel over this distance.
 - The circumference of the rear wheel is 't' times that of the front wheel.
177. What is the ratio of the two liquids A and B in the mixture finally, if these two liquids kept in three vessels are mixed together? (The containers are of equal volume.)
- The ratio of liquid A to liquid B in the first and second vessel is 3 : 5, 2 : 3 respectively.
 - The ratio of liquid A to liquid B in vessel 3 is 4 : 3.
178. If a, b and c are integers, is $(a - b + c) > (a + b - c)$?
- b is negative.
 - c is positive.
179. If α and β are the roots of the equation $(ax^2 + bx + c = 0)$, then what is the value of $(\alpha^2 + \beta^2)$?
- $\alpha + \beta = -\left(\frac{b}{a}\right)$
 - $2\alpha\beta = \left(\frac{c}{a}\right)$
180. What is the cost price of the article?
- After selling the article, a loss of 25% on cost price is incurred.
 - The selling price is three-fourths of the cost price.
181. What is the selling price of the article?
- The profit on sales is 20%.
 - The profit on each unit is 25% and the cost price is Rs. 250.
182. How many different triangles can be formed?
- There are 16 coplanar, straight lines.
 - No two lines are parallel.
183. What is the total worth of Lakhiram's assets?
- A compound interest at 10% on his assets, followed by a tax of 4% on the interest, fetches him Rs. 1,500 this year.
 - The interest is compounded once every four months.

184. How old is Sachin in 1997?
- I. Sachin is 11 years younger than Anil whose age will be a prime number in 1998.
 - II. Anil's age was a prime number in 1996.
185. What is the number of type-2 widgets produced, if the total number of widgets produced is 20,000?
- I. If the production of type-1 widgets increases by 10% and that of type-2 decreases by 6%, the total production remains the same.
 - II. The ratio in which type-1 and type-2 widgets are produced is 2 : 1.

CAT 1996 Actual Paper

Answers and Explanations

1	a	2	a	3	a	4	b	5	c	6	a	7	a	8	a	9	c	10	b
11	b	12	b	13	b	14	c	15	d	16	a	17	b	18	a	19	a	20	c
21	b	22	a	23	d	24	b	25	a	26	b	27	c	28	b	29	b	30	a
31	a	32	b	33	c	34	a	35	c	36	c	37	a	38	b	39	a	40	a
41	d	42	d	43	a	44	a	45	c	46	c	47	a	48	a	49	a	50	d
51	b	52	b	53	d	54	b	55	a	56	c	57	b	58	c	59	d	60	a
61	a	62	c	63	d	64	b	65	a	66	c	67	b	68	c	69	c	70	b
71	a	72	d	73	d	74	a	75	b	76	d	77	a	78	a	79	c	80	d
81	a	82	c	83	b	84	d	85	c	86	b	87	b	88	c	89	d	90	c
91	b	92	c	93	a	94	b	95	c	96	b	97	d	98	d	99	a	100	b
101	c	102	b	103	c	104	d	105	b	106	b	107	a	108	a	109	a	110	b
111	a	112	a	113	c	114	c	115	d	116	b	117	c	118	c	119	b	120	b
121	b	122	a	123	c	124	b	125	a	126	b	127	b	128	d	129	d	130	b
131	d	132	d	133	c	134	a	135	a	136	c	137	d	138	b	139	b	140	b
141	c	142	d	143	a	144	c	145	b	146	b	147	a	148	d	149	d	150	b
151	a	152	d	153	c	154	d	155	b	156	b	157	a	158	b	159	d	160	c
161	d	162	b	163	b	164	c	165	a	166	a	167	d	168	d	169	d	170	b
171	c	172	d	173	c	174	d	175	b	176	a	177	a	178	d	179	d	180	a
181	c	182	a	183	d	184	a	185	b										

Scoring table

Total questions	Total attempted	Total correct	Total wrong	Score	Time taken
185					

1. a Starts with telling how women handle pain better than men. Given example of child birth in A followed by consequences in B, D states that men in authors' life do not take painkillers, C tells about their complaining.
2. a D States the position now, as opposed to a 'few years ago' mentioned in 1. B makes a comparison with a similar situation which A continues with. C asks a question that is answered by 6.
3. a A talks about where the wedding took place, C states who all attended marriage, D tells us about the bride and B states that little is known about her, a fact that is continued in 6.
4. b D states that in addition to being unlucky in love, Liz Taylor is unlucky in law too. C states the reason for that observation, A states the consequences of C and B states what the lawsuit was about.
5. c A tells us who Chambers was, D states why he had appeared before the Committee, C states Hiss' reaction to charges against him. B states that Nixon arranged a meeting between the two, and 6 continues with what happened at the meeting.
6. a A gives some names of the guitar heroes, C adds to the list, B states why these musicians were popular and D states why their popularity came down.
7. a A states that though oceans are the cradles of life, waste is dumped into them, C talks about the results of the same, B continues with it and D concludes that man has caused these problems.
8. a D tries to answer the question raised in 1, B simplifies the statement made in D, C further simplifies it and A talks about the position of ordinary citizens regarding the issue, which is continued in 6.
9. c B answers the question raised in 1, D gives a reason for the stand taken by the analysts regarding the new machine, C highlights that a desktop computer can come just for \$2,000 in America, and A states a disadvantage of these computers.
10. b B states Clarke's determination to make stained glass more popular, A states his success in the mission, D talks about his two projects and C elaborates on the first project while 6 talks about the second.
11. b All others have a quality of excitement in them.
12. b All others refer to a flow of a liquid.
13. b All others refer to deception in some form.
14. c All others are modes of transport.
15. d All others refer to a break in a continuous action.
16. a The first pair shows two states of matter and the second pair gives examples of those states.
17. b The first word of each pair refers to breaking up of something and the second pair refers to joining of something.
18. a Both are pairs of antonyms.
19. a Bricks put together make a building, just as words put together make a dictionary.
20. c Both are pairs of antonyms.
21. b In both the pairs, the first is interrupted or followed by the second.
22. a Using words in a wrong place is malapropism and placing something in a wrong period of time is anachronism.
23. d Anterior means front and posterior means rear.
24. b This is the only phrase that fits here.
25. a 'Even if I have tears in me' goes perfectly with 'I have to keep smiling'.
26. b Stock markets indicate public sentiment, not just confidence.
27. c 'Few will know about' is the most concise way to express the meaning.
28. b It is a well-known saying in English.
29. b 'Its haunting images' refers to the haunting images of the movie.
30. a No other choice states why they are tied to Moscow.
31. a The sentence refers to the people who are 'physically looked after' by the welfare aid. No other choice states the involvement of welfare aid.
32. b The best possible and logical answer is (b) combining realistic details.
33. c The given phrase obviously refers to the answer to the question that is bothering the author.
34. a The original phrase is best suited here.
35. c The sentence means that any other action will most probably lead to failure.
36. c If all copper is used for pins and some tin is also copper, then it follows that some pins are made of tin.
37. a If all birds lay eggs and ostrich is a bird, it follows that ostrich also lays eggs.
38. b If all wood is good and all wood is paper, it follows that some paper is also good.
39. a If all bricks are tricks and all tricks are shrieks, then some shrieks should be bricks.
40. a If all sandal is band and all band is sand, it follows that some sand is band.
41. d All life is strife and all that is wife is life, therefore all wife is also strife.
42. d All owls are mosquitoes but some owls are flies, therefore some flies are also mosquitoes.

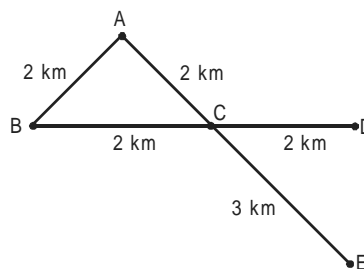
43. a Six is five but some six is twelve, therefore some twelve is also five.
44. a Although this doesn't seem convincing, but if we look at it from purely logical point of view, then if poor girls want to marry rich boys, and rich boys want to marry rich girls, then logically poor girls want to marry rich girls.
45. c D introduces Sylvester Stallone as being a successful man, B states the condition of his daughter as a contrast to his career, C states that the condition might correct itself and A states that in spite of the possible cure, how the girl might suffer.
46. c D introduces one of the twelve labours of Hercules, B states the problem involved in the task, A states how the problem could be tackled and C states how Hercules finally accomplished the task.
47. a A makes a statement that is proved by an example in D. B shows the reaction of Jodie Foster to the given fact and C continues with it.
48. a D introduces JP Morgan as one of the largest banking institutes, B states some facts to corroborate it, A tells us about how it makes its business decisions and C states the importance of JP Morgan's proprietary related data.
49. a A states an offer being made by the Saheli programme, C states that it will include all sorts of topics, B further states what the participants will learn, and D states that the tour would also include some sightseeing.
50. d A states that something magical is happening to our planet, C states what it is, B states what it is being called by some people and D states what others are calling it.
51. b The passage is about how capitalism has led to disintegration of labour.
52. b The author feels that Adam Smith boasted about something that was actually undesirable.
53. d It takes much less time to make pins by machines today.
54. b Pins are so cheap that a child stealing it would not even feel that he is actually stealing something.
55. a The author is clearly against machines taking the place of men.
56. c Adam Smith was a supporter of mass production.
57. b The statement means that as people get richer they lose out on individual abilities.
58. c He is attacking this fact by making fun of it.
59. d None of the given statements continue with what the author has said in the last paragraph.
60. a The passage refers to the British Government as the 'Empire', and talks about the way it takes over foreign territories.
61. a The author says that simple tribes are often friendly and honest.
62. c Trade of finished products falls under the capital freshly saved.
63. d He says that the civilized empire grows at the expense of the home tax payers, without any intention or approval on their parts.
64. b Civilized countries practise protection, which means there is an imposition of heavy taxes on imported goods.
65. a 'Officious' means 'self-important'.
66. c Though they seem to come with the intention of trade, soon gun boats follow and a government is set up by the capitalists in the new land.
67. b He perceives no sign of a revolution in ethical matters.
68. c The author finds no reason why the doctrines of Darwin should change our moral ideas.
69. c The Chief Good refers to the welfare of the community realized in its members.
70. b He advocates a return to a non-Christian and perhaps a Hellenic ideal.
71. a The moral code of Christianity has been rejected by all except fanatics.
72. d The passage is obviously against all the subsidies.
73. d The author believes that actually the poor pays for the subsidies and most subsidies go to the rich.
74. a Utopia is an imaginary perfect world.
75. b The author believes that subsidies do more harm than good.
76. d All are victims of subsidies.
77. a Deve Gowda's government has shown some courage when it came to petroleum prices.
78. a The passage is about the fact that ultimately subsidies are not really beneficial.
79. c Experts call inflation and not subsidies the most regressive form of taxation. Refer paragraph second line 6.
80. d They had nuclei in a less differentiated state.
81. a The contention has been proved to be true.
82. c There is prevalence of uninucleate cells.
83. b Nuclei of a binucleate cell serve as a source of hereditary information.
84. d The function of the crystalline layer has not been mentioned in the passage.
85. c A lobate form provides a much greater surface area for nuclear cytoplasmic exchanges.

86. b Fungi are multinucleate because the cross walls are either absent or irregularly present.
87. b Drug addiction has not been mentioned as a reason for poverty.
88. c Such people need extraordinary talent to become rich.
89. d Ambitious people have not been mentioned as the ones likely to get rich quickly.
90. c The author says that there is no way by which to judge the goodness or badness of a person.
91. b He rejects the notion that the wealth is distributed according to merit and feels that it is biased in favour of the rich.
92. c The author refers to someone as 'intelligent lady' implying that he is probably writing to someone.
93. a 'Improvvidence' means spending too much of money.
94. b The example proves that might scores over love and religion.
95. c He has been referred to as the umpire, and the passage also mentions the assertiveness being shown by the Election Commission regarding code of conduct during the elections.
96. b The passage is about an issue-less election, as highlighted even by the last sentence of the passage.
97. d Ramakrishna Hegde's involvement in any alleged corruption case has not been mentioned in the passage.
98. d All the parties have failed to submit audited returns every year.
99. a The greater awareness among the public has not been credited with the changes coming in the system.
100. b The empowerment of women has not been mentioned as a possible issue of the elections.
101. c Amount invested on B, C, D and E in year 1
 $= 4.6 + 5.8 + 3.11 + 10.6 = 24.11$
 Amount invested on B, C, D and E in year 3
 $= 18.7 + 21.2 + 7.7 + 29.8 = 77.4$
 \therefore Percentage increase
 $= \frac{77.4 - 24.11}{24.11} \times 100 \approx 221\%$
102. b Company E's investment for years 1 to 3
 $= 10.6 + 17.4 + 29.8 = 57.8$
 Company F's investment for years 1 to 3
 $= 7.8 + 25.3 + 60.1 = 93.2$
 \therefore Ratio = 57 : 93 = 19 : 31
103. c Total investment in year 2
 $= 6.7 + 7.5 + 12.5 + 5.6 + 17.4 + 25.3 = 75$
 D's contribution in year 2 = 5.6
 \therefore Percentage contribution = $\frac{5.6}{75} = 7.4\%$
104. d As we can see from the table, none of the investments increases from year 1 to 3. Hence, none of these.

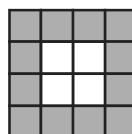
105. b In year 2,
 $A + B + C = 6.7 + 7.5 + 12.5 = 26.7$
 $D + E + F = 5.6 + 17.4 + 25.3 = 48.3$
 Percentage difference = $\frac{48.3 - 26.7}{26.7} = 80.8\% \approx 81\%$

106. b For the number to be divisible by 9, the sum of the digits should be a multiple of 9. We find that the sum of all the digits (excluding A and B) = $(7 + 7 + 4 + 9 + 5 + 8 + 9 + 6) = 55$. The next higher multiple of 9 is 63 or 72. Hence, the sum of A and B should either be 8 or 17. We find that (a) and (c) cannot be the answer. For a number to be divisible by 8, the number formed by its last three digits should be divisible by 8. The last three digits are 96B. The multiples of 8 beginning with 96 are 960 and 968. Hence, B can either be 0 or 8. Both of which satisfy our requirement of the number being divisible by 9 as well. Therefore, A and B could either be 0 and 8 or 8 and 0 respectively.
107. a If we simplify the expression $x^2 - 3x + 2 > 0$, we get $(x - 1)(x - 2) > 0$. For this product to be greater than zero, either both the factors should be greater than zero or both of them should be less than zero. Therefore, $(x - 1) > 0$ and $(x - 2) > 0$ or $(x - 1) < 0$ and $(x - 2) < 0$. Hence, $x > 1$ and $x > 2$ or $x < 1$ and $x < 2$. If we were to club the ranges, we would get either $x > 2$ or $x < 1$. So for any value of x equal to or between 1 and 2, the above equation does not follow.

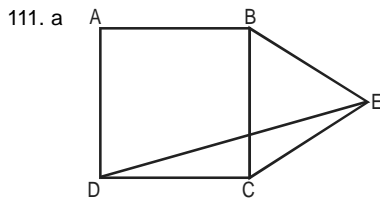
For questions 108 and 109:



108. a If there is a shop at C, all A, B, C and D are within 2 km range. Another shop is needed for E. Hence, 2 shops are required.
109. a If there is a shop at C; all A, B, D and E are within 3 km range. Hence, 1 shop is required.
110. b Since each side of the smaller cube is 3 cm, it can be figured out that each face of the original cube is divided into 4 parts, or in other words, the original cube is divided into 64 smaller cubes. For a smaller cube to have none of its sides painted, it should not be a part of the face of the original cube (i.e. none of its faces should be exposed). We can find at the centre of the original cube there are $(2 \times 2 \times 2) = 8$ such cubes.



Hint: Students please note that the answer can only be a cube of some integer. The only cube among the answer choices is $(2)^3 = 8$.



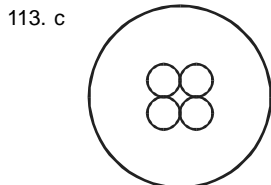
Since $\triangle BCE$ is an equilateral triangle, $CE = BC = BE$.
 And since $ABCD$ is a square, $BC = CD$. Hence, $CD = CE$.
 So in $\triangle CDE$, we have $CD = CE$. Hence, $\angle EDC = \angle CED$.
 Now $\angle BCE = 60^\circ$ (since equilateral triangle) and $\angle BCD = 90^\circ$ (since square).
 Hence, $\angle DCE = \angle DCB + \angle BCE = (60 + 90) = 150^\circ$.
 So in $\triangle DCE$, $\angle EDC + \angle CED = 30^\circ$ (since three angles of a triangle add up to 180°). Hence, we have $\angle DEC = \angle EDC = 15^\circ$.

112. a Let the price per metre of cloth be Re 1. The shopkeeper buys 120 cm, but pays for only 100 cm. In other words,

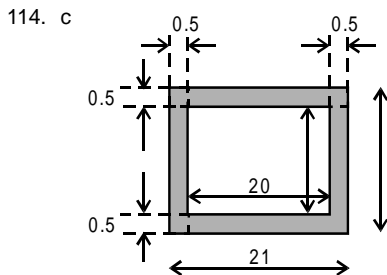
he buys 120 cm for Rs. 100. So his CP = $\left(\frac{100}{120}\right)$
 = Re 0.833 per metre. Now he sells 80 cm, but charges for 100 cm. In other words, he sells 80 cm for Rs. 100. On this he offers a 20% discount on cash payment. So he charges Rs. 80 for 80 cm cloth. In other words, his SP

= $\left(\frac{80}{80}\right)$ = Re 1 per metre. So his percentage profit in

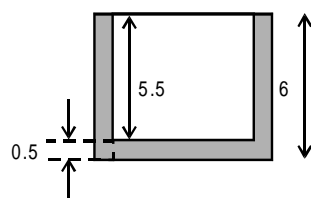
the overall transaction = $\frac{(1 - 0.833)}{0.833} = 20\%$.



Area of the original paper = $\pi(20)^2 = 400\pi \text{ cm}^2$. The total cut portion area = $4(\pi)(5)^2 = 100\pi \text{ cm}^2$. Therefore, area of the uncut (shaded) portion = $(400 - 100) = 300\pi \text{ cm}^2$. Hence, the required ratio = $300\pi : 100\pi = 3 : 1$.



When seen from top



When seen from front

As it can be seen from the diagram, because of the thickness of the wall, the dimensions of the inside of the box is as follows: length = $(21 - 0.5 - 0.5) = 20 \text{ cm}$, width = $(11 - 0.5 - 0.5) = 10 \text{ cm}$ and height = $(6 - 0.5) = 5.5 \text{ cm}$. Total number of faces to be painted = 4 walls + one base (as it is open from the top).

The dimensions of two of the walls = (10×5.5) , that of the remaining two walls = (20×5.5) and that of the base = (20×10) .

So the total area to be painted = $2 \times (10 \times 5.5) + 2 \times (20 \times 5.5) + (20 \times 10) = 530 \text{ cm}^2$.

Since the total expense of painting this area is Rs. 70,

the rate of painting = $\frac{70}{530} = 0.13 = \text{Re } 0.1 \text{ per sq.cm.}$

(approximately).

115. d $M(M(A(M(x, y), S(y, x)), x), A(y, x)) = M(M(A(M(2, 3), S(3, 2)), 2), A(3, 2)) = M(M(A((2 \times 3), (3 - 2)), 2), A(3, 2)) = M(M(A(6, 1), 2), A(3, 2)) = M(M((6 + 1), 2), (3 + 2)) = M(M(7, 2), 5) = M((7 \times 2), 5) = M(14, 5) = (14 \times 5) = 70$.

116. b $S[M(D(A(a, b), 2), D(A(a, b), 2)), M(D(S(a, b), 2), D(S(a, b), 2))] = S[M(D((a + b), 2), D((a + b), 2)), M(D((a - b), 2), D((a - b), 2))] =$

$$S\left[M\left\{\frac{(a+b)}{2}, \frac{(a+b)}{2}\right\}, M\left\{\frac{(a-b)}{2}, \frac{(a-b)}{2}\right\}\right]$$

$$= S\left[\left\{\frac{(a+b)}{2}\right\}^2, \left\{\frac{(a-b)}{2}\right\}^2\right] = \left\{\frac{(a+b)}{2}\right\}^2 - \left\{\frac{(a-b)}{2}\right\}^2$$

$$= \frac{4ab}{4} = ab$$

117. c Let the original weight of the diamond be $10x$. Hence, its original price will be $k(100x^2)$. . . where k is a constant. The weights of the pieces after breaking are x , $2x$, $3x$ and $4x$. Therefore, their prices will be kx^2 , $4kx^2$, $9kx^2$ and $16kx^2$. So the total price of the pieces = $(1 + 4 + 9 + 16)kx^2 = 30kx^2$. Hence, the difference in the price of the original diamond and its pieces = $100kx^2 - 30kx^2 = 70kx^2 = 70000$. Hence, $kx^2 = 1000$ and the original price = $100kx^2 = 100 \times 1000 = 100000 = \text{Rs. } 1 \text{ lakh}$.

118. c $n(n^2 - 1) = (n - 1)n(n + 1)$. If you observe, this is the product of three consecutive integers with middle one being an odd integer. Since there are two consecutive even numbers, one of them will be a multiple of 4 and the other one will be multiple of 2. Hence, the product will be a multiple of 8. Also since they are three consecutive integers, one of them will definitely be a multiple of 3. Hence, this product will always be divisible by $(3 \times 8) = 24$.

Hint: Students, please note if a number is divisible by 96, it will also be divisible by 48 and 24. Similarly, if a number is divisible by 48, it will always be divisible by 24. Since there cannot be more than one right answers, we can safely eliminate options (a) and (b).

119. b The radius of the circle is 6.5 cm. Therefore, its diameter = 13 cm and $AB = 13 \text{ cm}$. Since the diameter of a circle subtends 90° at the circumference, $\angle ACB = 90^\circ$. So $\triangle ACB$ is a right-angled triangle with $AC = 5$, $AB = 13$. Therefore, CB should be equal to 12 cm (as 5-12-13 form a Pythagorean triplet).

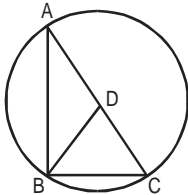
Hence, the area of the triangle = $\frac{1}{2} \times AC \times CB = \frac{1}{2} \times 5 \times 12 = 30 \text{ sq.cm.}$

120. b Total expense incurred in making 1,500 watches = $(1500 \times 150) + 30000 = \text{Rs. } 2,55,000$.
 Total revenue obtained by selling 1,200 of them during the season = $(1200 \times 250) = \text{Rs. } 3,00,000$. The remaining 300 of them has to be sold by him during off season. The total revenue obtained by doing that = $(300 \times 100) = \text{Rs. } 30,000$. Hence, total revenue obtained = $(300000 + 30000) = \text{Rs. } 3,30,000$. Hence, total profit = $(330000 - 255000) = \text{Rs. } 75,000$.

121. b From the previous solution, we can see that the total expense incurred by him in manufacturing 1,500 watches = Rs.2,55,000. In order to break-even, he has to make a minimum revenue in order to recover his expenditure. He gets Rs. 250 per watch sold and Rs. 100 on every watch not sold. Let him sell x watches to break-even. So our equation will be $250x + 100(1500 - x) = 255000$. Solving this, we get $x = 700$ watches.

122. a Since I paid Rs. 20 and because of lack of change, the clerk gave me Rs. 3 worth of stamps, it can be concluded that the total value of the stamp that I wanted to buy is Rs. 17. Since I ordered initially a minimum of 2 stamps of each denominations, if I buy exactly 2 stamps each, my total value is $2(5 + 2 + 1) = \text{Rs. } 16$. The only way in which I make it Rs. 17 is buying one more stamp of Re 1. Hence, the total number of stamps that I ordered = $(2 + 2 + 3) = 7$. In addition, the clerk gave me 3 more. Hence, the total number of stamps that I bought = $(7 + 3) = 10$ (viz. 2 five-rupee, 2 two-rupee and 6 one-rupee stamps).

123. c



In a right-angled triangle, the length median to the hypotenuse is half the length of the hypotenuse. Hence,

$$BD = \frac{1}{2} AC = 3 \text{ cm. This relationship can be verified by}$$

knowing that the diameter of a circle subtends a right angle at the circumference e.g. in the above figure D is the centre of the circle with AC as diameter. Hence, $\angle ABC$ should be 90° . So BD should be the median to the hypotenuse. Thus, we can see that $BD = AD = CD = \text{Radius of this circle}$.

$$\text{Hence, } BD = \frac{1}{2} \text{ diameter} = \frac{1}{2} AC = \frac{1}{2} \times \text{hypotenuse.}$$

For questions 124 and 125:

Hint: Students, please note that this sum could be intelligently solved by looking at both the questions together and also the answer choices. We know that the inventory has reduced by 54 units. This means two things: (i) actual quantity sold was less than the figure that was entered the computer (i.e. after interchanging digits), so the unit's place digit of the actual quantity sold should be less than its ten's place digit; and (ii) the difference between the actual quantity sold and the one that was entered in the computer is 54. From question 125, we can figure out that the only answer choice that

supports both these conditions is (a), as $(82 - 28 = 54)$. So the actual quantity sold = 28. Now since the total sales is Rs.1,148, actual price per piece = $\frac{1148}{28} = \text{Rs.41}$. Hence, the answer to question 124 is (b).

124. b

125. a

126. b We are supposed to find out what fraction of the population has exactly one among the two (since either cable TV or VCR indicates they do not have both). Now $\frac{2}{3}$ of the people have cable TV, of whom $\frac{1}{10}$ of people also have VCR. Hence, fraction of population having

$$\text{only cable TV} = \left(\frac{2}{3} - \frac{1}{10} \right) = \frac{17}{30}. \text{ Also } \frac{1}{5} \text{ of the people}$$

have VCR, of whom $\frac{1}{10}$ of people also have cable TV.

Hence, fraction of people having only VCR =

$$\left(\frac{1}{5} - \frac{1}{10} \right) = \frac{1}{10}. \text{ The total fraction of the people who}$$

either have cable TV or VCR

$$= \left(\frac{17}{30} + \frac{1}{10} \right) = \frac{2}{3}.$$

$$127. \text{ b } \frac{1}{1 + \frac{1}{3 - \frac{4}{2 + \frac{1}{3 - \frac{1}{2}}}}} + \frac{3}{3 - \frac{4}{3 + \frac{1}{2 - \frac{1}{2}}}}$$

$$= \frac{1}{1 + \frac{1}{3 - \frac{4}{2 + \frac{2}{5}}}} + \frac{3}{3 - \frac{4}{3 + \frac{1}{\frac{2}{3}}}}$$

$$= \frac{1}{1 + \frac{1}{3 - \frac{4}{\frac{12}{5}}}} + \frac{3}{3 - \frac{4}{3 + \frac{1}{\frac{3}{2}}}}$$

$$= \frac{1}{1 + \frac{1}{3 - \frac{5}{3}}} + \frac{3}{3 - \frac{4}{3 + \frac{2}{3}}} = \frac{1}{1 + \frac{1}{4}} + \frac{3}{3 - \frac{4}{11}}$$

$$= \frac{1}{1 + \frac{3}{4}} + \frac{3}{3 - \frac{12}{11}} = \frac{1}{1 + \frac{3}{4}} + \frac{3}{3 - \frac{12}{11}} = \frac{1}{\frac{7}{4}} + \frac{3}{\frac{21}{11}}$$

$$= \frac{4}{7} + \frac{11}{7} = \frac{15}{7}$$

128. d If we write the given equation in the conventional form, i.e. $ax^2 + bx + c$, $a = 1$, $b = -(A - 3)$, i.e. $(3 - A)$ and $c = -(A - 2)$, i.e. $(2 - A)$. Let the roots of this equation be

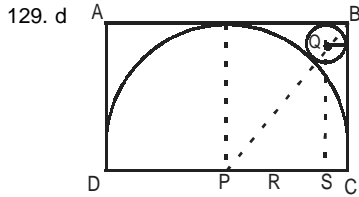
α and β . So the sum of the squares of the roots = $\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta$.

Now $(\alpha + \beta) = \text{Sum of the roots} = \frac{-b}{a}$

$= \frac{(A-3)}{1} = (A-3)$

and $\alpha\beta = \text{Product of the roots} = \frac{c}{a}$

$= \frac{(2-A)}{1} = (2-A)$. Hence, $\alpha^2 + \beta^2 = (A-3)^2 - 2(2-A) = A^2 - 4A + 5 = 0$. None of the answer choices matches this.



Let radius of the semicircle be R and radius of the circle be r .

Let P be the centre of semicircle and Q be the centre of the circle.

Draw QS parallel to BC .

Now, $\triangle PQS \sim \triangle PBC$

$\therefore \frac{PQ}{PB} = \frac{QS}{BC}$

$\Rightarrow \frac{R+r}{\sqrt{2}R} = \frac{R-r}{R}$

$\Rightarrow R+r = \sqrt{2}R - \sqrt{2}r$

$\Rightarrow r(1+\sqrt{2}) = R(\sqrt{2}-1)$

$\Rightarrow r = R \frac{(\sqrt{2}-1)}{(\sqrt{2}+1)} \times \frac{(\sqrt{2}-1)}{(\sqrt{2}-1)}$

$\Rightarrow r = R(\sqrt{2}-1)^2$

Required Ratio = $\frac{\pi r^2}{\pi R^2} \times 2$

$= \frac{\pi R^2 (\sqrt{2}-1)^4 \times 2}{\pi R^2}$

$= 2(\sqrt{2}-1)^4 : 1$

130. b Let us look at the two equations. Let (5 pens + 7 pencils + 4 erasers) cost Rs. x . Hence, (6 pens + 14 pencils + 8 erasers) will cost Rs. $1.5x$. Had, in the second case, Rajan decided to buy 10 pens instead of 6, the quantity of each one of them would have doubled over the first case and hence it would have cost me Rs. $2x$. So (10 pens + 14 pencils + 8 erasers) = Rs. $2x$. Now subtracting the second equation from the third, we get 4 pens cost Rs. $0.5x$. Since 4 pens cost Re $0.5x$, 5 of them will cost Re $0.625x$. This is the amount that I spent on pens. Hence, fraction of the total amount paid = $0.625 = 62.5\%$.

131. d In a mile race, Akshay can be given a start of 128 m by Bhairav. This means that Bhairav can afford to start after Akshay has travelled 128 m and still complete one mile with him. In other words, Bhairav can travel one mile, i.e. 1,600 m in the same time as Akshay can travel $(1600 - 128) = 1,472$ m. Hence, the ratio of the speeds of Bhairav and Akshay = Ratio of the distances travelled by

them in the same time = $\frac{1600}{1472} = 25 : 23$. Bhairav can give

Chinmay a start of 4 miles. This means that in the time Bhairav runs 100 m, Chinmay only runs 96 m. So the ratio

of the speeds of Bhairav and Chinmay = $\frac{100}{96} = 25 : 24$.

Hence, we have $B : A = 25 : 23$ and $B : C = 25 : 24$. So $A : B : C = 23 : 25 : 24$. This means that in the

time Chinmay covers 24 m, Akshay only covers 23 m. In other words, Chinmay is faster than Akshay. So if they

race for $1 \frac{1}{2}$ miles = 2,400 m, Chinmay will complete the

race first and by this time Akshay would only complete 2,300 m. In other words, Chinmay would beat Akshay by

$100 \text{ m} = \frac{1}{16} \text{ mile}$.

132. d We can solve this by alligation. But while we alligate, we have to be careful that it has to be done with respect to any one of the two liquids, viz. either A or B. We can verify that in both cases, we get the same result. e.g. the

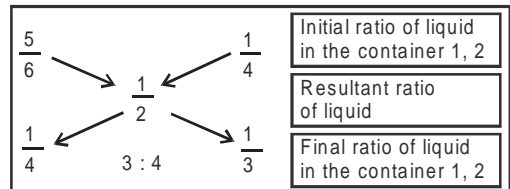
proportion of A in the first vessel is $\frac{5}{6}$ and that in the

second vessel is $\frac{1}{4}$, and we finally require $\frac{1}{2}$ parts of

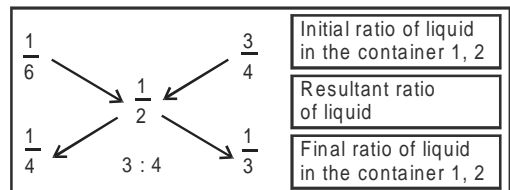
A. Similarly, the proportion of B in the first vessel is $\frac{1}{6}$,

that in the second vessel is $\frac{3}{4}$ and finally we want it to

be $\frac{1}{2}$. With respect to liquid A



With respect to liquid B



133. c Let the total distance be x . So the man travels a distance

$\frac{3x}{5}$ at a speed $3a$. Therefore, total time taken to travel

this distance = $\frac{3x}{(5a)} = \frac{x}{(5a)}$

$$\left[\text{time} = \frac{\text{distance}}{\text{speed}} \right]$$

He then travels a distance $\frac{2x}{5}$ at a speed $2b$. Hence,

time taken to travel this distance = $\frac{2x}{(10b)} = \frac{x}{(5b)}$. So

total time taken in going from A to B = $\frac{x}{(5a)} + \frac{x}{(5b)}$. Now

he travels from B to A and comes back. So total distance travelled = $2x$ at an average speed $5c$.

Hence, time taken to return = $\frac{2x}{(5c)}$.

Since the time taken in both the cases remains the same,

we can write $\frac{x}{5a} + \frac{x}{5b} = \frac{2x}{5c}$.

Therefore, $\frac{1}{a} + \frac{1}{b} = \frac{2}{c}$.

134. a Total time taken by the man to travel from A to D = 16 hr and total distance travelled = 36 km. The time that he would have taken had he not rested in between will be $(16 - x - 2x) = (16 - 3x)$. But this time should be equal to the addition of the times that he takes to travel individual segments. This is given as

$$\therefore \frac{12}{x} + \frac{12}{2x} + \frac{12}{4x} = \frac{84}{4x} = \frac{21}{x}. \text{ Therefore, } \frac{21}{x} = (16 - 3x).$$

So we get the equation $3x^2 - 16x + 21 = 0$. Solving

this equation, we get $x = 3$ or $x = \frac{7}{3}$. This should be the time for which he rested at B.

135. a The team has played a total of $(17 + 3) = 20$ matches.

This constitutes $\frac{2}{3}$ of the matches. Hence, total number

of matches played = 30. To win $\frac{3}{4}$ of them, a team has to

win 22.5, i.e. at least win 23 of them. In other words, the team has to win a minimum of 6 matches (since it has already won 17) out of remaining 10. So it can lose a maximum of 4 of them.

136. c This can simply be solved by multiplying the two multiplication factors to get the effective multiplication factor. e.g. multiplication factor for 30% increase = 1.30. Multiplication factor for 20% decrease = 0.8. Hence, $1.30 \times 0.8 = 1.04$. This multiplication factor (i.e. 1.04) indicates that there is a 4% increase in total revenue. So the answer is +4.

Alternative method:

By using the formula $x + y + \frac{xy}{100}$

$$\therefore x = +30\%; y = -20\%$$

$$\Rightarrow 30 + 60 + \frac{50(-20)}{100}$$

$$= 30 - 20 - 6 = +4\%$$

137. d The three lines can be expressed as $Y = \frac{5}{3} - \frac{2X}{3}$,

$$Y = \frac{5X}{7} + \frac{2}{7} \text{ and } Y = \frac{9X}{5} - \frac{4}{5}. \text{ Therefore, the slopes of}$$

the three lines are $-\frac{2}{3}, \frac{5}{7}$ and $\frac{9}{5}$ respectively and their

Y intercepts are $\frac{5}{3}, \frac{2}{7}$ and $\frac{4}{5}$ respectively. For any two

lines to be perpendicular to each other, the product of their slopes = -1 . We find that the product of none of the slopes is -1 . For any two to be parallel, their slopes should be the same. This is again not the case. And finally for the two lines to be intersecting at the same point, there should be one set of values of (X, Y) that should satisfy the equations of 3 lines. Solving the first two equations, we get $X = 1$ and $Y = 1$. If we substitute this in the third equation, we find that it also satisfies that equation. So the solution set $(1, 1)$ satisfies all three equations, suggesting that the three lines intersect at the same point, viz. $(1, 1)$. Hence, they are coincident.

138. b Out of the 5 girls, 3 girls can be invited in 5C_3 ways. Nothing is mentioned about the number of boys that he has to invite. He can invite one, two, three, four or even no boys. Each boy can be invited or not. He can invite them in 2^4 ways. Thus, the total number of ways is ${}^5C_3 \times (2)^4 = 10 \times 16 = 160$.

139. b In a watch that is running correct, the minute hand should

cross the hour hand once in every $65 + \frac{5}{11}$ min. So they should ideally cross three times once in

$$3 \times \left(\frac{720}{11} \right) = \frac{2060}{11} \text{ min} = 196.36 \text{ min. But in the watch}$$

under consideration they meet after every 3 hr, 18 min

$$\text{and 15 s, i.e. } (3 \times 60 + 18 + \frac{15}{60}) = \frac{793}{4} \text{ min} = 198.25$$

min. In other words, our watch is actually losing time (as it is slower than the normal watch). Hence, when our watch elapsed 198.25 min, it actually should have elapsed 196.36 min. So in a day, when our watch will elapse $(60$

$$\times 24) = 1440, \text{ it should actually elapse } \left(1440 \times \frac{196.36}{198.25} \right)$$

= 1426.27. Hence, the amount of time lost by our watch in one day = $(1440 - 1426.27) = 13.73$, i.e. 13 min and 50 s (approximately).

140. b In this case, we need not use the data that SP = Rs. 300 each. This has to be used only to figure out that the SP of both the articles is the same. Also since the profit percentage on one is equal to the loss percentage on the other, viz. 10% effectively, it will be a loss given by

$$\frac{(10)^2}{100} = 1\%. \text{ Hence, the correct answer is } (-)1.$$

Questions 141 to 145:

First series: $(S_1) = x, y, \frac{x}{2}, z, x + 20$

Second series: $(S_2) = a_1, a_2, a_3, a_4$

Now $a_1 = y - x, a_2 = \frac{x}{2} - y, a_3 = z - \frac{x}{2}$

and $a_4 = x + 20 - z$

$a_2 - a_1 = 30$ gives $3x - 4y = 60$... (i)

$a_4 - a_3 = 30$ gives $3x - 4z = 20$... (ii)

and $a_4 - a_2 = 60$ gives $x - 2z + 2y = 80$... (iii)

Solving these equations we get the values of $x = 100, y = 60, z = 70$

$\therefore S_1 = 100, 60, 50, 70, 120$

$S_2 = -40, -10, 20, 50$

141. c 142. d 143. a 144. c 145. b

Questions 146 to 150: To handle this type of questions, the best way is to express the data in tabular form.

Year	1989	1990	1991	1992	1993	1994	1995
Revenue	120	130	145	165	185	200	220
Expenditure	102	110	115	125	135	140	150
Profit	20	25	30	40	50	60	70

146. b The average revenue collected in the given 7 years
 $= \frac{(120 + 130 + 145 + 165 + 185 + 200 + 220)}{7} = 166.42$
 which is approximately is Rs. 168 lakh.

147. a Expenses of 7 years add up to 877. Revenue of 7 years add up to 1165.

Hence, the required answer is $\frac{877}{1165} \approx \frac{880}{1170} \approx 75\%$.

148. d We need to find the profit in each year.

Year	Profit percentage
1990	$(5/20) \times 100 = 25\%$
1991	$(5/25) \times 100 = 20\%$
1992	$(10/30) \times 100 = 33.33\%$
1993	$(10/40) \times 100 = 25\%$
1994	$(10/50) \times 100 = 20\%$
1995	$(10/60) \times 100 = 16.66\%$

From the above table, clearly, the answer is 1992, as in 1992 the profit is maximum, i.e. 33.33%.

149. d The growth in expenditure over the previous year can be expressed as:

Year	Growth in expenditure
1990	$(8/202) \times 100 = 7.8\%$
1991	$(5/110) \times 100 = 4.5\%$
1992	$(10/115) \times 100 = 8.7\%$
1993	$(10/125) \times 100 = 8\%$
1994	$(5/135) \times 100 = 3.7\%$
1995	$(10/140) \times 100 = 7.14\%$

Hence, it is maximum for 1992.

150. b Profit in 1994 = 60. Profit in 1995 = 70. Growth percentage

in profit in 1995 over 1994 = $\left(\frac{10}{60}\right) \times 100 = 16.66\%$.

Profit in 1996 will be $(16.66\% \text{ of } 70) + 70 = \text{Rs. } 82 \text{ lakh.}$

151. a Lipton production is 1.64 (in '000 tonnes) which corresponds to 64.8% capacity. Maximum capacity will be 100%. For 64.8% it is 1.64. \therefore For 100% it will be

$$\left(\frac{100}{64.8}\right) \times 1.64 \approx \frac{100}{65} \times 1.64 \approx 2.53 \text{ (in '000 tonnes).}$$

152. d This can be represented in the following manner.

	Production ('000 tonnes)	Capacity utilisation (%)	Total capacity (100%)	Unutilised capacity
	A	sB	C = A/B x 100	C - A
Brooke Bond	2.97	76.50	3.88	0.912
Nestle	2.48	71.20	3.48	1.003
Lipton	1.64	64.80	2.53	0.89
MAC	1.54	59.35	2.59	1.05

Hence, we find that the maximum unutilised capacity is for MAC, viz. 1,050 tonnes.

153. c $61.3\% \approx 11.6$

$$\therefore 100\% \approx \left(\frac{100}{61.3}\right) \times 11.6 \approx \left(\frac{100}{62}\right) \times 11.6 \approx 18.7$$

$\approx 18.7 \text{ tonnes (in '000)}$

154. d From the data that is given, we cannot say anything about the price of coffee for the companies among others.

155. b Total sales of all brands
 $= (31.15 + 26.75 + 15.25 + 17.45) = \text{Rs. } 90.6 \text{ crore}$
 Total sales value of others = $132.8 - 90.6 = \text{Rs. } 42.2 \text{ crore}$

$$\text{Required percentage} = \frac{42.2}{132.8} \times 100 \approx \frac{42}{132} \times 100 = 31.8 \approx 32\%.$$

156. b Originally for the fifth month, 4 people were scheduled to do coding. This would have cost them $(10000 \times 4) = \text{Rs. } 40,000$. Now there are 5 people who are working on design in the fifth month. The total cost for this would be $(20000 \times 5) = \text{Rs. } 1,00,000$. Hence, percentage change in the cost incurred in the fifth month = $\frac{(100000 - 40000)}{40000} \times 100 = 150\%$.

157. a As given in the previous question, it can be seen that the coding stage is now completed in 6th, 7th and 8th months. Number of people employed in the 6th month is 4 and in the 8th month is 5. In the 7th month also there are 5 people employed (from previous data). Hence, if we were to combine these months, we find that the total cost incurred in the coding stage = $(5 + 5 + 4) \times 10000 = \text{Rs. } 1,40,000$.

158. b The difference in the cost will arise only because of the following months: 5, 6 and 8. And we can compare the costs as given below

	Original scheme			New scheme		
Month	People	Cost per man/month	Total cost for the month	People	Cost per man/month	Total cost for the month
5	4	10000	40000	5	20000	1,00,000
6	5	10000	50000	4	10000	40,000
8	4	10000	40000	5	10000	50,000
	Total cost		Rs. 1,30,000	Total cost		Rs. 1,90,000

It can be clearly seen that the difference in the cost between the old and the new technique is Rs. 60,000.

159. d The cost incurred in various stages under the present scheme is as given below.

	Month	People	Cost per man/month	Total cost for the month	Total cost for the stage
Specification	1	2	40000	80000	Rs. 2,00,000
	2	3	40000	120000	
Design	3	4	20000	80000	Rs. 2,40,000
	4	3	20000	60000	
	5	5	20000	100000	
Coding	6	4	10000	40000	Rs. 1,40,000
	7	5	10000	50000	
	8	5	10000	50000	
Testing	9	4	15000	60000	Rs. 75,000
	10	1	15000	15000	
Maintenance	11	3	10000	30000	Rs. 90,000
	12	3	10000	30000	
	13	1	10000	10000	
	14	1	10000	10000	
	15	1	10000	10000	

Hence, the most expensive stage is Design.

160. c If we look at the above table again, it is clear that the average cost for 5 consecutive month period is lowest for months 11 to 15.
161. d Total investment in the two districts in 1995 = 2932.1 + 7081.6 \approx 10,000.
Total investment in the two districts in 1996 = 3489.5 + 8352 \approx 11840.
Required percentage = $\frac{(11840 - 10000)}{10000} \approx 18\%$.
162. b Total investment in electricity and thermal energy in both the districts in 1995 = (815.2 + 632.4 + 2065.8 + 1232.7) = 4746.1. Total investment made in that year = 2923.1 + 7081.6 = 10004.7 \approx 10000
Hence, required percentage is $\frac{4746.1}{10,000} \approx 47\%$.
163. b Percentage increase in investment in electricity $\approx \frac{300}{2070} = 14\%$. Percentage increase in investment in chemical $\approx \frac{(986.4 - 745.3)}{745.31} \times 100 \approx \frac{240}{745} \approx 32\%$.
Percentage increase in investment in solar = $\frac{428.6}{1792.1} \approx \frac{430}{1792} \approx 23\%$
Percentage increase in investment in nuclear = $\frac{507.8}{1674.3} \approx \frac{500}{1670} \approx 29\%$. Clearly percentage increase in investment in chemical is the highest.
164. c Total investment in Chittoor = 2923.1 + 3489.5 = 6412.6 \approx 6410. Total investment in Khammam = 7081.6 + 8352 \approx 15430. Required ratio = $\left(\frac{15430}{6410}\right) = 2.4$. times.
165. a Percentage increase in the total investment in Khammam in 1996 = $\left(\frac{8352 - 7081.6}{7081.6}\right) \times 100 \approx \frac{1270}{7080} \approx 18\%$
Total investment in Khammam in 1997 will be 1.18 \times 8352 = 9855.36 \approx 9850
166. a By observation gap between the Cost and the Sales is the highest in September. Thus, the highest profit is recorded in September.
167. d By observation difference between the Cost in March and May is the highest. Thus, in May total increase in Cost is the highest as compared to two months ago.
168. d By observation difference between the Cost in March and May is the highest. Also, the Sales in March is less as compared to the following months. Thus, in May percentage increase in sales two months before the highest.
169. d By observation increase in the number of employees from January to March is the less than the increase in

profit from January to March. Thus, profit per employee is the highest in March.

170. b From January to November the number of employees that company takes = (16 - 11) \times 1000 = 5000.

171. c

Year	Number of students employed	Number of students employed from finance	Number of students employed from marketing
1992	800	0.22 \times 800 = 176	0.36 \times 800 = 288
1993	640	0.17 \times 650 = 110.5	0.48 \times 650 = 312
1994	1100	0.23 \times 1100 = 253	0.43 \times 1100 = 473
1995	1200	0.19 \times 1200 = 228	0.37 \times 1200 = 444
1996	1000	0.32 \times 1000 = 320	0.32 \times 1000 = 320
		1087.5	1837

\therefore Difference in number of students employed from finance and marketing = 1837 - 1087.5 = 749.5 \approx 750.

172. d Percentage increase in the average salary of finance = $\frac{9810 - 5450}{5450} \times 100 = 80\%$

173. c Average annual rate at which the initial salary offered in software increases

$$= \frac{1}{4} \left[\frac{(8640 - 5290)}{5290} \times 100 \right] = 15.83\% \approx 15.9\%$$

174. d As we don't have any information about the average monthly salary offered to 'Others', we cannot determine the answer.

175. b

Year	Number of candidates employed from finance	Number of candidates employed from software
1994	0.23 \times 1100 = 253	0.21 \times 110 = 231

Students seeking jobs in finance earned = 253 \times 7550 = Rs. 16,28,550
Difference in the amount earned = 1910150 - 1628550 = Rs. 2.81 lakh per month = Rs. 33.8 lakh per annum.

176. a None of the statements is useful in finding the radius of the rear wheel. In the question, distance travelled is given. But the number of rotations taken by it is not given.
177. a Given that containers are in equal volume, that does not mean that quantities in each container are in equal volumes. Since we do not know the quantity of the liquid, we cannot find the ratio of the final mixture.

178. d This question can be answered by using the two statements.
 Given $(a - b + c) > (a + b - c)$.
 It is nothing but is $(-b + c) > (b - c)$.
 Since b is negative and c is positive,
 $\Rightarrow c > b$
 Using both statements
 $c > 0$
 $b < 0$
 $c > b$
 So always $(a - b + c) > (a + b - c)$.
179. d Using statement II
 $2\alpha\beta = \frac{c}{a} = \alpha\beta$
 $\Rightarrow \alpha = 0$ or $\beta = 0$ or α and $\beta = 0$
 Hence, cannot be answered.
180. a Both the statements are telling the same, that selling price is 75% of cost price.
 So we cannot determine the actual cost of the article.
181. c By using statement II we can determine the selling price of the article.
 Selling price = $1.25 \times 250 = 312.5$
 But by using statement I we cannot determine the selling price.
182. a The question cannot be answered until and unless number of concurrent lines are known.
183. d Both the statements are needed to answer the questions. Since in statement I all the dates are given except the time to compound the interest. That date is given in the second statement.
184. a We cannot answer the question using both the statements.
 Given that Anil's ages are prime numbers in 1998 and 1996. It is of difference 2. There are so many prime numbers with difference 2. They are (17, 19), (41, 43) . . . so on.
 So we cannot find out exact age of Sachin.
185. b Consider the statement I:
 Let number of type-1 widgets = x .
 Number of type-2 widgets = y .
 From the given question, $x + y = 20000$.
 From statement I, $1.1x + 0.94y = 20000$.
 So we can get x and y .
 From statement II, number of type-2 widgets produced
 $= \frac{1}{3} \times 20000 = 6667$.
 The question can be answered by using either of the statements alone.

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