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Joint Entrance Management Aptitude Test (JEMAT 2020) – Practice Paper

SECTION I – ENGLISH

Directions for Questions 1-8 :

Read the passage carefully and choose the best answer out of the four alternatives .

Smith did not invent economics. Joseph Schumpeter observed that *The Wealth of the Nations* did not contain a single analytic idea, principle or method that was entirely new. Smith's achievement was to combine an encyclopaedic variety of insight, information and anecdote, and to distill from it a revolutionary doctrine. The resulting masterpiece is the most influential book on economics ever published. Remarkably, much of it speaks directly to questions that are still of pressing concern.

The pity is that Smith's great book, like most classics (of 900 pages), is more quoted than read. All sides in today's debates, about economic policy, have conspired to peddle a conveniently distorted version of its idea. If his spirit is still monitoring events, it will undoubtedly have celebrated the collapse of communism. But it must also long to meet the politicians who have taken charge of a fine reputation and not so fine profile. And put them right on one or two points.

Today Smith is widely seen as an intellectual champion of self-interest. This is a misconception. Smith saw no moral virtue in selfishness: on the contrary he saw its dangers. Still less was he a defender of capital over labour (he talked of the capitalist's 'mean rapacity'), of the rising bourgeoisie over the common folk. His suspicion of self-interest and his regard for the people as a whole come through clearly in one of his best-known remarks: "People of the same trade often meet together, even have merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices."

Far from praising self-interest as a virtue, Smith merely observed it to be a driving economic force. In *The Wealth of Nations* he explained how this potentially-destructive impulse is harnessed to the social good. What is to prevent greedy producers raising their prices until their customers can afford to pay no more? The answer is competition. If producers raise their prices too high, they create an opportunity

for one or more among them to profit by charging less and thus, selling more. In this way competition tames selfishness and regulates prices and quality. At the same time, it regulates quantities. If buyers want more bread and less cheese, their demand enables bakers to charge more and oblige cheese-mongers to charge less. Profits in bread-making would rise and profits in cheese-making would fall; effort and capital would move from one task to the other.

Through Smith's eyes, it is possible to marvel afresh at this fabulously powerful mechanism and to relish, as he did, the paradox of private gain yielding social good. Only more so, for the transactions that deliver a modern manufactured good to its customer are infinitely more complicated than those

described by Smith. In his day, remember, the factory was still a novel idea: manufacturing meant pins and coats.

A modern car is made of raw materials that have been gathered from all over the world, combined into thousands of intermediate products, sub-assembled by scores of separate enterprises. The consumer needs know nothing of all this, any more than the worker who tapped the rubber for the tires knows or cares what its final use will be. Every transaction is voluntary. Self-interest and competition silently process staggering quantities of information and direct the flow of goods. Services, capital and labour just as in Smith's much simpler world. Far-sighted as he was, he would surely have been impressed. Mind you, modern man has also discovered something else. With great effort and ingenuity, and the systematic denial of personal liberty, governments can supplant self-interest and competition, and replace the invisible hand of market forces with collective endeavour and a visible input-output table. The result is a five-year waiting list for Trabants.

Because Smith was convinced that the market would, literally, deliver the goods, he wanted it, by and large to be left alone. He said that governments should confine themselves to three main tasks: defending the people from the 'violence and invasion of other independent societies', protecting every member of society from the 'injustice or oppression of every other member of it'; and providing 'certain public works and certain public institutions, which it can never be for the interest of any individual, or small number of individuals, to erect and maintain'.

Each of these jobs arises because the market in some ways fails. In the first two cases — collective defence and the administration of justice — the failure is the so-called free-rider problem. People disguise what they are willing to pay for a service that must be provided to everybody or not at all; they want to consume it and let others meet the cost. However the third job, the provision of 'certain public works and certain public institutions' goes much wider. Indeed, to modern minds, it threatens to be all encompassing. It recognizes not only the free-rider problem but also other species of market failure notably, the effects of private transactions on third parties, or 'externalities'. Smith has in mind roads, public education, and help for the destitutes. As it turned out, millions of teachers, nurses, firemen, postmen, rubbish collectors, bus drivers and 57,000 varieties of civil servants have since marched through this opening.

Smith's thinking already seems to permit a great deal of government intervention. Add some modern economics and the floodgates open. For instance, theorists have shown that if just one price in an economy is different from the price under competition, efficiency may require every other price to be somewhat distorted as well. Less government intervention, it seems to follow, cannot be assumed to be better.

Competition itself has changed out of recognition. Modern economies, it is said, are driven not by countless small producers, but by a handful of giant enterprises and monopolistic trade unions. And the rapid pace of industrial change has made the externality of pollution far more obvious than before, Smith, admittedly, is a bit thin on global warming.

Above all, many have forgotten something that Smith saw clearly, that every advantage granted by government to one part of the economy puts the rest at a disadvantage. Accordingly, he talked not of 'intervention' — a too-neutral word — but of 'preference' and 'restraint'. Modern governments offer preference as though it costs nothing: the beneficiaries demand it as a right.

But Smith went further than revealing the penalty in every preference. He also understood that

ministers, like markets, fail. A great virtue of unfettered competition, he said, was that ‘the sovereign is completely discharged from a duty, in attempting to perform which he must always be exposed to innumerable delusions, and for the proper performance of which no human wisdom or knowledge could ever be sufficient’. Many of the reasons why markets fail are also reasons why governments fail at the same task. If the consumer refuses to reveal his preferences in a market setting, how are governments to discover them? All too often, moreover, government intervention is itself a cause of the market breaking down which becomes the reason for further rounds of intervention, and so on. In Britain, think of tax preferences for housing, rent controls, planning and regulations. In America, think of tax preferences for borrowing, deposit insurance, leverage buy-outs and financial market regulation.

In one crucial respect, Smith’s arguments are even more powerful now than they were in his days. Naturally, he favoured free trade to prevent market failure: “By means of glasses, hotbeds, and hotwalls, very good grapes can be raised in Scotland, and very good wine, too, can be made of them at about 30 times the expense for which at least equally good can be brought from foreign countries. Would it be a reasonable law to prohibit the importation of all foreign wines, merely to encourage the making of claret and burgundy in Scotland?” Two centuries later, free trade is not just a matter of the cheapest supply; it is also the best way to force producers that might otherwise be near-monopolies to compete. It is perfect folly to complain that today’s big companies render the invisible hand powerless, and to conclude that barriers to trade must go up: trade and competition need each other more than ever before.

Smith was a pragmatist. The principles he expounded on the proper role of government are flexible if anything, too flexible. They are a reminder that imperfect markets are usually cleverer than imperfect governments, but they cannot draw a line to separate good intervention from bad. If governments and voters could be guided by two Smithian precepts, however, the market system that has worked so well would work ever better.

First, the competitive clash of self-interest against self-interest, however imperfect, has built-in safeguards. Before governments exert their monopoly power to displace it, they must justify themselves. Let the burden of proof always be on them. Second, when preference or restraint are judged to be necessary, use market forces to apply them. Tariffs are better than quotas; taxes are better than bans or direct controls; allocating resources by price (for example, in health or education) is better than allocating them by fiat, even if the services are then provided ‘free’ (but never forget those inverted commas) to their consumers.

1. Smith’s attitude to the virtues of self-interest can be best described as

- (A) pragmatic (B) cynical (C) skeptical (D) supportive

2. All of the following are reasons for market failure, except

- (A) the effects of private transactions on third parties.
(B) people would like to consume goods without paying for them
(C) unfettered and unbridled trade
(D) government intervention.

3. Adam Smith is most likely to agree with which of the following statements?
- (A) It is necessary for capital to exploit labour if competition and low prices are endangered.
 - (B) Businessmen would form cartels, given the chance
 - (C) Lesser government intervention is better
 - (D) Collective endeavour could be the basis of economic growth.
4. Which of the following situations is not an instance of market failure?
- (A) A government practising apartheid
 - (B) A specialist doctor charging high fees
 - (C) Poor development of roads and railways
 - (D) A murderer going scot-free
5. The 'free rider' problem results in the need for all of the following, except
- (A) government laws to prevent crime.
 - (B) a national defence budget
 - (C) a national R & D centre for an industry.
 - (D) a United Nations Peace Keeping Force.
6. We can conclude from the passage that
- (A) government control is often self-propagating
 - (B) rulers are prone to delusions.
 - (C) governments often fail because markets also fail
 - (D) government actions rarely have justifications.
7. Based on the passage, we could say that Adam Smith would not support
- (A) government intervention
 - (B) corporation.
 - (C) taxes.
 - (D) import licences.
8. Based on the passage, all of the following can be inferred, except
- (A) governments must act only when necessary
 - (B) high custom duties are an acceptable way to restrict a change.
 - (C) high taxation is better than bans.
 - (D) the role of governments must be more flexible.

Directions for questions 9 – 12 :

The opening line of a paragraph is given. From the alternatives, choose the one that rearranges the statements numbered I, II, III and IV such that they form a coherent paragraph and follow the opening line.

9. An established business which is able and willing to invest in its development into mail order trading will usually engage the services of a suitable advertising agency.

I. Unfortunately, however, too often the newcomer is left to his own creative devices, which are likely to be few and underdeveloped.

II. But should a suitable agency be persuaded to accept the account, life should be much easier for the new business.

III. But an individual beginner with limited financial resources will be extremely fortunate to find such an agency.

IV. There are few agencies with the real depth of experience in the mail order field and even fewer that will be prepared to invest their time and money in nursing a beginner without the inducement of a substantial fee.

(A) IV, III, II, I

(B) III, IV, II, I

(C) III, I, IV, II

(D) I, III, IV, II

10. Jenny decided to be a great producer, and The Sheik was the story she chose to produce

I. Andrew refused to play the part of The Sheik.

II. Jenny was equally determined to be the heroine, so they argued back and forth

III. But she ran into snag at once.

IV. He wanted to be the lady who gets carried off on the Sheik's horse

(A) I, II, III, IV

(B) I, IV, II, III

(C) III, I, IV, II

(D) I, III, IV, II

11. As I went about to the other workrooms, I realised that every painting was a self-portrait even when it was a still life or a scene over the roofs of Paris.

I. With every brush stroke the artist was mercilessly exposed; he could conceal nothing, he could pretend to be another person, but in the end, he would fool no one.

II. For no man ever pictured anything but himself, his core, the things he was basically

III. An artist had one thing to say, and only one; he might flail about, seek new techniques, forms, colours, combinations, subjects, but intrinsically, he would always paint the same canvas, write the same book.

IV. Only now, years after having read through the works of Shakespeare, Dickens and Scott, I realise

that even the most prolific writer created only one novel; the true and complete portrait of himself.

- (A) II, I, IV, III (B) I, II, III, IV (C) III, I, IV, II (D) I, IV, III, II

12. India and Japan have finally agreed to disagree.

I. But last week on his visit to India, Japanese Prime Minister Yoshiro Mori made it clear that while it may not be business as usual until New Delhi signs the CTBT, Tokyo wasn't averse to chipping away at sanctions to develop a 'new partnership for the 21st century'.

II. The main thrust of this new partnership, of course, is in the field of information technology.

III. As a start Mori announced Japanese aid for two major Indian projects, totalling about \$178 million, would resume.

IV. Tokyo was one of the harshest critics of Pokhran II, and imposed stringent sanctions.

- (A) I, III, II, IV (B) IV, I, II, III (C) IV, I, III, II (D) III, II, I, IV

Directions for questions 13 – 17 :

Fill in the blanks of the following sentences using the most appropriate word or words from among the options given for each.

13. When children become more experienced with words as visual symbols, they find that they can gain meaning without making ___ sounds.

- (A) aural (B) audible (C) vocal (D) intelligible

14. To a greater or lesser degree all the civilised countries of the world are made up of a small class of rulers ___ and of a large class of subjects ___ .

- (A) formed by a small minority ... who are uncivilised
(B) powerfully corrupt ... pointless crusaders
(C) corrupted by too much power ... corrupted by too much passive obedience
(D) who are ruled ... who ruled

15. Most political leaders acquire their position by causing a large number of people to believe that these leaders are ___ by altruistic desires.

- (A) actuated (B) convinced (C) categorised (D) led

16. ___ seems to be casting its shadow over virtually all commentaries and discussions on the fixed income securities markets in the recent past.

- (A) The government's huge borrowing programme in the urgent fiscal

- (B) The mammoth borrowing programme of the government in the current fiscal
- (C) In the current fiscal, the mammoth borrowing programme of the government
- (D) The huge borrowing programme of the government for the current fiscal

17. The ___ killing of Kashmir's power minister by a Pakistani terrorist organisation is obviously meant as a/an ___ from Pak to the leaders of the Hurriyat Conference against entering into a political dialogue with the Indian Government.

- (A) ruthless treat
- (B) lethal remembrance
- (C) brutal warning
- (D) bloody indicator

Directions for questions 18 – 22 :

In each of the following sentences, part/parts of the sentence is/are left blank. Beneath each sentence four different ways of completing the sentence are indicated. Choose the best alternative from among the four.

18. A cost-effective solution to the problem of airport congestion is to provide high-speed ground transportation

- (A) between major cities lying 200 to 500 miles apart.
- (B) within major cities lying 200 to 500 miles apart
- (C) costing far less than to expand existing ones
- (D) lying 200 to 500 miles apart.

19. Even though most educational institutions retain royalties from faculty members' inventions,

- (A) the royalties from books and articles are retained by the faculty members.
- (B) the faculty members retain the royalties from the books and articles they write.
- (C) the books and articles written by the members are retained by them.
- (D) they retain, from books and articles, the royalties from these.

20. It was discovered by researchers that people who have low levels of immune system activity

- (A) tend to score much lower on tests than do people with normal immune system activity.
- (B) tends to score as much lower than people with normal immune system.
- (C) tended to score as much as normal people in their immune system.
- (D) showed tendency to score much lower on tests as people with normal immune activity.

21. Today's businesses are looking for innovative ways to differentiate themselves in the minds of their

customers

- (A) to build loyalty and allegiance.
- (B) to build honesty and abeyance.
- (C) to rebuild new strategies.
- (D) to seek and to be sought.

22. It is scarcely to be expected that the ___ entities who bestride the world are going to ___ in the blinding light of a change of heart.

- (A) governing leave
- (B) rich fall
- (C) powerful crumble
- (D) popularbe relegated

Directions for questions 23 – 25 :

Each of the following questions has a paragraph from which the last sentence has been deleted. From the given options, choose the one that completes the paragraph in the most appropriate way.

23. I am sometime attacked for imposing “rules”. Nothing could be farther from the truth. I hate rules. All I do is report on how consumers react to different stimuli. I may say to a copywriter, “Research shows that commercials with celebrities are below average in persuading people to buy products. Are you sure you want to use a celebrity?” Call that a rule? Or I may say to an art director, “Research suggests that if you set the copy in black type on a white background, more people will read it than if you set it in white type on a black background.”

- (A) Guidance based on applied research can hardly qualify as “rules”.
- (B) Thus, all my so called “rules” are rooted in applied research.
- (C) A suggestion perhaps, but scarcely a rule.
- (D) Such principles are unavoidable if one wants to be systematic about consumer behaviour.

24. In the evolving world order, the comparative advantage of the United States lies in its military force. Diplomacy and international law have always been regarded as annoying encumbrances, unless they can be used to advantage against an enemy. Every active player in world affairs professes to seek only peace and to prefer negotiation to violence and coercion.

- (A) However, diplomacy has often been used as a mask by nations who intended to use force.
- (B) However, when the veil is lifted, we commonly see that diplomacy is understood as a disguise for the rule of force.
- (C) However, history has shown that many of these nations do not practise what they profess.
- (D) However history tells us that peace is professed by those who intend to use violence.

25. Age has a curvilinear relationship with the exploitation of opportunity. Initially, age will increase

the likelihood that a person will exploit an entrepreneurial opportunity because people gather much of the knowledge necessary to exploit opportunities over the course of their lives, and because age provides credibility in transmitting that information to others. However, as people become older, their willingness to bear risks declines, their opportunity costs rise, and they become less receptive to new information.

- (A) As a result, people transmit more information rather than experiment with new ideas as they reach an advanced age.
- (B) As a result, people are reluctant to experiment with new ideas as they reach an advanced age.
- (C) As a result, only people with lower opportunity costs exploit opportunity when they reach an advanced age
- (D) As a result, people become reluctant to exploit entrepreneurial opportunities when they reach an advanced age.

Directions for questions 26-30 :

In each of the following sentences, a part of the sentence is underlined.

Beneath each sentence, four different ways of phrasing the underlined part are indicated. Choose the best alternative among the four.

26. No doubt, in a commercial sense the purpose of these activities is to gain a goodwill and a market, but the mode of achievement of this objective cannot be confined in the limited meaning attributes to the other word.

- (A) to gain a goodwill and a market, but the mode of achievement of this objective cannot be confined in the limited meaning attributed to the other word.
- (B) to gain goodwill and a market but the mode of achieving this objective cannot be confined to the limited meaning attributed to the other word.
- (C) to gain a goodwill and a market, but the mode of achievement of this cannot be confined in the limited meaning attributed to the other word.
- (D) gaining a goodwill and markets, but the mode of achievement of this cannot be confined in the limited meaning attributed to the other word.

27. In what is seen as yet another major victory for India, a WTO dispute settlement panel has given ruling in India's favour in the case involving the imposition of definitive anti-dumping duties by the European commission on cotton bed linen exports from this country.

- (A) In which is seen as another major victory for India, a WTO dispute settling panel has given a ruling in India's favour
- (B) In what is seen as another major victory for India, a WTO dispute settlement panel has given a

ruling in India's favour

(C) In that is seen as yet another major victory for India, a WTO disputes settlement panel has given a ruling in India's favour

(D) That it is seen as yet another major victory in India, a WTO disputes settlement panel has given a ruling in India's favour

28. Adding to this the restoration of normalcy between the two largest democracies and the outcome is sure a historic achievement.

(A) Add to this the restoration of normalcy between the two largest democracies and the outcome is purely an historic achievement.

(B) Add to this the restoration of normalcy between the two larger democracies and the outcome is surely an historic achievement.

(C) Add to this the restoration of normalcy between the two largest democracies and the outcome is surely a historic achievement.

(D) Adding to this, the restoration of normalcy between the two largest democracies and the outcome is purely an historic achievement.

29. A century ago, imperial China said to be home to 100 million drug users, languid addicts who filled opium dens and closed their eyes as their proud country ebbed into chaos and war.

(A) A century ago, imperial China said to be home to 100 million drug users,

(B) A century ago, imperial China was said to be home to 100 million drug users,

(C) A century ago, imperialist China said to be the home to the 100 million drug users,

(D) A century ago, imperialistic China was said to be the home to the 100 million drug users,

30. Each rule in the manual had to be rewritten as marketers try to reinvent their pitch.

(A) Every rule in the manual was to be rewritten as marketer try to reinvent their pitch.

(B) Every rule in the manual has to be rewritten as marketer try to reinvent their pitch.

(C) Every rule in the manual had to be rewritten as marketer tried to reinvent their pitch.

(D) Every rule in the manual has to be rewritten as the marketing tries to reinvent their pitch.

Directions for questions 31-32 :

In each the following questions, a related pairs of words or phrases is

followed by four pairs of words or phrases. Select the pair that best describes a relationship similar to that expressed in the original pair.

31. MODERATOR: DEBATE

- (A) legislator: election (B) chef: banquet (C) auditor: lecture (D) umpire: game

32. DELIRIUM: DISORIENTATION

- (A) paralysis: immobility (B) anorexia: pain (C) insomnia: fretfulness (D) rash: vaccination

Directions for questions 33-34 :

Each of these question consists of a word, followed by four words. Choose the word that is most nearly opposite in meaning to the word given in question:

33. CYNICAL

- (A) Trusting (B) Gallant (C) Brazen (D) Tiresome

34. AMALGAMTE

- (A) Merge (B) Consecrate (C) Impoverish (D) Split

Directions for questions 35-36 :

Each of these questions consists of a word followed by four words. Choose the word that is most nearly the same in meaning to the word given.

35. AFFRONT

- (A) Exile (B) Contour (C) Eruption (D) Indignity

36. OMINOUS

- (A) Threatening (B) Powerful (C) Ubiquitous (D) Burdensome

Directions for questions 37-40 :

Sentences given in each question, when properly sequenced, form a coherent paragraph. The first and last sentences are 1 and 6, and the four in-between are labelled I, II, III and IV. Choose the most logical order of these four sentences from among the four given choices to construct a coherent paragraph from sentences 1 to 6.

37. 1. India's experience of industrialisation is characteristic of the difficulties faced by a newly independent developing country.

I. In 1947, India was undoubtedly an under-developed country with one of the lowest per capita

incomes in the world.

II. Indian industrialization was the result of a conscious, deliberate policy of growth by an indigenous political elite.

III. Today India ranks fifth in the international community of nations if measured in terms of purchasing power.

IV. Even today, however, the benefits of Indian industrialisation since independence have not reached the masses.

6. Industrialisation in India has been a limited success; one more example of growth without development.

(A) III, IV, I, II

(B) IV, III, II, I

(C) III, I, II, IV

(D) II, I, III, IV

38. 1. The necessity for regional integration in South Asia is underlined by the very history of the last 45 years since the liquidation of the British empire in this part of the world.

I. After the partition of the Indian subcontinent, Pakistan was formed in that very area which the imperial powers had always marked out as the potential base for operations against the Russian power in Central Asia.

II. Because of the disunity and ill-will among the South Asian neighbours, particularly India and Pakistan, great powers from outside the area could meddle into their affairs and thereby keep neighbours apart.

III. It needs to be added that it was the bountiful supply of sophisticated arms that emboldened Pakistan to go for warlike bellicosity towards India.

IV. As a part of the cold war strategy of the US, Pakistan was sucked into Washington's military alliance spreading over the years.

6. Internally too, it was the massive induction of American arms into Pakistan which empowered the military junta of that country to stub out the civilian government and destroy democracy in Pakistan.

(A) I, III, II, IV

(B) I, II, IV, III

(C) III, II, I, IV

(D) IV, III, I, II

39. 1. It is often said that good actors can get out of a play more than the author has put into it.

I. A good actor, bringing to a part his own talent, often gives it a value that the layman on reading the play had not seen in it, but at the utmost, he can do no more than reach the ideal that the author has been in his mind's eye.

II. In all my plays I have been fortunate enough to have some of the parts acted as I wanted; but in none have I had all the parts so acted.

III. That is not true.

IV. He has to be an actor of address to do this: for the most part, the author has to be satisfied with an approximation of the performance he visualised.

6. This is so obviously inevitable, for the actor who is suited to a certain role may well be engaged and you have to put up with the second or third best, because there is no help for it.

- (A) II, I, III, IV (B) IV, I, III, II (C) III, I, IV, II (D) IV, III, II, I

40. 1. All human beings are aware of the existence of a power greater than that of the mortals — the name given to such a power by individuals is an outcome of birth, education and choice.

I. Logically, therefore such a power should be remembered in good times also.

II. Their other philanthropic contributions include the construction and maintenance of religious places such as temples or gurudwaras.

III. Industrial organisations also contribute to the veneration of this power by participating in activities such as religious ceremonies and festivities organised by the employees.

IV. This power provides an anchor in times of adversity, difficulty and trouble.

6. The top management/managers should participate in all such events, irrespective of their personal choice.

- (A) III, I, IV, II (B) II, III, I, IV (C) IV, I, III, II (D) IV, II, III, I

SECTION II – MATHEMATICS

41. The product of the ages of three sisters is 36. The sum of their ages is a prime number. The youngest sister likes ice cream. The product of the ages of the two elder sisters is

- (A) 36 (B) 12 (C) 13 (D) 7

42. The number of prime factors in the expression $7^{17} \times 11^2 \times 13^4 \times 17^3$ is

- (A) 44 (B) 459 (C) 2 (D) 10

43. The number of zeroes in $23!$ is

- (A) 8 (B) 12 (C) 4 (D) 5

44. What is the remainder when 783 is divided by 20?

- (A) 13 (B) 3 (C) 7 (D) None of these

45. What is the last digit in the finite decimal representation of the number $(1/5^{2003})$?

- (A) 2 (B) 4 (C) 6 (D) 8

46. A student studying the weather for d days observed that (i) it rained on 7 days, morning or afternoon; (ii) when it rained in the afternoon, it was clear in the morning; (iii) there were five clear afternoons; and (iv) there were six clear mornings. Then d equals

- (A) 7 (B) 11 (C) 10 (D) 9

47. A, B and C are three commodities. A packet containing 5 pieces of A, 3 of B and 7 of C costs Rs 24.50. A packet containing 2, 1 and 3 of A, B and C respectively costs Rs 17.00. The cost of a packet containing 16, 9 and 23 items of A, B and C respectively

- (A) is Rs 55.00 (B) is Rs 75.50 (C) is Rs 100.00
(D) cannot be determined from the given information

48. A thief was stealing diamonds from some jewelery store. On his way out, he encountered three guards; each was given half of the existing diamonds and two over it by the thief. In the end, he was left with one diamond. How many did the thief steal?

- (A) 40 (B) 36 (C) 42 (D) 38

49. A man started from home at 14:30 hours and drove to a village, arriving there when the village clock indicated 15:15 hours. After staying for 25 minutes, he drove back by a different route of length $(5/4)$ times the first route at a rate twice as fast, reaching home at 16:00 hours. As compared to the clock at home, the village clock is

- (A) 10 minutes slow (B) 5 minutes slow
(C) 5 minutes fast (D) 20 minutes fast

50. When you reverse the digits of the number 13, the number increases by 18. How many other two-digit numbers increase by 18 when their digits are reversed?

- (A) 5 (B) 6 (C) 7 (D) 8

51. A group of 630 children is arranged in rows for a group photograph session. Each row contains three fewer children than the row in front of it. What number of rows is not possible?

- (A) 3 (B) 4 (C) 5 (D) 6

52. The sum of four consecutive two-digit odd numbers, when divided by 10, becomes a perfect square. Which of the following can possibly be one of these four numbers?

- (A) 21 (B) 25 (C) 41 (D) 67

Directions for questions 53 – 55 :

A cloth merchant has a strange problem, his metre scale contracts 10% in length in winter and expands 10% in length in summer. He sells only one type of fabric throughout the year. The unit price of the

fabric also remains the same throughout the year.

53. If the ratio of the volume sold in summers and winters is 3 : 7, find the profit/loss percentage in the

entire year if the trader professes to selling at his cost price.

(A) 4.04% profit (B) 4.04% loss (C) 5.05% profit (D) No profit, no loss

54. Assuming that the sales volume are the same in both the seasons, what is the ratio of the prices if the trader makes no profit, no loss?

(A) 9 : 11 (B) 11 : 9 (C) 1 : 1 (D) Data insufficient

55. If the selling price per metre in both the seasons is same as the cost price per metre and is equal to Rs. 990 per metre, what is the loss/profit the trader incurs per metre of fabric?

(A) Rs. 40 (B) Rs. 20 (C) Rs. 10 (D) No profit, no loss

Direction for questions 56 – 57 :

An airline has a certain free luggage allowance and charges for excess luggage at a fixed rate per kg. Two passengers, Robert and Peter have 60 kg of luggage between them and are charged Rs 1200 and Rs 2400 respectively for excess luggage. Had the entire luggage belonged to one of them, the excess luggage charge would have been Rs 5400.

56. What is the weight of Peter's luggage?

(A) 20 kg (B) 25 Kg (C) 30 Kg (D) 35 Kg

57. What is the free luggage allowance?

(A) 10 Kg (B) 15 Kg (C) 20 Kg (D) 25 Kg

58. Two identical vessels are filled with alcohol. From the first vessel 'a' litres of the solution is taken out and replaced with 'a' litres of water. From the resulting mixture 'a' litres of the mixture is removed and again replaced with 'a' litres of water. The same operation is done in the second vessel the same number of times, but the amount of solution removed and replaced with water is '2a' litres.

What fraction of the volume of the vessels is 'a' if the strength of alcohols in the two vessels finally is in the ratio 25 : 16?

(A) $\frac{1}{4}$ (B) $\frac{4}{5}$ (C) $\frac{2}{3}$ (D) $\frac{1}{6}$

59. A firm has tractors of four models A, B, C and D. Four tractors (two of model B and one each of models C and D) plough a field in 2 days. Two model A tractors and one model C tractor take

3 days to do this job. Three tractors one each of models A, B and C take 4 days to do the same task. How long will it take to do the job if a team is made up of four tractors of different models?

- (A) $10/7$ days (B) 2 days (C) $13/7$ days (D) $12/7$ days

Direction for questions 60-61 :

In an examination, 6,300 students appeared comprising of four papers and a student is considered passed if and only if he passes in all four papers.

Passed – 1,430

Passed in history – 3,630

Passed in geography – 3,660

Passed in civics – 3,510

Passed in economics – 3,570

Passed in at least three subjects – 2,630

60. How many candidates passed in geography, but failed in one or more subjects?

- (A) 1,200 (B) 1,820 (C) 2,230 (D) 3,670

61. How many candidates failed because of having failed in two or more subjects?

- (A) 790 (B) 1,820 (C) 2,230 (D) 3,670

62. A painter needs 3 days to paint the walls of a room. How long would it take working at the same rate, to paint a room twice as long, twice as wide and twice as high?

- (A) 6 days (B) 9 days (C) 24 days (D) None of these

63. One side of an equilateral triangle is 25 cm. The mid-points of the sides are joined to form another triangle, whose mid-points are again joined to form still another triangle. This process is continued infinitely. The sum of the perimeters of all the triangles approaches

- (A) $(625 / \sqrt{3})$ cm (B) 175 cm (C) 150 cm (D) $150\sqrt{3}$ cm

64. Ashok's watch is 15 min slow, but he thinks it is 10 min fast. Vikram's watch is 10 min fast, but he thinks it is 15 min slow. Both plan to catch a flight that leaves at 7 o'clock. Who will reach the airport first if both reach the airport exactly at the time of departure according to their watches?

- (A) Vikram, 50 min before Ashok (B) Both will reach together at 7 o'clock
(C) Ashok, 45 min before Vikram (D) Ashok, 30 min before Vikram

65. The least value of $3^x + 3^{-x}$ is

- (A) 2 (B) 1 (C) $2/3$ (D) 0

66. If $a^2 - b^2 = 41$, and a and b are positive integers with $a > b$, the value of ab is

- (A) 120 (B) 280 (C) 420 (D) information insufficient

67. There are four married couples in a club. The number of ways of choosing a committee of three members so that no complete couple appears in the committee is

- (A) 4 (B) 8 (C) 16 (D) 32

68. A cube is inscribed in a sphere and another sphere is inscribed in the cube. What is the ratio of surface areas of the outer sphere and the inner sphere?

- (A) 3 : 1 (B)     (C) 4 : 1 (D) 2 : 1



69. Four dice are rolled. The number of possible outcomes in which at least one die shows 2 is

- (A) 1296 (B) 625 (C) 671 (D) None of these

70. A fair coin is tossed four times. The probability that the number of heads is not equal to the number of tails is

- (A) $1/2$ (B) $3/8$ (C) $5/8$ (D) $3/4$

71. A semi-circle is drawn with AB as its diameter. From C , a point on AB , a line perpendicular to AB is drawn meeting the circumference of the semi-circle at D . Given that $AC = 2$ cm and $CD = 6$ cm, the area of the semi-circle (in sq. cm) will be

- (A) 32  (B) 50   (C)     (D) 40.5 

72. There are 6 tasks and 6 persons. Task 1 cannot be assigned either to person 1 or person 2; task 2 must be assigned to either person 3 or person 4. Every person is to be assigned one task. In how many ways can the assignment be done?

- (A) 144 (B) 192 (C) 180 (D) 360

73. Let $f(x) = \max(2x + 1, 3 - 4x)$, where x is any real number. Then the minimum possible value of $f(x)$ is

- (A) $1/3$ (B) $2/3$ (C) $4/3$ (D) $5/3$

74. The value of $\log_2 10 - \log_8 125$ is

- (A) $1 - \log_2 5$ (B) 1 (C) 0 (D) $1 - 2 \log_2 5$

75. The total number of possible arrangements of 3 letters chosen from the word CALCULUS is

- (A) 36 (B) 96 (C) 60 (D) None of these

76. Suppose that $F(n + 1) = (2F(n) + 1) / 2$, for $n = 1, 2, 3 \dots$ and $F(1) = 2$. Then $F(101)$ equals
(A) 50 (B) 52 (C) 54 (D) None of these

77. The value of a for which the sum of the squares of the roots of the equation

$x^2 - (a - 2)x - a - 1 = 0$, assumes the least value is
(A) 0 (B) 1 (C) 2 (D) 3

78. The number of proper subsets which can be formed out of the letters of the word PRIME is

(A) 31 (B) 32 (C) 16 (D) 20

79. There is a single 21 \times 3 – foot vertical palm tree growing in the middle of a large flat desert island. On a certain day, the sun will rise at 6:00 am and set at 6:00 pm. At noon on that day, the sun will be directly overhead and the trunk of the palm tree will cast no shadow. A traveller lay down the night before this special day, and was awakened in the morning when the sun's rays reached his eyes, which was 21 feet due west from the tree. To the nearest minute at what time did he wake up?

(A) 8 :00 am (B) 9 : 15 am (C) 9 : 45 am (D) None of these

80. Four prime numbers are written down in ascending order of magnitude. The product of the first three is 385 and that of the last three numbers is 1309. Find the sum of the second and the fourth numbers.

(A) 24 (B) 16 (C) 28 (D) 22

SECTION III – LOGICAL REASONING

Direction for questions 81-85 :

Answer the questions based on the following information :

Five friends Amit, Betty, Cathy, Danny and Earl each play one of the five games football, badminton, table tennis, carrom and softball. Also each one of them likes to eat one of Chinese, South Indian, Gujarati, Italian or Mughlai food. Football, table tennis and softball are all ball games. Table Tennis and carrom are indoor games.

I. Amit does not like South Indian and Mughlai food and plays a ball game.

II. Betty and Danny do not play ball games and one of them likes Italian food.

III. Cathy hates Mughlai food and plays an indoor ball game.

IV. Earl has Chinese food and plays softball.

81. Who plays table tennis?

- (A) Amit (B) Betty (C) Cathy (D) Cannot be determined

82. Amit's favourite food and game are respectively

- (A) Italian and table tennis (B) Mughlai and carrom
(C) Gujarati and football (D) Cannot be determined

83. Who likes Italian food?

- (A) Betty (B) Cathy (C) Danny (D) Cannot be determined

84. Who plays carrom?

- (A) Betty (B) Cathy (C) Danny (D) Cannot be determined

85. Which of the following cannot be a possible combination?

- (A) Earl, Chinese, softball (B) Betty, Italian, carrom
(C) Danny, Mughlai, badminton (D) Cathy, South Indian, football

Direction for questions 86 – 90 :

Read each of the passages and answer the question that follows it.

86. A new battery introduced into the market lasts 50 per cent longer than ordinary alkalines and discharges energy more quickly. The cathodes of today's batteries typically use manganese dioxide and during discharge two molecules of this compound chemically react and absorb two electrons.

The cathode of the new battery relies on a pure form of iron which can absorb three electrons.

It can be inferred from the above passage that

- (A) the new battery will eventually cost more than the conventional alkaline batteries.
(B) manganese dioxide is not suited to make alkaline batteries.
(C) absorption of three electrons by iron used in the cathode is responsible for the longer life of the battery.
(D) the energy discharge of a battery is inversely proportional to its life.

87. To understand refrigeration, pour a small quantity of petrol in your hand and expose it to the atmosphere. The petrol evaporates leaving a cooling sensation. This is because, the petrol has taken the heat from the hand and transformed it into vapour.

The line of reasoning used in the above argument is

- (A) providing an example for a generalised phenomenon.
- (B) drawing an analogy between two similar phenomena.
- (C) pointing out the contrast between two apparently identical phenomena.
- (D) comparing the similarities and differences between two causes.

88. Too much meat and too little fruit and fibre could be the cause of 80 per cent of intestinal cancer. Even 10 per cent of lung cancer risk seems to be dietary. To avoid such problems it is advisable for those in Northern Europe and in the US to double their intake of plant-based food in line with the Mediterranean diet.

Which of the following can be inferred from the above statement?

- (A) More number of people use non-vegetarian caterers.
- (B) Cancer is more rampant in the US.
- (C) The diet of Northern Europe and the US comprises mainly of meat.
- (D) Mediterranean diet is a planned diet for people suffering from cancer.

89. If the water of a lagoon is grimy, the bottom cannot be visible. Which of the following is analogous to the above statement?

- (A) Real depth is different from apparent depth.
- (B) Body and mind are two sides of the same coin.
- (C) One cannot predict a person's behaviour unless one knows him closely.
- (D) Only when the mind is made tranquil, is it possible for the knowledge of the self to be revealed.

90. In order to ease the traffic congestion, the transport planners decided to have a sophisticated system of elevated monorail travel in the city. However, it was pointed out by somebody that a metro rail system would be a more effective solution to the traffic problem. The plan was thus stalled. Moreover, since a budget had not been drawn up for the project, it was deemed fit to stall the work of the monorail for some time. In the meanwhile, the traffic planners of the city decided to build an

efficient system of subways and flyovers in the city with the aim of easing the same problem. At the instant when the planners were preparing to award the contracts to the concerned parties, the transport planners came up with the contention that the subways interfered with the site of a pillar of the monorail system. The traffic planners had to give up the idea and think of other possible solutions. We can infer which of the following from the above passage?

- (A) The city authorities felt that the monorail system was essentially impractical.
- (B) There is a strong contention between the two groups of planners in the city.
- (C) The monorail system will be revived in the future.
- (D) None of these

91. If in a code PREMIER is written as XOILSIO, ANTAGONISE is written as MONMZBQSXI, then how can REPORT be written in the same code ?

- (A) OIXBMN (B) OIXBON (C) OIQBON (D) OIXBOX

92. In a certain code language TRIANGLE is written as RSGBLHJF. How is CROWN written in that code ?

- A) ASMXL B) ATMXL C) AZNXL D) ASMXM

93. Three logicians — A, B and C are wearing hats, which they know are either black or white but not all white. A can see the hats of B and C; B can see the hats of A and C; C is blind. Each is asked in turn if they know the colour of their own hats. The answers are ‘A : No, B : No, C : Yes’. What is the colour of C’s hat?

- (A) Black (B) White (C) Black if A is wearing a white hat d. Cannot be determined

94. How many flowers do I have if all of those are roses except two, all of them are tulips except two, and all of them are daisies except two?

- (A) 2 (B) 3 (C) 4 (D) 5

95. There are two cities A and B, separated by a time gap of 12 hr. A friend from city A calls up a friend in city B. He asks him the time at that place. To his surprise he finds that the time at B is same as the time at A. If both the friends are wearing a normal analog watch, what time is it in A?

- (A) 6 or 12 o’clock (B) 3 or 9 o’clock
(C) For any value (D) Data insufficient

Direction for questions 96 – 98 :

Read each of the problems given below and choose the best answer from among the given choices.

96. Ash, Chettiar, Jaanu, Krishna and Liz are professional deep-sea divers. Ash is at a depth of 210 m. Jaanu is 47 m above Ash. Chettiar is 87 m below Jaanu. Krishna is 30 m below Liz. Liz is 110 m above Ash. At what depth (in metres below sea level) is each of the divers?

- (A) Ash 100, Jaanu 130, Chettiar 250, Krishna 163, Liz 210 below sea level
- (B) Ash 210, Jaanu 163, Chettiar 250, Krishna 100, Liz 130 below sea level
- (C) Ash 210, Jaanu 163, Chettiar 250, Krishna 130, Liz 100 below sea level
- (D) Ash 163, Jaanu 250, Chettiar 100, Krishna 210, Liz 130 below sea level

97. I started out the journey from the badlands and got my car tank full to its capacity, 12 gallons exactly. However, the moment I started out, the fuel tank sprung a leak. I travelled at 50 mph until I ran out of fuel exactly 4 hr later. I know that the car runs 25 miles for each gallon. How much fuel had I lost through the leak?

- (A) 4 gallons
- (B) 5 gallons
- (C) 6 gallons
- (D) 3 gallons

98. A sequence of odd numbers is written in the following manner:

1, 3, 3, 3, 5, 5, 5, 5, 5, 7, 7, 7, 7, 7, 7, 7 . . . so on. If the sequence is written till the 200th term, which is the last term of the sequence?

- (A) 39
- (B) 29
- (C) 27
- (D) 60

Direction for questions 99 – 100 :

Answer the questions based on the following -

John lives with his wife, sons, daughters-in-law and the sons' children. (All his sons, daughters-in-law and sons' children stay with John. No one else stays with him). He has six sons. Each of the sons has an equal number of children.

99. The total number of persons staying with John is equal to which of the following

- (A) 25
- (B) 32
- (C) 26
- (D) 33

100. We can now (that is, after answering the above question) say that the total number of grand children in the family exceeds the number of fathers in the family by

- (A) 6
- (B) 18
- (C) 19
- (D) 5