MBA 2010 – EXAMINATION PAPER
PART I

Directions:

This section comprises of two passages. After each passage questions consisting of items relating to the preceding passage are given. Evaluate each item separately In terms of the respective passage and choose your answer as per the following guidelines:

(1) If the item is a MAJOR OBJECTIVE in making the decision; that is, the outcome or result sought by the decision maker.

(2) If the item is a MAJOR FACTOR "in arriving at the decision; that is consideration,explicitly mentioned in the passage that isbasic in determining the decision.

(3) If the item is a MINOR FACTOR in making the decision; a less important element tearing on or affecting a Major Factor, ratherthan a MajorObjective directly.

(4) If the item is a MAJOR ASSUMPTION madedeliberately; that is a supposition or projection made by the decision maker before considering the factors and alternatives.

(5) If the item is an UNIMPORTANT ISSUE in gettingto the point; that is a factor that is insignificant or not immediately relevant to the situation.

PASSAGE I

For the past two years, Bennett Joseph, head of theregional firm R and S Packing Company, had beenseriously considering the use of U.S. government gradelabelling for its high-quality canned fruits and vegetables.Having enjoyed an excellent reputation with the publicunder the trademark "Delish" for more than 30 years, these canned goods were known throughout the area bydistributors and consumers alike as among the best.

The grade-labelling problems had come to the force asthe result of a new food supermarket chain calledGaynes. The new chain, a national organisation, wasmaking a depth penetration in the region by spending asizeable portion of its large advertising and promotionbudget for pushing its own private brands of frozen andcanned fruits and vegetables. Its advertising emphasized that the public could find both grade and descriptivelabelling on each package and can. The descriptivelabels listed the type of food, the can size, the numberof servings per can, the net contents, and the nameand address of the chain.

Joseph had always paid careful attention to thedescriptive labelling on R and S products but had beenmost reluctant to commit the company to the use ofgrade labelling. Joseph's reluctance was supported by the company's advertising and promotion manager andthe production boss, who believed with him that gradelabelling could hardly bring out the fresh flavour andtaste upon which the company prided itself and had through its own special heating,processing and canning techniques.

A factor that seriously concerned Joseph in the use ofgrade labels on canned fruits and vegetables was thepossible use of a high grade on one of the gradingcharacteristics to offset a low score on another. Thismethod could hardly help R and S, whose pack wasknown by distributors and consumers alike to be muchbetter even than the highest grades of its competitors.

While Joseph was pondering over this problem, he mulled over what he had read about grade labelling. Inthe first place, grading and labelling of canned foodshad been developed to protect and help the consumer.Though the Department of Agriculture, federal standardshad been set up for standardisation, grading andinspection work, to encourage voluntary use of thesestandards, the Department of Agriculture hired inspectorswho carried out the federal inspection program atproduction periods. For canned fruits and vegetables,the grades were A, B and C, which were based on suchcriteria as uniformity, succulence and colour – notflavour or food value.

Joseph certainly agreed that grade labelling could provide additional information for the consumer. R andS could also use it in company advertisements tosupplement its own descriptive labels. But didn'teveryone know about the taste and quality of R and products? He also wondered what happened when acompany using grade labelling saw the qualities of fruitsand vegetables change from year to year. At one period,that quality might be high for most growers; it mightalso be low during another. Also, some factors that werevery important in their effect on consumer choice couldnot be subjected to a grading discipline. For example,the range of individual tastes was impossible tostandardise. Certainly taste, Joseph felt, should be atleast as important as the other, more tangible criteriaused to grade canned goods.

Joseph's legal advisor pointed out that there was anotheraspect to the problem of labelling. He had been informedby colleagues employed at the Department ofCommerce that while present use of standards wasvoluntary, such use might become mandatory in the not-too-distant future. His contacts explained that theirinformation was based not on present government plans,but on possible Congressional legislation. The scenariowent like this. Several consumer organisationswereactive in promoting "truth in labelling" legislation. Theirobjective was the provision of more information onpackaging so that consumer could make better decisionson what products to buy. Simply put, it was arguedthat consumers could not distinguish between competingproducts on the basis of present labelling requirements.Present labels contained only the manufacturer's nameand address, the fact that the contents conformed toFederal Drug and Agriculture food standards, and netweight. No mandatory criteria existed for gradestandards. Consumers could judge quality only on thebasis of trial-and-error, by trying the product or byreading the advertised claims of competing brands.

Govermment officials believed that if several of the largerconsumer organisations combined efforts to lobby inCongress for passage of consumer legislation, there wasan even chance that a "truth in labelling" law could bepassed within a year.

Joseph weighted the findings of his legal advisor. Herealised that, while taste was the ultimate criterion forchoosing one brand over another, the initial choice ofparticular brand, could be influenced by product grade. Moreover, since R and S products were of the highest quality, they would undoubtedly carry the highestpossible federal grades. Joseph was most concerned about the timing of a decision to accept product grading,which was at the present time still voluntary. Would it be to R and S's advantage to

adopt a voluntary labeling program, or would it be better to wait until grading became mandatory for all processors? What advantages and disadvantages would result from taking a wait-and-see attitude, rather than immediątely commencing a voluntary grading program?

Before Joseph completed his study of the problem, oneof his leading competitors.Team Foods, commencedvoluntary label standardisation program. Joseph wasworried about the possibility that some of Team Foods'products might be designated grade A quality. TeamFoods could quickly exploit this advantage at theexpense of R and S. Thus, grading had now become acompetitive issue. Joseph felt that he had to make aquick decision one way or the other.

Questions:

1. Establishment of a new supermarket chain.
2. Federal food standards established by the Department of Agriculture.
3. Maintaining the R and S brand image.
4. Likelihood that grade labelling would becomemandatory.
5. Influence of consumer groups on governmentactions.
6. The 30 years of experience behind R and S packingcompany.
7. Superior quality and taste of R and S product.
8. Adoption of grade labelling by Gaynes.
9. The use of grades A, B and C for canned fruit.
10. Grade labelling used in advertising.

PASSAGE II

Sam Hoe's small furniture factory was doing more business than ever before and had a solid backlog oforders that ensured continuous production. Its profits, however, had not kept pace with production. Risinigmachinery, lumber and hardware costs, higher wagesand higher operating expenses all combined to eat intoprofits. Mr. Hoe was concerned about this situation andhad thought about raising prices of his products. Thiswas not practical at the present, however, because theprices of most items had been increased within the lastsix months. Among various alternatives, he hadconsidered opening an outlet to retail his own products.

The Hoe Company had been established when Sam'sfather had started a small wood-working shop in hisgarage twenty years before. When Sam had come intothe business about five years later, the shop had beenmoved to a warehouse on the outskirts of town. At thattime, much of the space was used for storage ofmaterials and finished goods. Through the next ten years more and more of the storage area had been taken overequipment and the work space; therefore an additional storage building had been constructed next to the original building. The payroll had grown to twenty craftsmen, who were supervised by a productionmanager. Mr. Hoe and one bookkeeper did the purchasing, accounting, and sales work.

The shop, located in a city of 25,000 people, had begunspecial-order custom basis, selling mainly to localresidents. Through the years a standard line of tables and chairs had been developed, which now accountedfor 78 percent of sales. Most of the standard linefurniture was sold through four wholesalers to retailfurniture stores in a five-state area. Two outlets in thecity, a department store and a large furniture showroomwere bought directly from the factory. Although mostorders for

custom-made items came from within thestate, a few came from states from all areas of thecountry.
In examining his sales and profit records for the pasttwo years, Mr. Hoe found that while sales had increasedsteadily, profits showed only a very slight increase overthe preceding year. Further study showed that while thesale of custom-made merchandise netted a consistently good profit, standard items, sold on a slimmer margin,lost money in some cases. Rising material costs andmore rigid specifications, and demands from large retailpurchasers had both contributed to the problemUnfortunately, the number of orders for custom workhad to be limited, for top craftsmen were in short supplyand much of this work demanded highly skilled cabinetmakers.
Mr. Hoe believed that profits could be improved if thevolume of standard furniture could be increasedDiscussing the situation with his production manager,Mr. Hoe commented, "Lem, what would you think aboutopening a retail showroom here? The way I see it, ourstandard items are popular and almost sell themselvesThere's plenty of room since we added the new buildingand fixing up a nice-looking showroom shouldn't be toodifficult or expensive. If we cut out the retailer's marginand split it between the customer and ourselves, we cancut prices - or hold them steady, any way -and stillmake a decent profit." The retail showroom, Hoe explained, would not replace existing distributionchannels, but rather complement them. The showroomcould be located in the factory, thereby saving deliveryand rental costs.
Another idea that Hoe raised was the possibility ofcreasing the number of retail stores that carried theHoe Company's line. It was not suggested that furnituresales be extended geographically beyond the five states now served, but rather a more intensive effort would bemade to increase the number of retail outlets in thesestates. According to Hoe, this could be accomplishedby adding more wholesalers, especially in the largerstates.
Hoe's marketing manager, Norbert Ravis, agreed thatthe number of retail outlets should be increased by moreintensive coverage of wholesalers or by adding additionalwholesalers to the network. Norbert suggested that thecompany should find a way to increase sales throughmoderate-sized retailers, rather than expand sales todepartment stores and large distributors. Norbertexplained that although large retailers could order inbulk, the profit margin was lower. What was needed,according to Norbert, was a balance of sales betweenlarge and small retailers, with about three-fourths oftotal sales allocated to the smaller or moderate-sizedretailer.
To support his argument, Norbert supplied thefollowing statistics: a standard set of a table and fourchairs sold to a large department store earned a 25percent profit to the factory. The same set sold to asmall or moderate-sized retailer earned a 40 percentprofit. Therefore, as far as Norbert was concerned, salesshould be increased to smaller retailers only.
Sam Kander, Hoe's production manager, was worriedabout the production capabilities of the factory. Withthe output reaching capacity, how could the marketingpeople plan for increased sales without taking intoconsideration the capacity of the plant? Even if anadditional shift was added, the factory could onlyincrease output by another 40 percent with existingmachinery. Kander felt that the best way to increasesales would be to

expand the custom-made merchandise.A special effort should be made to hire more cabinetmakers. Hoe could make a survey of the various vocationalschools in the area to find young men who would work asapprentices in the factory. Demand was increasing for thesort of custom work that supplied. Moreover, custom workwas the most profitable for the company.

Hoe weighed all the alternatives. He came to the conclusion that increasing sales without improving profitability would be a waste of resources. He wouldhave to determine which alternative would allow hiscompany to grow, while at the same time contributingto profit improvement.

Questions:

11. Increased production costs incurred by Hoe'scompany
12. Increased demand for Hoe's furniture
13. Employment of 20 craftsmen in Hoe's factory
14. Availability of skilled cabinetmakers
15. Improving profitability of Hoe's company
16. Number, of states in which Hoe's furniture issold
17. Ease of selling Hoe's standard furniture in anattached showroom
18. Direct sales to large retailers
19. Rising hardware costs
20. More intensive coverage of wholesalers

PART II

Directions:

Each passage in this section is followed by questions based on its contents. Read the passages carefully and then answer the questionsgiven below them by choosing the best answer toeach question. Answer the questions on the basisof what is stated or implied in the passages.

PASSAGEI

Environmental protection and management is deservedlyattracting a lot of attention these days. This is a desirable development in the face of the alarming rateof natural resource degradation which greatly hamperstheir optimal utilisation. When waste waters emanatingfrom municipal sewage, industrial effluent, agriculturaland hand runoffs, find their way either to ground waterreservoirs or other surface water sources, the quality ofwater deteriorates, rendering it unfit for use. The naturalbalance is disturbed when concentrated discharges ofwaste water is not controlled. This is because thecleansing forces of nature cannot do their job in proportion to the production of filthy matter.

According to the National Environment Engineering andResearch Institute (NEERI), a staggering 70 percent ofwater available in the country is polluted. According tothe Planning Commission: "From the Dal lake in theNorth to the Periyar and Chaliyar rivers in the Southfrom Damodar and Hoogly in the East to the Thanecreek in the west, the picture of water pollution is

uniformly gloomy. Even our large perennial rivers, likethe Ganga, are today heavily polluted".

According to one study, all the 14 major of india are highly polluted. Besides the Ganga, these rivers include the Yamuna, Narmada, Godavari, Krishna and Cauvery. These rivers carry 85 percent of the surface runoff and their drainage basins cover 73 percent of the country. The pollution of the much revered Ganga is due in particular to municipal sewage that accounts for

3/4th of its pollution load. Despite India having legislation on water pollution (the water (Prevention and Control of Pollution) Act, 1974) and various water pollution control boards, rivers have today become synonymous with drains and sewers.

Untreated community wastes discharged into water courses from human settlements account for four times as much waste water as industrial effluent. Out of India's 3,119 towns and cities, only 217 have partial (209) or full (8) sewerage treatment facilities and cover less than a third of the urban population. Statistics from a report of the Central Board for Prevention and Control of Water Pollution reveal the 1,700 of 2,700 water using industries in India are polluting the water around their factories. Only 160 industries have waste water treatment plants. One estimate suggests that the volume of waste water of industrial origin will be comparable to that of domestic sewage in India by 2000 A.D. Discharges from agricultural fields which carry fertilizing ingredients of nitrogen, phosphorous and pesticides are expected to be three times as much as domestic sewage. By the date, thermal pollution generated by discharges from thermal power plants will be the largest in volume.

Toxic effluents deplete the levels of oxygen in the rivers, endanger all aquatic life and render water absolutely unfit for human consumption, apart from affecting industrial production. Sometimes these effects have been disastrous. A recent study reveals that the water of the Ganga, Yamuna, Kali and Hindon rivers have considerable concentrations of heavy metals due to inflow of industrial wastes, which pose a serious health hazard to the millions living on their banks. Similarly, the Cauvery and Kapila rivers in Karnataka have been found to contain metal pollution which threaten the health of people in riverine towns. The Periyar, the largest river of Kerala, receives extremely toxic effluent that result in high incidence of skin problems and fish killing. The Godavari of Andhra Pradesh and the Damodar and Hoogly in West Bengal receive untreated industrial toxic wastes, A high level of pollution has been found in the Yamuna, while the Chambal of Rajasthan is considered the most polluted river in Rajasthan. Even in industrially backward Orissa, the Rushikula river is extremely polluted. The fate of the Krishna in Andhra Pradeshthe Tungabhadra in Karnataka, the Chaliyar in Kerala,theGomiti in U.P the Narmada in M.P and the Soneand the Swarnarekha rivers in Bihar is no different.

According to the W.H.O. eighty percent of diseases prevalent in India are water-borne, many of them assumeepidemic proportions. The prevalence of these diseasesheighten under conditions of drought. It is also estimatedthat India loses as many as 73 million mandays every year due to water borne diseases, costing Rs. 600croresby way of treatment expenditure and production losses.Management of water resources with respect to theirquality also assumes greater importance especially whenthe country can no more afford to waste water.

The recent Clean-the -Ganga project with an action planestimated to cost the exchequer Rs. 250 crores (whichhas been accorded top priority) is a trend setter inachieving this goal. The action plan evoked such greatinterest that offers of assistance have been received fromFrance, U.K, U. S. and the Netherlands as also the WorldBank. This is

indeed laudable. Poland too has nowjoined this listvolunteered themselves to contribute their mite is ahealthy reflection of global concern over growingenvironmental degradation and the readiness of theinternational community to participate in what is a trulyformidable task. It may be recalled that the task ofcleansing the Ganga along the Rishikesh-Haridwar stretchunder the first phase of the Ganga Action Plan has beencompleted and the results are reported to beencouraging.

The crisis of drinking water is deepening because waterresources are drying up and the lowering of ground water throughoverpumping. These factors increase theof the problem. An assessment of theprogress achieved by the end of March 1985, oncompletion of the first phase of the InternationalDrinking Water Supply and Sanitation Decade (1981-91),revealed that drinking water has been made availableto 73 percent of the urban population and 56 percentof the rural population only. This meant that nearly halfthe country's rural population has to get drinking water facilities. The foremost action in this would be to cleanup our water resources.

As per surveys conducted by the NEERI, per capita drinking water losses in different cities in the country range between 11,000 to 31,000litresannually. Thisindicates a waste level of 20-35 per cent of the totalflow of water in the distribution system primarily due toleaks in mains and household service pipes. Preventive maintenance programme would substantially reducelosses / wastages and would certainly go a long way insolving the problem.

Questions :

21. The degradation of natural resources will necessarily lead to

1) poor economic utilisation of resources
2) contamination of water from municipal sewage
3) water unfit for human consumption
4) heightened drought conditions
5) none of the above

22. According to NEERI

1) the extent of water pollution in the Dal Lake isgrim
2) seventy percent of total water available inthecountry is polluted
3) only 217 out of 3119 towns and cities havesewage treatment facilities
4) all the 14 major rivers of India are highly polluted
5) 1700 to 2700 water using industries are polluting the water around the industries

23. Municipal sewage pollutants account for

1) the lowest percentage of water pollution
2) seventy five percent of the Ganga's water pollution load
3) twice the volume of the waste water of industrialorigin
4) three times as much as the discharge fromagricultural fields
5) the highest percentage of water pollution

24. Which of the following statements is correct?

1) The river Periyar is in South Indi
2) The river Periyar is the largest river of Kerala
3) The river Gomiti is also extremely polluted
4) The river Cauvery has been found to containmetal pollution

5) All of the above are correct

25. The cost of the Clean-the-Ganga Pollution Project Action Plan is likely to be sourced from

1) The Indian Exchequer
2) France, U.K., U.S., and the Netherlands
3) The World Bank , Poland, U.K
4) the Indian Exchequer and the World Bank
5) The U.S., U.K., Netherlands, Poland, Francethe World Bank and India

26. Which of the following statements made bythe WHO is correct?

1) water-borne diseases account for eighty percentof all diseases prevalent in India
2) water-borne diseases in India create a loss ofRs. 600 crores every year
3) both 1 and 2 are correct
4) percapita drinking water losses in differentcities in the country range between 11,000 to31,000 litres annually
5) none of the above

27. Considerable amounts of metal pollutants are found in the river(s)

1) Chambal of Rajasthan
2) Rushikula in Orissa
3) Damodar, Hoogly, Krishna and Gomiti
4) Ganga, Yamuna, Kali, Hindon, Cauvery andKapila
5) Cauvery and Kapila rivers in Karnataka

28. The crisis of drinking water is caused chieflyby

1) thegreen house effect
2) water pollution caused by industrial development
3) drying up of water sources and over pumping
4) increasingurbanization
5) population explosion

29. The best remedy for water shortage lies in

1) putting up more pumps in rural areas
2)cleaning up polluted water
3) reducing the waste level of 25-30 percent ofthe total flow of water
4) constructing large sized dams
5) government policies towards pollution control

30. An assessment of progress by March 1985 on completion of the first phase of the International Drinking Water Supply and Sanitation revealed

1)drinking water was made available to 73 urban and 56% rural population
2) water losses through water distribution was 20-35%
3) preventive maintenance has to be up for drinking water distribution losses
4) rivers have to be cleaned up
5) environmental degradation is the major concernof the country for the next decade

PASSAGE II

Consumers, on the whole, are not an easy group to figureout. Their mood sobers with each mounting step ofinflation, but at the same time consumer spending continues to increase - a sign of recovery and a paradox. Retail sales are up, national savings have gone down byhalf a percentage point. Consumers' taste runs towardthe luxurious, while they complain about the high cost ofliving.

Top- of- the-line cars are selling better than ever. Alarge, well-known Honda dealer says sales of heRs. 10lakh Honda City have doubled in the past year.

Consumer watchers seem to have a hint of what is goingon, and they are not at all reassured by their

findings. A pattern is developing here that for a long time hasbeen prominent in Europe -instead of paying morelater, consumers are preferring to buy now as a hedgeagainst the future. In the past, inflation has generallyled to a cutback in consumer spending, giving them a chance to refortify the real value of their liquid assets.Now, however, they are putting their money into hardassets - houses, cars, bonds, or simply cash. Art, precious jewellery, and the like are being grabbed up,but with borrowed funds obtained, not from loans, butfrom second mortgages and margin accounts atbrokerage houses. The use of these nontraditionalsources is not so surprising when one realises that theinterest rate is lower than on consumer loans, enablingthe borrower to pay the loan back in cheaper rupeesduring inflation.

There are numerous surveys that measure and chartconsumer trends and sentiment. Because their methods,and hence the questions they ask, are different, the resultsare not always quite the same. Whereas one group notesa dramatic drop in buying plans, another indicates a positive attitude toward buying now. The general feeling of all the groups is that there has been an all-around drop in confidence, prompted by the inflation speedup. If consumers are feeling more cautious, they have not yet demonstrated this feeling in the marketplace. Buy now seems to be the prevalent attitude. This is evident in car sales, and the automobile manufacturers are baiting the buyers with small, sporadic increases of 1 percentor so instead of hitting them all at once with huge price hikes for last fall's new models. The upper end of the department store market is doing well. The rich are investing their rupees in quality merchandise, realizing that a Rs. 30,000 coat today will most likely cost Rs. 40,000 next year. The emphasis is on quality, not quantity. A woman will get more use out of one good handbag than two less expensive ones. Men are apt to buy on high-priced suit, with the intention of wearing it for a couple of extra occasions, instead of having several suits of poorer quality. Wearing apparel is being looked at as an investment.

If the quality, higher-priced end of the retail trade can paint a relatively rosy picture, the same does not hold true for the "low end "of the business. Discount store sales are down from a year ago. There is no hedge against inflation in this end of the retail market.

Although some retailers are this less cheery end of the business are trying to cash in on the better-quality trend by changing their image, most are fearful that the rush now will result in drastic cutbacks later on. The growth of debt, relative to income, has been rapid, and there will have to be a slowdown somewhere along the line.

The burden of debt on the individual household is a matter of concern and constant study for economists. To measure this burden, they look at the ratio of repayment on installment debt to after-tax (disposable) income. The ratio at present is 15 percent, which is no cause for alarm, since the norm ranges somewhere between 14 percent and 16 percent. Consumer debt patterns have changed somewhat, however, and this may indicate a difference in the way in which a family judges its credit burdens. Not included in this ratio are loans that have been stretched out to ease the monthly burden – car loans that mature in four years as opposed to the two – or three – year loans of the past. And as interest rates continually creep upward, consumer credit will be tightened. Debt

has allowed the consumer to cruise along in a recovery manner, but the squeeze is on.

Consumer credit seems to be only part of the problemaccording to Data Info, a New England organization specialising in econometric forecasting. Data Info feelsthat discretionary income - what is left over after taxes for buying household necessities such as food - is thereal source of concern. One expert at this New Englandshop says that when the tremendous employment gains of recent years begin to diminish, there will be aslowdown in the rise of real income. People will be pushedinto higher tax brackets, even if the breadwinner'sincome keeps up with rising prices.

To illustrate the decline in discretionary income, we canuse the following data: Between 2002 and 2007, cashincome per household increased 42.2 percent (in today'srupees). During that same time period, inflation wentup 40.7 percent. It seems that the household is just ajump ahead of inflation, but such is not the casebecause, also in that time period, there was a 65.3percent increase in the average tax bill, and the cost ofnecessarv items in the consumer market basket rose 43.8percent. So, in the end, the amount left for extras, orthe discretionary income, went up only 30.7 percenthardly enough to keep pace with inflation.

What with inflation both giving impetus to the buy-now attitude and gnawing away at discretionary income, andwith consumer credit rapidly approaching its limits, wemay be in for a shift in the economy. Producers arebuilding up their inventories in anticipation ofincreasedconsumer spending, but the consumer is, at the sametime, keeping a watchful eye on inflation while stockingup. Sooner or later the consumer will have to cut downon spending, and retailers and producers will be leftholding inventories.

But for the time being, consumers continue to buy aheadand thus fatten the retail purse. Producers are watching their inventories closely, and, according to industryobservers, the trend of buying in advance has a way to go before we reach the boom-and-bust casis.

Questions:

31. The passage is primarily concerned with

1) consumers buying luxury items
2) consumers' concern over inflation
3) the tightening of consumer credit
4) consumer spending now as a hedge againstthe future
5) consumers buying quality clothing as an investment

32. Which of the following is (are) true about consumer survey organisations?

I. they accurately measure consumer behaviorand sentiment
II. they are controlled by the government
III. they use different methods but attain the sameresults
IV.they ask different questions of consumers
V. only consumer attitudes toward spending aremeasured

1) II, III and IV only
2) I, IV and V only
3) IV only
4) III only
5) II and IV only

33. According to the passage, which statementbest describes consumer attitudes at present?

1) consumers are cautious but are continuing to buy

2) consumers are buying more expensive, high-quality goods
3) consumers think expensive clothes are goodinvestment.
4) consumers feel the economy is going througha recovery period
5) consumers feel it is safer to build up a lot ofdebt now instead of later.

34. Over a period of time, if the same trend continues in future
1) consumercredit period will be shortened
2) people will be pushed into higher tax brackets, even if the income keeps increasing with risingprice
3) drastic cut in income
4) lowering the quality of goods
5) proliferation of finance companies

35. According to the passage, which of the following is true about consumer loans?
I. they are a traditional source of money
II. the interest rate is higher than on other sources of borrowing
III. they are the easiest way to borrow money
IV. they will cost the consumer more in the long run
1) I and II only 2) I, II and III only
3) I, II and IV only 4) I1 and IV only
5) All of the above

36. Disposable income can be defined as
1)income the consumer does not care how heor she spends
2) income spent on luxuries
3) after-tax income
4) income spent on nondurable goods
5) none of the above

37. The passage implies which of the followingabout consumer debt?
I) debt patterns are changing
II)debt payments are being stretched out to givethe consumer extra money
III) consumers are fearful of getting deeper in debt
IV) debt burden is measured by looking at thenumber of installments relative to disposable income
1) I, II andII only 2) I and II only
3) I, II and IV only4) 1 and IV only
5) all of the above

38. The author defines discretionary income as
1) after-tax income
2)income spent on food
3) income left after taxes for buying householdnecessities
4) money spent as the consumer wishes to do so
5) invested income

39. Discretionary income, on the average, is whatpart of total income?
1) 15-16 percent
2) 30.7 percent
3) 40.7 percent
4) half of after-tax income
5) cannot be determined from the informationprovided in the passage

40. According to the passage, which of the following can be said about the author's feeling toward consumer spending?
1) consumers will cut down sharply on spending
2) heavy consumer spending has caused producers to build up their inventories unwisely

3) the current spending trend will continue forsome time before reaching crisis proportions
4) current spending will cause a sudden, sharpshift in the economy
5) all of the above

PART lII

41. The value of

$$\left[\frac{1}{(216)^{-2/3}}+\frac{1}{(256)^{-3/4}}+\frac{1}{(243)^{-1/5}}\right]$$ **is**

1) 107 2) 105
3) 103 4)109
5) None of these

42. What is the largest number which when divides 2274, 2061 and 1054 leaves remainder 6, 3, and 4 respectively

1) 6 2) 14
3) 42 4) 60
5) 21

43. A man spends 75% of his income and savesthe remaining. His income increases by20% and expenditure by 10%. The increase in savings is

1) 35% 2)37 1/2%
3) 50% 4) 60%
5) 40%

44. Rs, 1500 was partly lent at 5% SI and the remaining at 8% SI p.a, so that the interestreceived from both the parts was Rs. 90 in a year. Then the amount lent at 5% will be

1) Rs. 500 2) Rs. 750
3) Rs. 1,000 4) Rs. 1,250
5) Rs. 1,500

45. Divide Rs. 760 among 4 men, 3 women and5 children so that each man may have double the share of a woman and each woman may have three times the share of a child. Theshare of 1 child is

1) Rs. 50 2) Rs. 20
3) Rs. 120 4) Rs. 60
5) Rs. 70

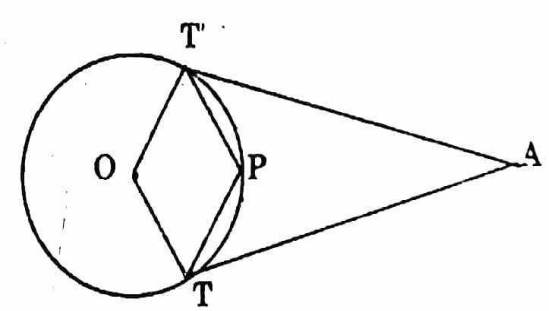
46. A dishonest shopkeeper deceives by 25% atthe time of purchase and 20% at the time ofsale of articles. The percentage of his profitis

1) 50 2) 40
3) 45 4) 5
5) 30

47. A wire in the shape of an equilateral triangleenclosed an area of S sq cm. If the samewire is bent to form a circle, the area of thecircle will be

1) $\frac{\pi S^2}{9}$ 2) $\frac{3S^2}{\pi}$
3) $\frac{3S}{\pi}$ 4) $\frac{3\sqrt{3S}}{\pi}$
5) $\frac{\sqrt{3S}}{\pi}$

48. If A is a point outside the circle with centreO, AT and AT' are the tangents to the circleand P is a point on the circle as shown is thefigure. The ∠TPT' equals



1) 55° 2)70°
3) 125° 4) 140°
5) 130°

49. Two circles touch each other internaliy.Their radii are 2 cm and 3 cm.

The biggestchord of the outer circle which is outside theinner circle is of length

1) $2\sqrt{2}$cm 2) $3\sqrt{2}$cm

3) $2\sqrt{3}$cm 4) $4\sqrt{2}$cm

5) $4\sqrt{3}$cm

50. At a meeting, five friends decide to buy a plaque for the club that will cost D rupees One person decides not to participate is theplan. The increase in amount to each ofthefour remaining people is

1) $\frac{D}{3}$ 2) $\frac{D}{20}$ 3) 2D

4) $\frac{D-5}{2}$ 5) $\frac{D}{5}$

51. Six years ago in a state park the deer outnumbered the foxes by 80. Since then, the number of deer has doubled and the number of foxes has increased by 20. If hereare now a total of 240 deer and foxes inthepark, how many foxes were there sixyearsago ?

1) 10 2) 20

3) 30 4) 40

5) 100

52. A father can do a certain job in x hours. Hisson takes twice as long to do the job. Workingtogether, they can do the job in 6hours. Howmany hours does it take the father to do thejob?

1) 9 2) 18

3) 12 4) 20

5) 16

53. If two fractions, each of which has a value between 0 and 1, are multiplied together, theproduct will be

1) always greater than either of the original fractions

2) always less than either of the original fractions

3) sometimes greater and sometimes less thaneither of the original fractions

4) remains the same

5) never less than either of the original fractions

54. A train travels at an average speed of 20mph through urban areas, 50 mph through suburban areas, and 75 mph through rural areas. If a trip consists of travelling half anhour through urban areas, 3V2 hoursthroughsuburban areas, and 3 hours throughruralareas, then the train's average speed forthe entire trip is

1) 50 mph 2) $53\frac{2}{7}$ mph

3) $54\frac{3}{7}$ mph 4) $58\frac{4}{7}$ mph

5) $59\frac{2}{7}$ mph

55. If x is less than 2, which of the following statements are always true?

I. x is negative

II. x is positive

III.2x is greater than or equal to x

IV.x is greater than or equal to x

1) III only 2) IV only

3) I and III only 4) I,III and IV only

5) None of the above

56. An angle of x degrees has the property thatits complement is equal to 1/6 of its supplement where x is

1) 30 2) 45

3) 60 4) 63

5) 72

57. Which of the following figures has the

largestarea?

I.A circle of radius $\sqrt{2}$

II. An equilateral triangle whose sides each havelength 4

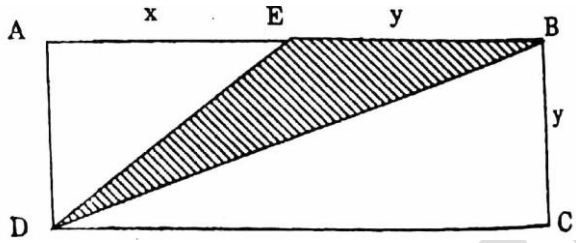
III.A triangle whose sides have lengths 3, 4 and 5

1) I 2) II

3) III 4) I and II

5) II and III

58. If the shaded region (triangle EDB) has areaequal to 1/3 of the area of the rectangleABCD, then the area of the rectangle ABCDis

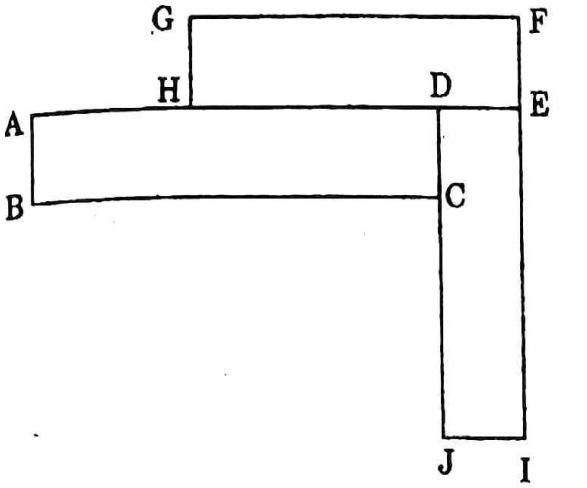


1) $(1/2)y^2$ 2) $2xy$

3) $3x^2$ 4) $4x^2$

5) $6x^2$

59. The rectangle ABCD, EFGH and DEIJ are all congruent. Express the length of the linesegment GD in term s of x where x is thelength of the line segment JI and the area ofABCD is $3x^2$.



1) 2x 2) $2(\sqrt{2})x$

3)$(\sqrt{5})x$ 4) 3x

5) 5x

60. If hose A can fill up a tank in 20 minutes, and hose B can fill up the same tank in 15 minutes, how long will it take for the hosestogether to fill up the tank?

1) 5 minutes 2) $7\frac{1}{2}$ minutes

3) $8\frac{4}{7}$ minutes 4) $9\frac{2}{7}$ minutes

5) 12 minutes

PART IV

Directions:

Each of the following problems has a question andtwo statements which are labelled (1) and (2) inwhich certain data are given. You have to decidewhether the data given in the statements aresufficient for answering the question. Using thedata given in the problem plus your knowledge ofmathematics and every day facts, choose:

(1) If you can get the answer from (1) ALONE butnot from (2) alone

(2) If you can get the answer from (2) ALONE butnot from (1) alone

(3) Ifyou can get the answer from BOTH (1) and (2) TOGETHER, but not from (1) alone or (2) alone

(4) IfEITHER statement (1) ALONE or statement (2)ALONE suffices

(5) If you CANNOT get the answer from statements (1) and (2) TOGETHER, but need even more data

Questions:

61. Is x>0

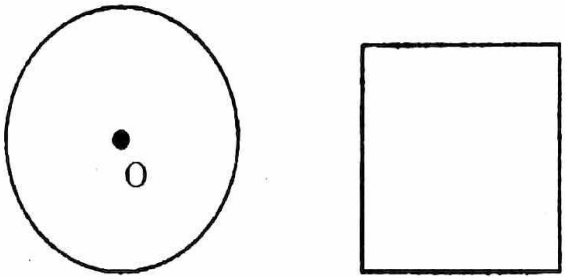
1) $x^2>0$ 2) $x^3>0$

62. Isn the square of an integer k?

1) $n=4j^2$ with j an integer

2) $n^{2=}A^2+B^2$ with A, B integers

63. Will the circle with centre O fit inside the square ABCD?



1) The diameter of the circle is less than a side of the square.

2) The area of the circle is less than the area ofthe square.

64. Is x greater than y?

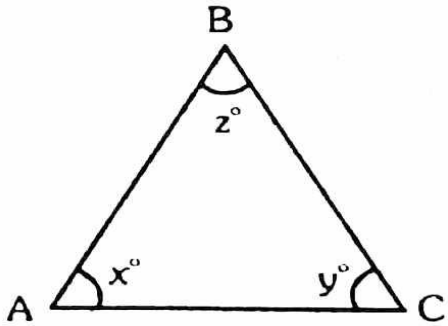
1) xy=5 2) $\frac{x}{y} = 2$

65. Is k an odd integer?

1) k is divisible by 3

2) The square root of k is an integer divisible by 3

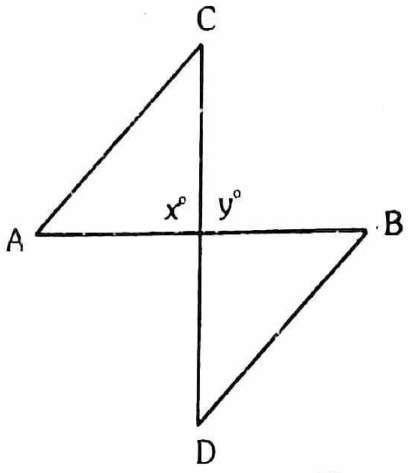
66. In triangle ABC, find z if AB=5 and y=40°



1) BC=5

2) the bisector of angle B is perpendicular to AC

67. Is AB perpendicular to CD?



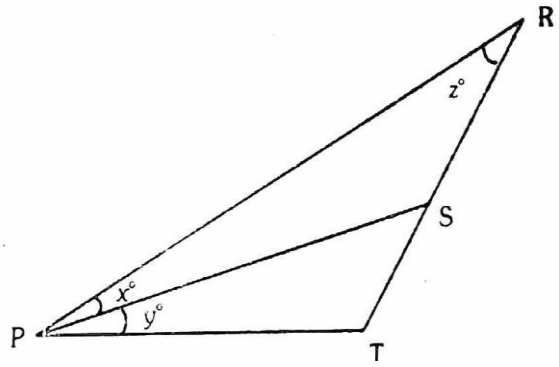
1) AC = BD 2) x = y

58. k is a positive integer. Is k a prime number?

1) No integer between 2 and $\sqrt{k}$ inclusive dividesk evenly.

2) No integer between 2 and $\frac{k}{2}$inclusive dividesk evenly and k is greater than 5.

69. If z=50°, find the value of x.



1) RS≠ ST 2) x+y= 60

70. How much was a certain painting worth in January 2001?

1) In January 2007 the painting was worth Rs.20,00,000

2) Over the ten years 1998-2007 the painting increased in value by 10% each year

71. Train Y leaves Chennai at 1 a.m. and travelseast at a constant speed of y m.p.h. Train Zleaves Chennai at 2 a.m. and

travels east at a constant speed of z m.p.h. Which train willtrevel farther by 4 a.m.?

1) y>z 2) y = 1.2 z

72. There are 450 boxes to load on a truck. A and B work independently and take 30 minutes to load the truck. How long shouldB take to load the truck?

1) A loads twice as many boxes as B
2) A would take 45 minutes by himself

73. A car drives around a circular track once. A second car drives from point A to point B ina straight line. Which car travels farther?

1) The car driving around the circular track takes a longer time to complete its trip that the car travelling in a straight line.
2) The straight line from A to B is 1 ½ times aslong as the diameter of the circular track.

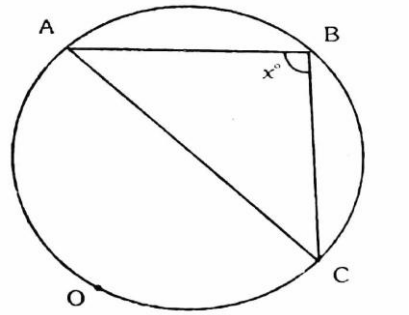
74. A group of 49 consumers were offered a chance to subscribe to 3 magazines: A, B, and C. 38 of the consumers subscribed to at least one of the magazines. How many ofthe 49 consumers subscribed to exactly twoof the magazines?

1) Twelve of the 49 consumers subscribed to allthree of the magazines
2) Twenty of the 49 consumers subscribed to magazine A

75. Which of the four members w, x, y and z isthe largest?

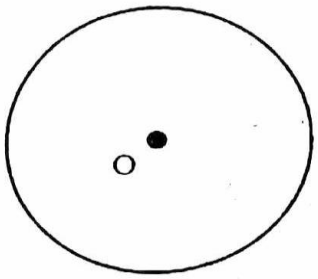
1) The average of w, x, y, and z is 25
2) The numbers w, x, and y are each less than 24

76. ABC is a triangle inscribed in circle AOCB. Is AC a diameter of the circle AOCB?



1) Angle ABC is a right angle
2) The length of AB is ¾ the length of BC

77. What is the radius of the circle with centreO?



1) The area of the circle is 25π
2) The area of the circle divided by the diameterof the circle is equal to π times ½ of the radiusof the circle

78. Are ∠1 and ∠2 supplementary?

1)∠1and ∠2are alternate interior angles of theparallel lines AB and CD
2) ∠1= ∠2

79. How wide is the river?

1) While swimming across the river, the swimmer wasswept 150 m downstream.
2)The swimmer swam a total of 400 m, swimmingin a straight line until reaching the other side ofthe river

80. How many kilowatt-hours of electricity would an assembly of 2000, 1-watt photovoltaiccells generate in a year?

1) On the average, there were 8 hours of sunlightper day

2) On an average day, the assembly generatedkilowatt-hours of electricity

PART V

Directions:

In each of the following sentences four words orphrases have been underlined. Only oneunderlined part in each sentence is not acceptablein standard English. Pick up that part - (1) or (2)or (3) or (4). If there is no mistake mark (5).

81. *If i would have* worked regularly *I would* *have passed the examination* *No error.*
(1) (2) (3) (4) (5)

82. *The teacher asked the student if everyone of them were ready to attend practical class every day.* *No error.*
(1) (2) (3) (4) (5)

83. *The daughter parted with her mother with tears but the jouney to Delhi amused her.* *No error.*
(1) (2) (3) (4) (5)

84. *People who are not belonging to any party are called independent.* *No error.*
(1) (2) (3) (4) (5)

85. *Had I known your were coming I would stay at home.* *No error.*
(1) (2) (3) (4) (5)

86. *The company not only manufactures leather good but also plastic ware.* *No error.*
(1) (2) (3) (4) (5)

87. *I must find out some means of balancing my budget.* *No error.*
(1) (2) (3) (4) (5)

88. *Before you enter the temple you should take out your shoes.* *No error.*
(1) (2) (3) (4) (5)

89. *No boy in his son's class is as bright as his son.* *No error.*
(1) (2) (3) (4) (5)

90. *The heir of the throne was free from physical and moral taint.* *No error.*
(1) (2) (3) (4) (5)

91. *They used to laugh whenever their teacher spoke.* *No error.*
(1) (2) (3) (4) (5)

92. *I cannot explain why does she not study as hard now as she used to before.* *No error.*
(1) (2) (3) (4) (5)

93. *It would be interesting knowing whether this is true.* *No error.*
(1) (2) (3) (4) (5)

94. *If the tourist would have come here I would certainly have taken them around.* *No error.*
(1) (2) (3) (4) (5)

95. *As soon as the peon rings the first bell all the student assemble on the playground.* *No error.*
(1) (2) (3) (4) (5)

96. *I would have asked you for dinner if I had known that you are staying here to night.* *No error.*
(1) (2) (3) (4) (5)

97. *If this man would not have been poor he would not have worked so hard.* *No error.*
(1) (2) (3) (4) (5)

98. *He visited the battlefield wher Napoleon*
(1) (2)

was defeated (3) in his holidays. (4) No error. (5)

99. He always (1) practised (2) the justice (3) and cares for (4) moral principles. (5) No error.

100. Most of the critics,all over the world (1) agree that (2) this is one of the most interesting novels (3) that has recently appeared. (4) No error. (5)

MBA 2010 - ANSWERS

1.2	2.3	3.1	4.4	5.3	6.5	7.3	8.2	9.5	10.3
11.2	12.2	13.5	14.2	15.1	16.5	17.4	18.5	19.2	20.2
21.1	22.2	23.2	24.5	25.5	26.3	27.4	28.3	29.2	30.1
31.4	32.3	33.1	34.1	35.5	36.3	37.3	38.3	39.5	40.3
41.3	42.3	43.3	44.3	45.2	46.3	47.4	48.*	49.4	50.2
51.2	52.1	53.2	54.4	55.5	56.5	57.2	58.5	59.3	60.3
61.2	62.1	63.1	64.5	65.5	66.4	67.2	68.4	69.5	70.3
71.4	72.4	73.2	74.5	75.3	76.1	77.1	78.5	79.3	80.2
81.1	82.2	83.2	84.4	85.4	86.1	87.2	88.4	89.1	90.1
91.5	92.3	93.3	94.1	95.3	96.3	97.2	98.4	99.3	100.4

MBA 2010 – DETAILED SOLUTIONS

41. (3)

$$\left[\frac{1}{(216)^{-2/3}}+\frac{1}{(256)^{-3/4}}+\frac{1}{(243)^{-1/5}}\right]$$

$$=(216)^{2/3}+(256)^{3/4}+(243)^{1/5}$$

$$=(6^3)^{2/3}+(4^4)^{3/4}+(3^5)^{1/5}$$

$$=6^2+4^3+3$$

$$=36+64+3$$

$$=103$$

42. (3)

Required number

=H.C.F. of (2274-6,2061-3,1054-4)

=H.C.F. of (2268,2058,1050)

Now

4 2268

9 567

$\therefore 2268 = 4 \times 9^2 \times 7$

$= 2^2x3^4x7$

2058

$\therefore 2058 = 2x3x7^3$

1050

$\therefore 1050 = 10x3x5x7$

$= 2x3x5^2x7$

$\Rightarrow 2268 = 2^2x3^4x7$

$2058 = 2x3x7^3$

$1050 = 2x3x5^2x7$

$\therefore$ H.C.F. of (2268,2058,1050)

$= 2x3x7$

$= 42$

43. (3)

Let the income be Rs. x

Expenditure $= \frac{75x}{100} = \frac{3x}{4}$

$\therefore$ Saving $= x - \frac{3x}{4} = \frac{x}{4}$

New income = 120% of x

$= \frac{120}{100} \times x = \frac{6x}{5}$

New expenditure = 110% of $\frac{3x}{4}$

$= \frac{110}{100} \times \frac{3x}{4} = \frac{33}{40}x$

$\therefore$ New saving $= \frac{6x}{5} - \frac{33x}{40}$

$= \frac{48x - 33x}{40}$

$= \frac{15x}{40} = \frac{3x}{8}$

$\therefore$ % increase in saving

$= \frac{\frac{3x}{8}-\frac{x}{4}}{\frac{x}{4}} \times 100$

$= \frac{\left(\frac{x}{8}\right)}{\left(\frac{x}{4}\right)} \times 100 = 50\ \%$

Method 2:

Let the income be Rs. 100

Then Expenditure = Rs. 75

$\therefore$ Saving = 100-75 = 25

New income = Rs. 120

New expenditure = 110% of 75

$= \frac{110}{100} \times 75 = \frac{165}{2}$ = Rs.82.5

$\therefore$ New saving = 120-82.5 = Rs. 37.5

$\therefore$ Increase in saving = $\frac{37.5-25}{25} \times 100$

$\frac{12.5}{25} \times 100 = 50\%$

44. (3)

Let the amount lent on 5% be Rs. x

Then amount lent on 8% is Rs. (1500-x)

$\therefore \frac{x \times 1 \times 5}{100} + \frac{(1500-x) \times 1 \times 8}{100} = 90$

$\frac{5x+1500 \times 8-8x}{100} = 90$

$\Rightarrow 5x + 12000-8x = 9000$

$\Rightarrow 3x = 3000$

$\therefore x =$ Rs. 1000

45. (2)

Let the share of one man, one woman and one child be m, w and c respectively.

Given m = 2w

and w = 3c

$\Rightarrow$ m = 2(3c) = 6c

Now,

4m+3w+5c = 760

$\Rightarrow 4(6c) + 3(3c) + 5c = 760$

$\Rightarrow 24c + 9c+5c = 760$

$\Rightarrow 38c = 760$

$\therefore c = \frac{760}{38}$ = Rs.20

46. (3)

Let the price be Rs. 100

C.P. = 75% of 100

= Rs. 75

S.P. = Rs. 120

∴ Profit % = 120-75 = 45

47. (4)

Let the side of the equilateral triangle be a

Area = $\frac{\sqrt{3}}{4}a^2 = S$

$\Rightarrow a^2 = \frac{4S}{\sqrt{3}}$

Perimeter of the equilateral triangle = 3a

Circumference of the circle

= Perimeter of the equilateral triangle

= 3a

$\Rightarrow 27\pi = 3a$ where r is the radius of the circle

$\Rightarrow r = \frac{3a}{2\pi}$

Area of the circle

$= \pi r^2$

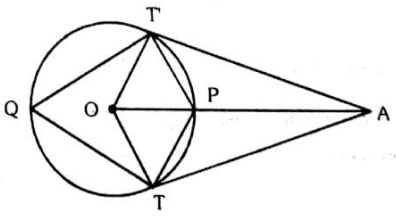
$= \pi\left(\frac{3a}{2\pi}\right)^2$

$= \frac{9\pi a^2}{4\pi^2} = \frac{9a^2}{4\pi}$

$= \frac{9}{4\pi} \times \frac{4S}{\sqrt{3}}$

$= \frac{3\sqrt{3}S}{\pi}$

48. (*)



Let $\angle T'AO = \angle TAO = \frac{A}{2}$

Since AT' is tangent

$\Rightarrow \angle T' = 90°$

$\therefore$ In $\Delta OAT'$, $\angle T'OT = 180 - \left(90 + \frac{A}{2}\right)$

$= 90 - \frac{A}{2}$

Similarly $\angle TOA = 90 - \frac{A}{2}$

$\therefore \angle T'OT = \left(90 + \frac{A}{2}\right) + \left(90 - \frac{A}{2}\right)$

$= 90 - \frac{A}{2}$

Similarly $\angle TOA = 90 - \frac{A}{2}$

$\therefore \angle T'OT = \left(90 - \frac{A}{2}\right) + \left(90 - \frac{A}{2}\right)$

= 180-A

Now

$\angle T'OT = 2\angle T'QT$

$\Rightarrow \angle T'OT = \frac{1}{2}\angle T'OT$

$= \frac{1}{2}(180\text{-}A) = 90\text{-}\frac{A}{2}$

In circle quadralateral T'QTP

$\angle T'QT + \angle TPT' = 180$

$\therefore \angle TPT' = 180 - \angle T'QT$

$= 180\text{-}(90\text{-}A)$

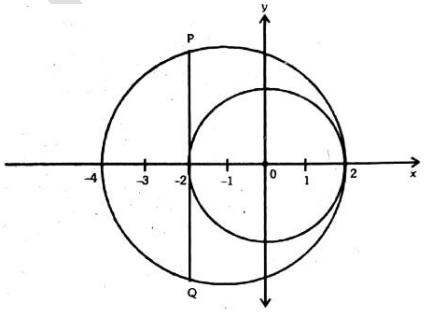
$= 90 + \frac{A}{2}$

But $\angle A$ is not given in the problem.

∴ We cannot find $\angle TPT'$. The Question is incomplete.

The equation of interior circle is

49. (4)



The equation of interior circle is

$x^2 + y^2 = 4$ ... (1)

Equation of outer circle

$(x + 1)^2 + y^2 = 9$ ... (2)

Equation of tangent at x = -2

for the interior circle x = -2 ... (3)

Solving (2) and (3)

$(x + 1)^2 + y^2 = 9$

$\Rightarrow (-2 + l)^2 + y^2 = 9$

$\Rightarrow y^2 = 8$

$\therefore y = \pm 2\sqrt{2}$

$P = (-1, 2\sqrt{2})$

$Q = (-1, -2\sqrt{2})$

∴ Required chord = PQ

$= \sqrt{(-1+1)^2 + \left(2\sqrt{2} + 2\sqrt{2}\right)^2}$

$= \sqrt{(4\sqrt{2})^2}$

$= 4\sqrt{2}$

50. (2)

Share of each person

= Rs. $\frac{D}{5}$

If one person leaves, the share of each person

= Rs. $\frac{D}{4}$

∴ Increase in amount to each of the four remaining people = $\frac{D}{4} - \frac{D}{5} = \frac{5D-4D}{20}$

= Rs. $\frac{D}{20}$

51. (2)

Let the number of deer and foxes six years ago be D and F respectively.

Given D = F+80 ... (1)

At present deer has doubled and number of foxes has increased by 20

⇒ At present number of deers = 2D

At present number of foxes = F + 20

Total = 2D + (F+20)=240

⇒ 2(F+80) + (F+20) = 240

⇒ 2F+160+F+20 = 240

⇒ 3F+180 = 240

⇒ 3F = 240-180 = 60

∴ F = $\frac{60}{3}$ = 20

No. of foxes six years ago = 20

52. (1)

Father can do the job in x hours

Then son can do it is 2x hours.

∴ Father's one hour's work = $\frac{1}{x}$

Son's one hour's work = $\frac{1}{2x}$

∴ Father and son's one hour work

$= \frac{1}{x} + \frac{1}{2x}$

$= \frac{2+1}{2x} = \frac{3}{2x}$

∴ Working together Father and son finish the job in $\frac{2x}{3}$ hours

But, by the problem they finish in 6 hours

$\Rightarrow \frac{2x}{3} = 6$

∴ x = $\frac{6\times3}{2}$ = 9 hours

∴ Time taken by the father alone to do the job = 9 hours

53. (2)

If two fractions, each of which has value between 0 and 1, then their product is always less than either of the original fraction.

Example:

Consider $\frac{1}{2}$ and $\frac{1}{3}$

Product = $\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$

Clearly $\frac{1}{6} < \frac{1}{2}$

and $\frac{1}{6} < \frac{1}{2}$

54. (4)

Average speed

$= \frac{\text{Total distance covered}}{\text{Total time taken}}$

$= \frac{\left(20\times\frac{1}{2}\right)+\left(50\times\frac{7}{2}\right)+(75\times3)}{\frac{1}{2}+\frac{7}{2}+3}$

$= \frac{10+175+225}{7}$

$= \frac{410}{7} = 58\frac{4}{7}$ mph

55. (5)

None of the given statement is correct.

56. (5)

Complement = $\frac{1}{6}$ supplement

$\Rightarrow 90-x = \frac{1}{6}(180-x)$

$\Rightarrow 90-x = 30 - \frac{x}{6}$

$\Rightarrow x-\frac{x}{6} = 90 - 30$

$\Rightarrow \frac{5x}{6} = 60$

$\therefore x = \frac{6\times60}{5} = 72$

57. (2)

I. Area of circle with radius $\sqrt{2}$

$\pi^2 = \pi(\sqrt{2})^2 = 2\pi$

$= 2 \times \frac{22}{7} = 6.2857$

II. Equilateral triangle area whose side a=4 is

$\frac{\sqrt{3}}{4}a^2 = \frac{\sqrt{3}}{4} \times 4^2$

$\sqrt{3} \times 4 = 1.732 \times 4$

$= 6.928$

III. Area of the triangle whose sides are 3, 4, 5.

$s = \frac{a+b+c}{2} = \frac{3+4+5}{2}$

$= 6$

Area $= \sqrt{s(s-a)(s-b)(s-c)}$

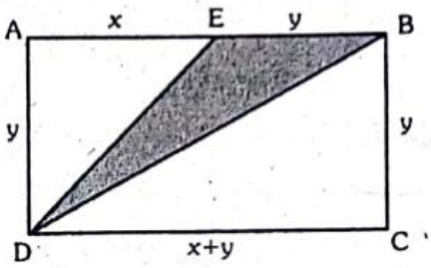
$= \sqrt{6 \times (6-3) \times (6-4) \times (6-5)}$

$\sqrt{6 \times 3 \times 2 \times 1}$

$= 6$

∴ Equilateral triangle has the largest area.

58. (5)



Area of the rectangle ABCD=(x+y)y ...(1)

Area of the triangle EDB

= Area of ΔABD-Area of ΔAED

$= \frac{1}{2}(x+y)y - \frac{1}{2}xy$

According to the problem

Area of ΔEDB = Area of the rectangle ΔBCD

$\Rightarrow \frac{1}{2}(x+y)y - \frac{1}{2}xy = \frac{1}{3}(x+y)y$

$\Rightarrow \frac{1}{2}(x+y)y - \frac{1}{3}xy = \frac{1}{2}xy$

$\Rightarrow (x+y)y\left[\frac{3-2}{6}\right] = \frac{1}{2}xy$

⇒ (x + y)y 3xy

$xy + y^2 = 3xy$

$y^2 = 2xy$

∴ y = 2x

Now Area of the rectangle ABCD

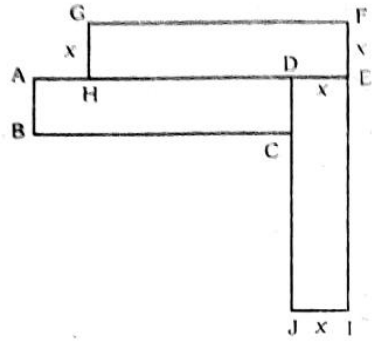
= (x + y)y

= (x + 2x) × 2x

= 3x × 2x

$= 6x^2$

59. (3)



Let the length of GFHE be y.

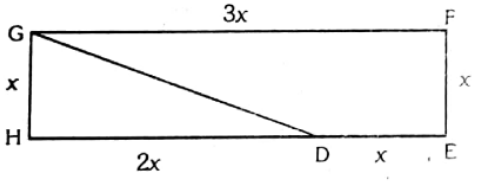
Breadth of GFHE =

Breadth of JIDE = JI = x

Area of GFFIE = xy

Given xy - $3x^2$

∴ $y = \frac{3x^2}{x} = 3x$



HD = HE-DE = 3x-x=2x

Now in right triangle GHD

$GD = \sqrt{GH^2 + HD^2}$

$= \sqrt{x^2 + (2x)^2}$

$= \sqrt{x^2 + 4x^2}$

$= \sqrt{5x^2}$

$= \sqrt{5x}$

60. (3)

A's one minute work = $\frac{1}{20}$

B's one minute work = $\frac{1}{15}$

∴ (A + B)'s one minute work

$= \frac{1}{20} + \frac{1}{15}$

$= \frac{3+4}{60} = \frac{7}{60}$

∴ Both hoses together can fill the tank in $\frac{60}{7}$

$= 8\frac{4}{7}$ minutes

61. (2)
If x = 2
then $x^2 = 4 > G$
If x = -2
then $x^2 = 4 > 0$
∴ (1) alone is not sufficient
consider (2)
$x^3 > 0$
⇒ x > 0
∴ (2) alone is sufficient

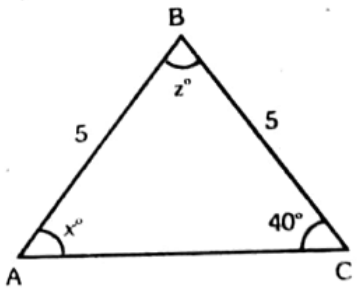
62. (1)
j is an integer
⇒ 2_j is an integer
By (1) $n = 4j^2$
$= (2_j)^2$ (1)
'take k - 2j, then k is an integer
$n = k^2$
∴ n is square of the integer k.
∴ (1) alone is sufficient
(2) alone is not sufficient.
If A= 3 ; B = 4
then $n^2 = A^2 + B^2 = 3^2 + 4^2 = 25$
⇒ n = 5
Clearly n is not an square of an integer.
However A= 15; B=20
then $n^2 = 15^2 + 20^2$
$= 625 = 25^2$
⇒ $n = 25 = (5)^2$
In this case n is a square of an integer.
∴ (2) alone is not sufficient.

63. (1)
Statement (1) alone is sufficient.
Statement (2) alone is not sufficient.

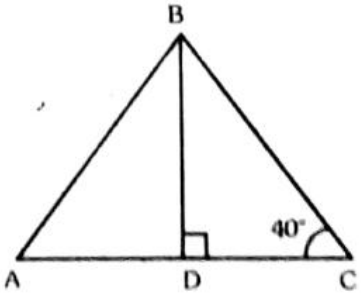
64. (5)
(2) ⇒ x = 2y
when y = 3 then x = 6
x > y
when y = -3, then x = 6
⇒ x < y
∴ (2) alone is not sufficient.
(1) alone is not sufficient.
From (1) and (2)
xy = 5
⇒ $(2y)y = 5 \Rightarrow 2y^2 = 5$
$\Rightarrow y^2 = \frac{5}{2}$
$y = \pm\sqrt{\frac{5}{2}}$
y has two solutions One positive, the other negative. Thus both statements together are not sufficient.

65. (5)
Statement (1) is not sufficient
Because if k = 9
then k is odd and divisible by 3
If k = 6 then k is even and divisible by 3
Consider (2)
If k = 81 then k is odd and $\sqrt{k} = \sqrt{81} = 9$ b divisible by 3
If k = 36 then k is even and $\sqrt{k} = \sqrt{36} = 6$ is divisible by 3.
⇒ (2) alone is not sufficient.
So (1) and (2) together are not sufficient.

66. (4)
Consider (1)

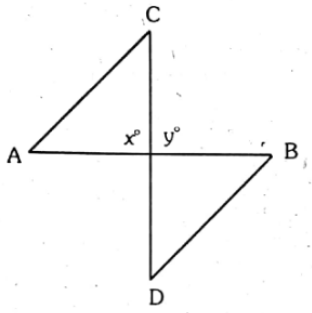


From (1) BC = 5
∴ ΔABC is on isocelesos triangle.
∴⇒ x = ∟C = 40
Now x + y + z = 180
⇒ 40 + 40+ z = 180
⇒ z = 100
(1) alone is sufficient.
Consider (2)



By (2) ∟D = 90
⇒ ΔBDC is a right triangle.
$\Rightarrow \frac{1}{2}z + 40 + 90 = 180$
$\Rightarrow \frac{z}{2} = 180\text{-}130 = 50$
∴ z = 100°
∴ (2) alone is sufficient.

67. (2)



(1) alone is not sufficient
consider (2)
x = y
Now x + y = 180°
⇒ x + x = 180°
⇒ 2x = 180°
⇒ x = 90°
∴ AB is perpendicular to CD.
∴ (2) alone is sufficient.

68. (4)
(1) alone is sufficient.
By prime number test, if no integer between 2 and $\sqrt{k}$ inclusive divides k, then k is a prime number. Consider (2)
Also by another prime number test if no integer between 2 and $\frac{k}{2}$ inclusive divides k,
then k is a prime number
∴ (2) alone is sufficient.

69. (5)
(1) and (2) alone are not sufficient.

70. (3)
(1) alone is not sufficient.
(2) alone is not sufficient.
Using both (1) and (2) we can find out the worth of the painting in January 1971.

71. (4)
Consider (1)
y > z
Also train Y starts east at 1 am.
∴ At 4 am, train Y will farther.
(1) alone is sufficient.
Consider (2)
y = 1.2 z
⇒ y > z
Clearly (2) alone is sufficient.

72. (4)
Consider (1)
Let the time taken by A be x
then time taken by B is 2x
$\Rightarrow \frac{1}{x} + \frac{1}{2} = \frac{1}{30}$
$\Rightarrow \frac{2+1}{2x} = \frac{1}{30}$
$\Rightarrow \frac{3}{2x} = \frac{1}{30}$
$\therefore x = \frac{3\times30}{2} = 45$
∴ Time taken by B to load the truck = 2x = 90 minutes
∴ (1) alone is sufficient.
Consider B
Let the time taken by B - to load the truck be B
Then $\frac{1}{45} + \frac{1}{B} = \frac{1}{30}$
$\frac{1}{B} = \frac{1}{30} - \frac{1}{45}$
$= \frac{3-2}{90} = \frac{1}{90}$
∴ Time taken by B to load the truck = 90 minutes
∴ (2) alone is sufficient.

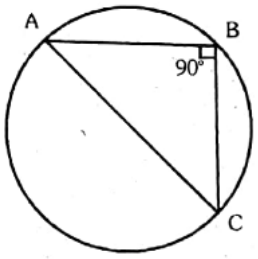
73. (2)
By (2)

The first car will travel a distance
circumference of the circle = $2\pi r$
$= \pi(2r)$
$= \pi$ times the diameter.
Since π is greater than $1\frac{1}{2} \Rightarrow$ first car is farther
$\therefore$ (2) alone is sufficient.
(1) alone is not sufficient.

74. (5)
Statement (1) and (2) are not sufficient.

75. (3)
(1) alone and (2) alone are not sufficient.
From (1) $\frac{w+x+y+z}{4} = 25$
$\Rightarrow w + x + y + z = 100$
z = 100-x-y-w
= 100-(x + y + z)
By (2)
w < 24
x < 24
y < 24
$\therefore$ x + y + z < 72
$\Rightarrow$ -(x + y + z) > -72
$\therefore$ z = 100 - (x + y + z)
>100-72
>28
$\therefore$ z must be the largest
$\therefore$ Both (1) and (2) together are necessary.

76. (1)



If $\angle x = 90°$ then by geometry AC must be a diameter.
$\therefore$ (1) alone is sufficient.
(2) alone is not sufficient.

77. (1)
Let the radius be r
by (1) Area = 25π
$\Rightarrow \pi r^2 = 25\pi$
$\Rightarrow r^2 = 25$
$\therefore$ r = 5
$\therefore$ (1) alone is sufficient.
(2) alone is not sufficient.

78. (5)
Statement (1) and (2) are not sufficient.

79. (3)
Both (1) and (2) are necessary to get the answer.

80. (2)
(2) alone is sufficient.

81. (1)
"If I had"

82. (2)
"the students"

83. (2)
"from her mother"

84. (4)
"are called independents"

85. (4)
"would have stayed at home"

86. (1)
"The company manufactures not only"

87. (2)
"means"

88. (4)
"take out shoes"

89. (1)
"No other boy"

90. (1)
"The heir to the throne"

91. (5)
No error.

92. (3)
"hard now"

93. (3)
"to know"

94. (1)
"if the tourists"

95. (3)
"the students assembled"

96. (3)
"had I known'
97. (2)
"had not been poor"
98. (4)
"during his holidays"
99. (3)
"justice"
100. (4)
"interesting novels that have recently appeared".