

INSTRUCTIONS

1. Read the instructions given at the beginning/end of each section or at the beginning of a group of questions very carefully.
2. This test has two sections with 60 questions – 30 questions in each section. The TOTAL TIME available for the paper is **140 minutes**. The time available for each section is 70 minutes and you cannot return to the first section once you have started the second section.
3. You are expected to show your competence in both the sections.
4. All questions carry three marks each. Each wrong answer will attract a penalty of one mark.

SECTION – I
Number of Questions = 30

DIRECTIONS for questions 1 to 5: Answer the questions independently of each other.

1. The value of (t, u) for which the lines $4x + 5y = t$ and $ux + 3y = 22$ have an infinite number of solutions is
 (A) $\left(\frac{12}{5}, \frac{110}{3}\right)$ (B) $\left(\frac{110}{3}, \frac{12}{5}\right)$
 (C) $\left(\frac{66}{5}, \frac{110}{3}\right)$ (D) $\left(\frac{20}{3}, \frac{110}{3}\right)$
2. The arithmetic mean of a set of n numbers was calculated wrongly as 20, since the digits of one of the numbers, which happened to be a two-digit natural number, were interchanged. When calculated after the correction, the mean was found to be 26. How many values are possible for n ?
 (A) 6 (B) 4 (C) 9 (D) 12
3. $|X|$ denotes the number of elements in set X . If $|P| = 5$ and $|Q| = 10$, how many functions can be defined from P to Q which are not onto?
4. In a circle with centre O , there is a chord PQ . If the tangent at P makes an angle of 110° with the chord PQ , what is the measure of $\angle QOP$?
 (A) 110° (B) 140°
 (C) 60° (D) 120°
5. Sethi and Wilson play a snooker match consisting of nine games. The winner is decided by the method of 'Race to 5', i.e., the first person to win five games is declared the winner and the match ends the moment the winner is declared. In how many ways can the match conclude?
 (A) 256 (B) 126
 (C) 252 (D) 128

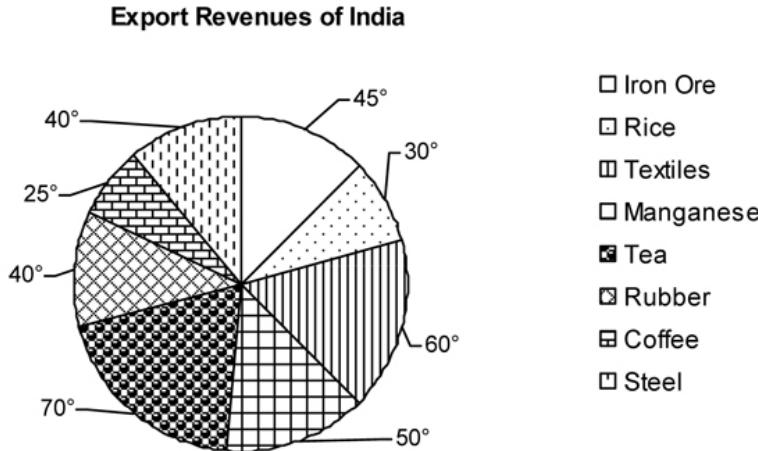
DIRECTIONS for questions 6 to 8: Answer the questions on the basis of the information given below.

The following table gives details regarding the volume of exports of eight different items by five countries.

Exports
(in lakh tonnes)

Item Country	Iron Ore	Textiles	Rubber	Tea	Coffee	Rice	Steel	Manganese
India	1500	250	125	200	50	150	1200	1250
Pakistan	400	250	10	250	40	20	600	125
Bangladesh	800	350	5	250	50	75	200	500
Sri Lanka	600	280	75	300	65	175	450	400
China	2000	200	125	150	40	800	2550	1000

The following pie diagram gives the split up of the revenue earned by India from the exports of these items.



Note: For any item, the export price is the same for all countries.

6. Among the given items, the export price of the costliest item exceeds that of the cheapest item by
(A) 16.67 times. (B) 15 times.
(C) 16 times. (D) 15.67 times.

7. By how much is the revenue earned by China from the exports of the given items more / less than that earned by India?
(A) 35.73% less (B) 40.42% more
(C) 38.67% more (D) 39.98% more

8. Which of the following countries earns the least revenue from the exports of the given items?
(A) India (B) Bangladesh
(C) Sri Lanka (D) Pakistan

DIRECTIONS for questions 9 to 17: Answer the questions independently of each other.

9. Four positive integers, a, b, c, d are such that a, b, c, d are in continued proportion and b, c, d are also in continued proportion. If $b : c = 2 : 3$, what is the minimum possible value of $(a + d)$?
(A) 35 (B) 16 (C) 13 (D) 65

10. Find the range of values of $\sin^4 2x + \cos^4 2x$.
(A) $\left[-\frac{1}{2}, \frac{1}{2}\right]$ (B) $\left[\frac{1}{4}, 1\right]$
(C) $\left[\frac{1}{2}, 1\right]$ (D) $\left[\frac{1}{4}, \frac{3}{4}\right]$

11. Piyush, a primary school teacher, has written all the natural numbers starting from 1 to 100 (both inclusive) on the board. The number of digits written an odd number of times in this process is
(A) 0 (B) 5
(C) 2 (D) None of the above

12. The lengths of the three sides of a right-angled triangle are integers, when measured in centimeters. If the numerical value of the product of the three lengths is 14760 and the perimeter is 90 cm, find the length of the hypotenuse.
(A) 41 cm (B) 45 cm
(C) 50 cm (D) 30 cm

13. The vertices of quadrilaterals α and β are $(1, 3)$, $(3, 3)$, $(3, 5)$, $(1, 5)$ and $(-0.5, 1.5)$, $(4.5, 1.5)$, $(4.5, 6.5)$, $(-0.5, 6.5)$ respectively. If two distinct lines, l and m , divide α and β respectively into two regions of equal area, the point of intersection of l and m is
(A) $(-0.5, 0.5)$ (B) $(-0.5, 4)$
(C) $(2, 4)$ (D) $(-3, 4)$

14. There are 26 teams, named from A to Z, which play a tournament. Each team plays with every other team exactly once. A team gets 1 point for a win and no points for a loss. At the end of the tournament, it was observed that there were no draws between any two teams and each team had a distinct final score. The teams were then ranked based on their final scores. If the order of ranking among the teams was in the reverse of their alphabetical order, i.e., Z got the most points and A the least, which of the following can be concluded about teams M and N?
(A) Team M must have beaten 13 teams.
(B) Team N must have beaten 13 teams.
(C) Team N must have beaten team M.
(D) More than one of the above.

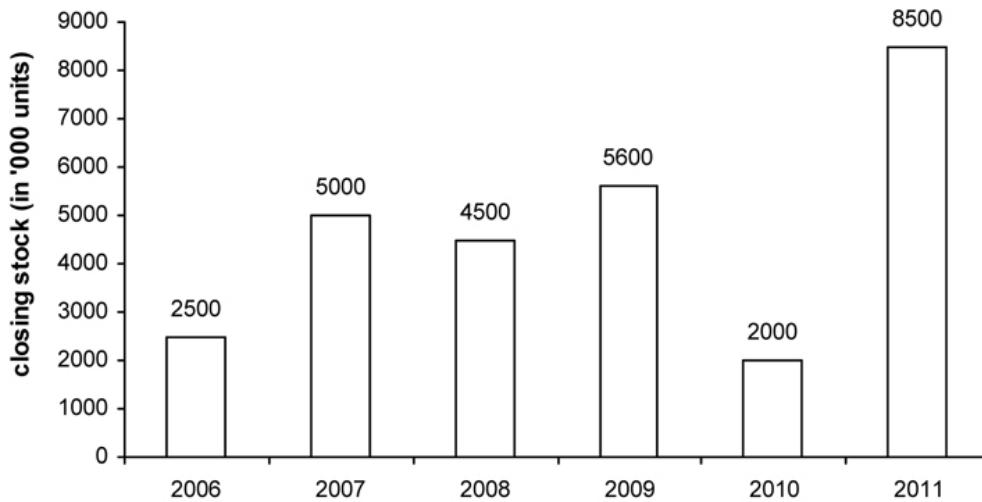
15. To row a certain distance upstream, Mandira takes 24 minutes, while to row the same distance downstream, she takes only 6 minutes. How much time would she take to row the same distance in still water?
(A) 12 minutes (B) 9.6 minutes
(C) 10.8 minutes (D) 14.4 minutes

16. How many of the four-digit numbers with non-zero digits have the sum of their digits as 12?
(A) 165 (B) 330 (C) 132 (D) 440

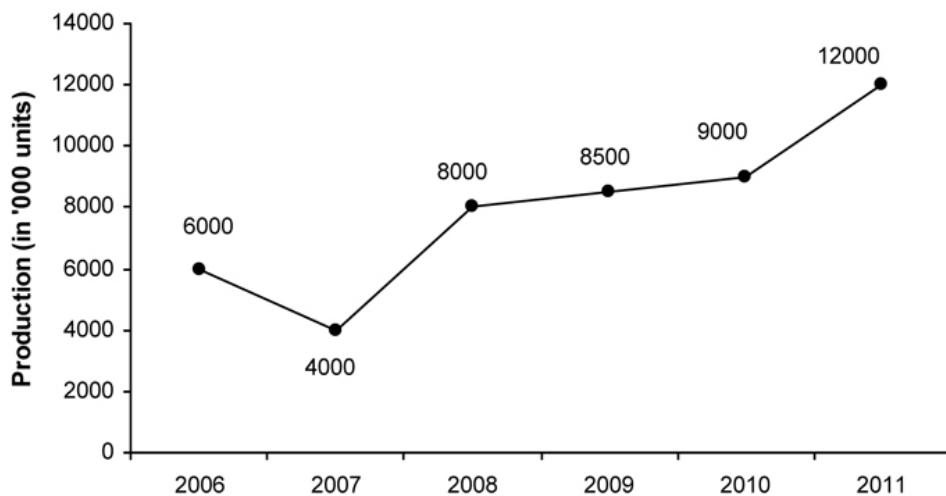
17. Rani and Lakshmi can type ten identical books in 25 and 20 days respectively. If Rani, Lakshmi and Veena, together, undertake the work of typing the ten books for a sum of ₹6000, and complete the work in ten days, find Veena's share.
(A) ₹400 (B) ₹600
(C) ₹800 (D) ₹1000

DIRECTIONS for questions 18 to 20: Answer the questions on the basis of the information given below.

The graph below gives the closing stock position of a company for the years 2006 through 2011. The company started production in 2006.



The production of the company in each of the years is given by the graph below



The company follows a "First In First Out (FIFO)" method, in which the goods are sold in the same order in which they are produced.

The cost of production per unit and the selling price per unit for each of the years are given below. The cost of production is the only cost incurred by the company.

Year	2006	2007	2008	2009	2010	2011
Selling price (₹)	125	150	165	200	225	240
Cost price (₹)	85	100	110	140	150	160

Sales (in units) in year (t) = Closing stock of year ($t - 1$) + Production in year (t) - Closing stock of year (t)

Profit = Sales Revenue – Cost of Production of goods sold.

- 18.** In which of the following years is the profit percentage of the company the highest?
 (A) 2007 (B) 2008
 (C) 2011 (D) All of the above

19. What is the profit earned by the company in the year 2010?
 (A) ₹9,45,000 (B) ₹9,85,000
 (C) ₹10,01,000 (D) ₹10,50,000

20. In the given years, the company earned the least amount of profit in the year
 (A) 2006. (B) 2007.
 (C) 2008. (D) 2009.

DIRECTIONS for questions 21 to 25: Answer the questions independently of each other.

21. If $(\operatorname{cosec} A + \cot A)(\operatorname{cosec} B + \cot B)(\operatorname{cosec} C + \cot C) = (\operatorname{cosec} A - \cot A)(\operatorname{cosec} B - \cot B)(\operatorname{cosec} C - \cot C)$, then the value of each side of the above equation is

(A) 0. (B) 1. (C) -1. (D) 1 or -1.

22. The 288^{th} digit of the number 12223333444445555555..... is
 (A) 2 (B) 4
 (C) 6 (D) None of these

23. The coefficient of x^{11} in the expansion of $(x - 1)(x - 3)(x - 5) \dots (x - 23)$ is
 (A) 121 (B) -120 (C) -144 (D) -121

24. A and B are running along a circular track of length 100 m, with speeds of 5 m/s and 10 m/s

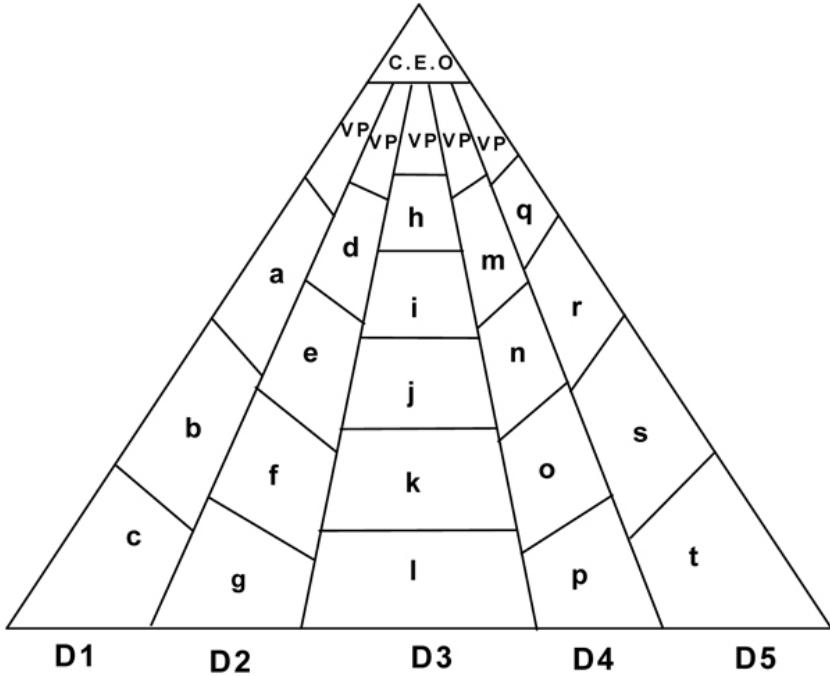
respectively. They start from the same point at the same time, but run in opposite directions. When they meet each other for the first time, they double their speeds. When they meet for the second time, they reduce their speeds by 50%. Continuing in this way, for every odd numbered meeting, they double their speeds and for every even numbered meeting, they reduce their speeds by 50%. If they stop running after their 27th meeting, at how many distinct points on the track do they meet each other?

(A) 3 (B) 12 (C) 27 (D) 18

25. If I purchase two chocolates and three biscuits instead of three chocolates and two biscuits, I would be left with one rupee more. If I purchase one biscuit and two ice creams instead of one chocolate and two biscuits, I will need to spend five rupees more. The cost of six chocolates, seven biscuits and five ice creams is equal to that of
 (A) 10 chocolates, 5 biscuits and 3 ice creams.
 (B) 15 chocolates and 3 biscuits.
 (C) 9 chocolates, 4 biscuits and 5 ice creams.
 (D) 12 chocolates, 3 biscuits and 3 ice creams.

DIRECTIONS for questions 26 to 28: Answer the questions on the basis of the information given below.

The diagram below gives details regarding the organization structure of a company with five departments – D1, D2, D3, D4 and D5 – with each department having multiple levels.



At the highest level, the company is headed by a C.E.O, who is assisted by five Vice Presidents (VPs), each overseeing and representing the highest level of a different department among D1, D2, D3, D4 and D5. In the diagram above, the number of sections shown in each department represents the number of levels in that department. Also, in the diagram, the letter (from among a, b, c t) given inside any level of any department represents the number of employees at that level in that department. In any department, the number of employees at any level is more than the number of employees at an immediately higher level in the department. The total number of employees in the company is less than 85.

The table below gives the salary details of the employees at each level in the organisation. The salary of any employee in any level of any department is based solely on the number of levels that his level is below the VP in that department – that is, at a given level below VP, the salary of all the employees is the same, irrespective of the department.

Salary details

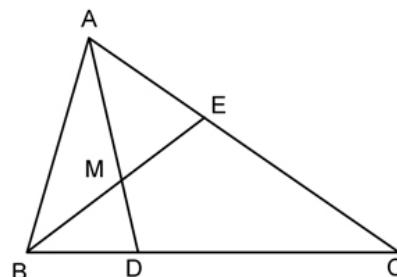
(in ₹ / month)

Level	CEO	VP	One level below VP	Two levels below VP	Three levels below VP	Four levels below VP	Five levels below VP
Salary	75,000	50,000	35,000	30,000	23,000	18,000	12,000

26. What is the maximum possible number of employees in any department?
 (A) 28 (B) 33 (C) 32 (D) 43
27. What is the difference between the maximum possible and the minimum possible number of employees in the organization?
 (A) 28 (B) 27 (C) 8 (D) 7
28. What is the maximum possible amount paid by the company towards salaries in a month?
 (A) ₹21,26,000 (B) ₹22,11,000
 (C) ₹22,16,000 (D) ₹21,21,000

DIRECTIONS for questions 29 and 30: Answer the questions independently of each other.

29. In the figure above, $AM : MD = CD : DB = 3 : 2$. Find $AE : EC$.



- (A) 2 : 5 (B) 3 : 5 (C) 1 : 2 (D) 5 : 8

30. When a number is written in the octal system, i.e., to the base 8, it has six digits. When the same number is written in the hexadecimal system, i.e., to the base 16, it has four digits. How many digits will the number have when written in the binary system?
 (A) 15 (B) 14 or 15 (C) 16 (D) 13 or 14

SECTION – II
Number of Questions = 30

DIRECTIONS for questions 1 to 3: Answer the questions on the basis of the information given below.

A university invited five professors – William, David, Nicholas, Angela and Zumo – to attend a conference. Each of the five professors belongs to a different country among Germany, the USA, France, England and South Africa. Also, each professor came by a different airlines among Lufthansa, British Airways, Delta, Emirates and Qatar Airways and teaches a different subject among Finance, Operations, Marketing, HRM and Strategy.

Further, it is known that

- (i) the professor from Germany neither came by Qatar airways nor teaches HRM.
 - (ii) David, who is from USA, did not come by either Lufthansa or Emirates.
 - (iii) the professor who teaches Strategy came by Delta, and is neither from France nor from the USA.
 - (iv) Zuma, who came by Qatar airways, teaches Operations.
 - (v) Angela teaches HRM and William is from France.
1. Which among the following subjects is taught by the professor from Germany?
 (A) Marketing
 (B) Finance
 (C) Strategy
 (D) Cannot be determined
2. Who among the following traveled by British Airways?
 (A) William (B) David
 (C) Angela (D) Nicholas

3. Which of the following statements is definitely false?
 (A) William teaches either Finance or HRM.
 (B) Angela traveled by either Lufthansa or British Airways.
 (C) Zuma is either from England or South Africa.
 (D) Nicholas is either from England or teaches HRM.

DIRECTIONS for questions 4 to 6: Answer the questions on the basis of the information given below.

Kamal, Vimal and Ajmal are the residents of an island. One of them always speaks the truth, one always lies and the third makes statements that alternate between the truth and a lie, in any order. Ashok visited the island and asked them about the name of the island. Each of them made two statements. All the six statements are given below, in no particular order.

- (i) Kamal always lies.
- (ii) The name of the island is Alt Land.
- (iii) I always speak the truth.
- (iv) The name of the island is True Land.
- (v) The name of the island is Lie Land.
- (vi) Vimal always lies.

Further, it is known that each person made at least one statement about the name of the island.

4. Which of the following is definitely a statement made by the person who always speaks the truth?
 (A) Kamal always lies.
 (B) I always speak the truth.
 (C) Vimal always lies.
 (D) The name of the island is True Land.

5. If Vimal is the person who always lies, then which of the following is definitely a statement made by him?

 - (A) *The name of the island is Alt Land.*
 - (B) *Kamal always lies.*
 - (C) *I always speak the truth.*
 - (D) Cannot be determined

6. Who among the following definitely spoke at least one true statement?

 - (A) Kamal
 - (B) Vimal
 - (C) Ajmal
 - (D) None of these

DIRECTIONS for questions 7 to 9: Answer the questions on the basis of the information given below.

Last year, each of the 65 students at Hogwarts School of Magic had to study exactly one skill among *Destroy* and *Save*.

The following information is known about the students and their results at Hogwarts last year:

DIRECTIONS for questions 10 and 11: The sentences given in each of the following questions, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. From among the four choices given below each question, choose the most logical order of sentences that constructs a coherent paragraph.

10. (a) When Odysseus was about to go off to war, the goddess Athena created Mentor to watch over the hero's beloved son, Telemachus.

(b) The fact that Mentor had the attributes of both man and woman hints at the richness and complexity of the relationship, suggesting a deeper bond than that of teacher and student.

- (c) Instead, the fortunate neophyte leader has a mentor, a concept that has its origins in Greek mythology.
 - (d) For the young man or woman on the brink of becoming a leader, the world that lies ahead is a mysterious, even frightening place.
 - (e) Few resort to mewling, but many wish they had the corporate equivalent of a nurse, someone to help them solve problems and ease the painful transition.

(A) adecb (B) abdec (C) decab (D) dbaec

11. (a) As Churchill's mother, Jennie Jerome, was born in Brooklyn, Americans understandably regard Churchill's extraordinary life as an almost semi-detached telling of their own national story.

(b) That much has been obvious since even before 1963, when President Kennedy gave him the only honorary US citizenship ever awarded to a living person.

(c) Americans love Sir Winston Churchill.

(d) Yet, in the half-century since then, that admiration and affection hasn't abated; he is one of the only non-Americans to have a US warship named after him, and as many books are published about him in America as in Britain.

(e) Indeed, the only bookshop in the world dedicated solely to selling his books, articles and memorabilia is the splendid Chartwell Books on Madison Avenue in Manhattan.

(A) cbdea (B) abdec (C) acbde (D) acbed

DIRECTIONS for questions 12 and 13: The following questions present four statements, of which three, when placed in appropriate order, would form a contextually complete paragraph. Pick the statement that is not part of that context.

12. (a) The decline of a great political party is a moving thing.
(b) And few tears will be shed, for all the great services the KMT has performed for Taiwan's economic development in the past.
(c) The Kuomintang (KMT) is one of the world's most venerable, founded by Sun Yat-sen himself in 1912 having exercised power continuously since 1928, first on the Chinese mainland and, since 1949, on Taiwan.
(d) In Taiwan's election last weekend, it lost its control of parliament year.

(A) a (B) b (C) c (D) d

13. (a) Both conclusions are probably justifiable.
(b) Some have argued that energy is too important to be left to markets of the sort that Enron pioneered; some that, since it was engaged in financial speculation, Enron should have been regulated like a bank.
(c) Energy deregulation, however, has brought huge benefits in lower prices and more secure supplies: energy trading will continue to grow regardless of Enron's collapse.
(d) Nor would it be wise to subject all companies with financial arms to stifling bank regulation.

(A) a (B) b (C) c (D) d

DIRECTIONS for questions 14 and 15: In the following questions, the word in capitals is used in four different ways, A to D. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

14. PREPARE

- (A) Even while we hope for the best, we should always prepare for the worst.
- (B) The para-military forces are preparing themselves for trouble and disorder at the rally planned next week by the Opposition.
- (C) Cinnamon powder is prepared with the bark of the cinnamon tree.
- (D) The faculty is busy preparing the ground for the annual conference.

15. ROLL

- (A) Now that smart-phone buffs are getting used to the Nexus, they are hoping that Apple will soon roll out an even smarter version of the iPhone.
- (B) We didn't expect this response and the offers of help are continuing to roll out.
- (C) They rolled up the carpet and started cleaning the room.
- (D) The pulse polio programme in the district finally began to roll.

DIRECTIONS for questions 16 to 18: There are two blanks in each of the following sentences. From the pairs of words given below each sentence, choose the pair that fills the blanks most appropriately.

16. Politics and journalism have intrinsically inscribed multiple functions that _____ them a special place in our societies and there shouldn't be a/an _____ to these professions.

- (A) befall . . . entrance test
- (B) endow . . . checkpost
- (C) bequeath . . . entry barrier
- (D) bestow . . . barricade

17. The crisis that we are in is that two fundamental pillars of our republic – governance and democracy, which should be _____, have become _____ to each other.

- (A) coordinated . . . oppugnant
- (B) complementary . . . antithetical
- (C) supportive . . . irreproachable
- (D) accountable . . . inimical

18. If we fail to provide the right investment climate and to contain the path of fiscal _____, India will have neither the strength nor the _____ for a future among the developed economies.

- (A) profligacy . . . framework
- (B) prudence . . . enterprise
- (C) extravagance . . . power
- (D) prodigality . . . vision

DIRECTIONS for questions 19 and 20: In each question, there are five sentences or parts of sentences that form a paragraph. Identify the sentence(s) or part(s) of sentence(s) that is/are correct in terms of grammar, punctuation, spelling and usage. Then, choose the **most appropriate** option.

19. (a) The 2012 DA14 asteroid, tracked in advance, did not harm us; it skimmed past,

- (b) nearly 27,600 km from the Earth on February 15. But at the same day, a meteor,
 - (c) unconnected with 2012 DA14 came out of the blue and exploded into Chelyabinsk, Russia at 9.25 am local time injuring more than a thousand people.
 - (d) The 55-feet meteor weighed about 10,000 tonnes before it entered Earth's atmosphere.
 - (e) It is the largest known celestial object to have struck Earth since the one that came crashing down in Siberia in 1908.
- (A) Only a (B) a, d and e
 - (C) b and d (D) a and e

20. (a) In the spring of 1887, a Lebanese villager named Mohammed Sherif discovered a well near Sidon that led to two underground chambers.

- (b) These turned out to be royal tombs containing 18 magnificent marble sarcophagi dating back to the fifth century BCE.
- (c) The Ottoman Sultan, Abdul Hamid II, ordered that the sarcophagi be exhumed, placed on rails and carried down to the Mediterranean coast, where they were sent by ship to Istanbul.
- (d) The largest sarcophagus was believed to contain the remains of Alexander the Great.
- (e) The coffin is not Turkish and Sidon is now in Lebanon, but the sarcophagus is regarded to be Istanbul's grandest treasure, as important to the archaeology museum there as the "Mona Lisa" is to the Louvre.

- (A) a, c and d (B) c, d and e
- (C) Only d (D) a and c

DIRECTIONS for question 21: The following question has a paragraph from which the last sentence has been deleted. From the given options, choose the sentence that completes the paragraph in the most appropriate way.

21. The consequences of plagiarism are far-reaching and no one is immune. Neither ignorance nor stature excuses a person from the ethical and legal ramifications of committing plagiarism. Before attempting any writing project, learn about plagiarism. Find out what constitutes plagiarism and how to avoid it. The rules are easy to understand and follow. If there is any question about missing attribution, try using an online plagiarism checker or plagiarism detection software to check your writing for plagiarism before turning it in.

- (A) Laziness or dishonesty can lead to a ruined reputation, the loss of a career, and legal problems.
- (B) For a professional, plagiarism is a serious ethical, and perhaps legal, issue.
- (C) To lose the ability to publish most likely means the end of an academic position and a destroyed reputation.
- (D) A professional business person, politician, or public figure may find that the damage from plagiarism follows them for their entire career.

DIRECTIONS for questions 22 to 30: Read the following passages and answer the questions that follow them.

Passage – I

When Charles Dickens called himself "the Inimitable," he was speaking no more than the truth; he was the greatest comic writer in his, or perhaps in any other, language. And the comedy runs deep: it is not trivial, for while it depicts absurdity, pomposity, and even cruelty, it has the curious effect of reconciling us to life even as it lays human weaknesses out for our inspection.

Saiery Gamp, for example, the drunken, slatternly nurse in Martin Chuzzlewit, is as undesirable a creature as it is possible to be. Who would want to be nursed by her? She is, in effect, the exemplar of the need for the reform of an entire profession. Yet by a peculiar kind of alchemy, Dickens makes us glad that there is a world in which a Mrs. Gamp can exist. A world without characters such as she would be the poorer for their absence.

When, gloriously, she says of the gin in the teapot, "Don't ask me to take none, but put it on the chimney piece, and let me put my lips to it when I feel so disposed," our hearts leap with an indefinable joy. The verbal genius of the simple replacement of the *s* in *disposed* by the *g* delights us. The slattern's ridiculous pretension to gentility and refinement, while maintaining her slovenliness, incites us to reflect upon our own pretensions — pretense being the permanent condition of mankind.

And while our love of Mrs. Gamp, tinged as it, no doubt, is by guilt that we can feel any affection for so disgraceful a being, does not prevent us from recognizing the obvious need for nursing to be placed on a more respectable footing, it also performs the function of restraining our wish for soulless perfection. A perfect world, or rather an attempted perfect world, in which there were no Dickensian characters would be a living hell.

I think this is what a student of English at the North Korean Foreign Languages Institute was driving at when he sidled up to me in Pyongyang and said, quickly and *sotto voce* (for unscripted communication with foreigners was dangerous for North Koreans), "Reading Shakespeare and Dickens is the greatest, the only, joy of my life." I was, of course, in great admiration of the feat of his having learned English of such proficiency that he could appreciate the two authors while never having left his hermetic native hell and communicate his enthusiasm for them so elegantly. No doubt Dickens had been taught to him as a means of demonstrating the diabolical nature of capitalist society, but the lesson he had drawn from Dickens was quite otherwise; that Mrs. Gamp (for example), impoverished and degraded as she was, at least spoke in what was unmistakably her own voice and not that compelled by any political master. She was free as no North Korean was free.

Passage – II

For a number of reasons, people do not always stick to the truth when they speak. Some of the reasons are justifiable – for example, human considerations such as tact and the avoidance of greater harm. Reassuring an ungainly teenager that he or she looks great may be a kind embroidery of the truth. In a more consequential instance, misinforming storm troopers about the whereabouts of hidden family during the Nazi occupation of Europe was an honorable and courageous deception.

Honesty is not a wholly detached moral virtue demanding strict allegiance at all times. Some vocations seem to demand occasional deception for success or survival. Politicians, for example, are especially hard pressed to tell the truth consistently. Perhaps this is because, as George Orwell once observed, the very function of political speech is to hide, soften, or misrepresent difficult truths. In "Politics and the English Language," he put it this way: "Political language is designed to make lies sound truthful and murder respectable, and to give an appearance of solidity to pure wind."

Yet to recognize that honesty is not an absolute standard demanded for every life circumstance – and that we can expect a certain amount of deceit from even our respected public figures – is not to say that the virtue of honesty can be disregarded with impunity.

No civilization can tolerate a fixed expectation of dishonest communications without falling apart from a breakdown in mutual trust. All human relations rely upon confidence that those in the relations will, as a rule, tell the truth. Honesty builds and solidifies a relationship with trust; and too many breaches in honesty can corrode relations beyond repair. Friendships, family, work, and civic relations all suffer whenever dishonesty comes to light. The main reason that no one wants to be known as a liar is that people shun liars because they can't be trusted.

Indeed, there is a perception in many key areas of contemporary life – law, business, politics, among others – that expecting honesty on a regular basis is a native and foolish attitude, a "loser's" way of operating. Such a perception is practically a mandate for personal dishonesty and a concession to interpersonal distrust. When we no longer assume that those who communicate with us are at least trying to tell the truth, we give up on them as trustworthy persons and deal with them only in a strictly instrumental manner. The bonds of mutual moral obligation dissolve, and the laws of the jungle reemerge.

27. From the passage, it can be inferred that the author would agree with Orwell on which of the following points?
 - (A) Dissembling politicians are norms, rather than exceptions.
 - (B) A politician may on occasions hide the real truth from the public.
 - (C) We take what politicians say at face value.
 - (D) Politicians overstate for purposes of rhetorical effect.
28. The view mentioned in the first paragraph refers to which of the following?
 - (A) People have departed from the truth for one reason or another throughout human history.
 - (B) The status of honesty is problematic in our society today.
 - (C) Facts may be manipulated or made up in service of a predetermined interest.
 - (D) Compassion, diplomacy, and life threatening circumstances sometimes require a departure from the unadulterated truth.
29. Which of the following most accurately represents the central point of the passage?
 - (A) The failure to cultivate virtue in citizens can be a threat to a democracy.
 - (B) Political discourse is no longer considered to be a source of genuine information.
 - (C) A basic intent to be truthful is required for all sustained civilized dealings.
 - (D) Where there is honesty, other virtues will follow.
30. The author of the passage asserts which of the following about "Such a perception"?
 - (A) A decline of honesty can be a threat to a democracy.
 - (B) Truthfulness plays a vital role in personal integrity.
 - (C) A universal commitment to truthfulness is a mirage in today's society.
 - (D) Honesty is abandoned in pursuit of other life priorities.

(Key and Solutions for AIMCAT1417)

Key

SECTION – I

- | | | | | | |
|------|-------|-------|-------|-------|-------|
| 1. B | 6. D | 11. C | 16. A | 21. D | 26. A |
| 2. B | 7. B | 12. A | 17. B | 22. D | 27. D |
| 3. A | 8. D | 13. C | 18. A | 23. C | 28. D |
| 4. B | 9. A | 14. D | 19. C | 24. A | 29. B |
| 5. C | 10. C | 15. B | 20. B | 25. D | 30. C |

SECTION – II

- | | | | | | |
|------|-------|-------|-------|-------|-------|
| 1. C | 6. C | 11. A | 16. C | 21. A | 26. C |
| 2. B | 7. A | 12. B | 17. B | 22. C | 27. B |
| 3. D | 8. D | 13. D | 18. A | 23. B | 28. D |
| 4. B | 9. A | 14. C | 19. D | 24. B | 29. C |
| 5. B | 10. C | 15. B | 20. A | 25. D | 30. C |

Solutions

SECTION – I

Solutions for questions 1 to 5:

1. Given that the two lines $4x + 5y = t$ and $ux + 3y = 2$ have infinite number of solutions.

⇒ The given two lines are coincident

$$\Rightarrow \frac{4}{u} = \frac{5}{3} = \frac{t}{2} \Rightarrow t = \frac{110}{3} \text{ and } u = \frac{12}{5} \quad \text{Choice (B)}$$

2. Let the number which interchanged be ab the difference if the numbers in $(10a + b) - (10b + a) = 9(a - b)$.

Change in mean = 6

⇒ difference in sum of numbers = $6 \times n \Rightarrow 6n = 9(a - b)$
(a - b) can take values from 0 to 9 and (a - b) has to be multiple of 2 (since L.H.S. is even)

The following cases can be listed down.

(a - b)	n
2	3
4	6
6	9
8	12

So, 4 values are possible for n.

Choice (B)

3. The number of functions from set P to set Q is given by

$$|Q|^{|P|} \text{ i.e., } 10^5$$

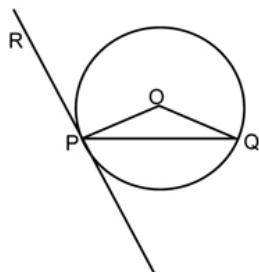
The number of onto functions from $P \rightarrow Q$ is given by '0' as

$$|P| < |Q|$$

∴ The required number of functions is 1,00,000

Choice (A)

4.



As $\angle RPQ = 110^\circ$ and $\angle RPO = 90^\circ$, it follows that $\angle OPQ = 20^\circ$

∴ $\angle OQP = 20^\circ$ and $\angle QOP = 140^\circ$ Choice (B)

5. Let us initially find the number of ways Sethi can win. If Sethi wins, the match he should be the one who wins the last game and the previous results could be internally arranged to get the number of ways.

Games won by		
Sethi	Wilson	Number of ways
5	0	1
5	1	$5!/4! = 5$
5	2	$6!/4!2! = 15$
5	3	$7!/4!3! = 35$
5	4	$8!/4!4! = 70$

∴ Sethi can win in 126 ways.

Similarly Wilson can win in 126 ways. Hence the match can conclude in 252 ways.

Alternative Solution:

Consider a string of 5 wins (W's) and 4 Losses (L's). Now these nine games can be arranged in $\frac{(5+4)!}{5!4!} = 126$ ways.

These ways include all cases where the match ends after five wins. Hence, there are 126 ways in which Sethi wins and 126 cases in which Wilson wins. Therefore a total of 252 ways.

Choice (C)

Solutions for questions 6 to 8:

Let the total revenue from exports of India from the given items be 3600x

The price of each of the items (per million tones) will be

$$\text{Iron Ore} = \frac{450x}{1500} = 0.3x \quad \text{Textiles} = \frac{600x}{250} = 2.4x$$

$$\text{Rubber} = \frac{400x}{125} = 3.2x \quad \text{Tea} = \frac{700x}{200} = 3.5x$$

$$\text{Coffee} = \frac{250x}{50} = 5x$$

$$\text{Steel} = \frac{400x}{1200} = 0.33x$$

$$\text{Rice} = \frac{300x}{150} = 2x$$

$$\text{Manganese} = \frac{500x}{1250} = \frac{2}{5}x$$

6. The cost of the costliest item (coffee) is $5x$ and that of the cheapest item (iron ore) is $0.3x$

$$\text{Coffee is costlier than iron ore by } = \frac{5}{0.3} - 1 = 15.67 \text{ times}$$

Choice (D)

7. Revenues of china

$$(0.3x \times 2000) + (2.4x \times 200) + (3.2x \times 125) + (3.5x \times 150) + (5x \times 40) + (2x \times 800) + \left(\frac{x}{3} \times 2550\right) + \left(\frac{2}{5}x \times 1000\right) \\ = 600x + 480x + 400x + 525x + 200x + 1600x + 850x + 400x = 5055x$$

$$\text{Required percentage} = \frac{5055 - 3600}{3600} = 40.42\%$$

Note: The question can also be solved using minimal calculations by working with 360° (in India's pie chart) directly. For example, China's revenues from exports of iron ore will be one-third (2000 vs 1500 mn tones) more than that of India (45°). Hence, China's revenues from exports of iron ore will exceed that of India by 15° . Similarly, the revenue excess / short fall for all items can be calculated and summed up.

By this approach, we get China's total revenues = 145.5° in excess of 360° .

$$\therefore \frac{145.5}{360} = 40.42\%$$

Choice (B)

8. By comparison sri lanka exports more quantity of each item than Pakistan, except steel. However, by observation, it can be concluded that the difference in revenues from export of steel can easily be covered with the revenues from the exports of other items by sri lanka.

Similarly, Bangladesh exports more of every item, except rubber and steel, than Pakistan. Here also the difference in revenues can be easily covered by Bangladesh by exports of other items.

Similarly, India exports more of every item than Pakistan (except textiles and tea) and the difference in revenues from exports of tea can be easily covered by other items. Also, China's revenues exceed that of India, as solved in the preceding question.

Hence, Pakistan earns the least revenues from exports of the given items.

Choice (D)

Solutions for questions 9 to 17:

9. Since a, b, c and b, c, d are in continued proportion and $b : c = 2 : 3$, we can work out the composite ratio as shown in the table below.

a	b	c	d
2	3		
	2	3	
		2	3
4	6	9	
8	12	18	27

Since a, b, c, d are positive integers $a + d = 8 + 27 = 35$

Choice (A)

10. Let $a = \sin^4 2x + \cos^4 2x$
 $= (\sin^2 2x + \cos^2 2x)^2 - 2\sin^2 2x \cos^2 2x$
 $= 1 - \frac{1}{2} \cdot 4 \sin^2 2x \cos^2 2x$
 $= 1 - \frac{1}{2} (2\sin 2x \cos 2x)^2$
 $= 1 - \frac{1}{2} \sin^2 4x$

As $0 \leq \sin^2 4x \leq 1$

When $\sin^2 4x = 0$, a attains its maximum value of 1

and when $\sin^2 4x = 1$, a attains its minimum value of $\frac{1}{2}$

\therefore Range of a is $\left[\frac{1}{2}, 1\right]$

Choice (C)

11. Piyush writes down the 100 numbers from 1 to 100. Consider the digit 2. It occurs 10 times as the tens digit in 20, 21...29 and 10 times in the units digit in 2, 12, 22... 92, i.e. a total of 20 times.

The same is the case with digits from 3 to 9.

Consider the case of the digits 0 & 1.

'0' occurs once in all numbers from 10, 20.....90.

i.e., 9 times and twice in 100 or a total of 11 times.

1 occurs 20 times from 1 to 99 and once in 100.

So 1 occurs 21 times.

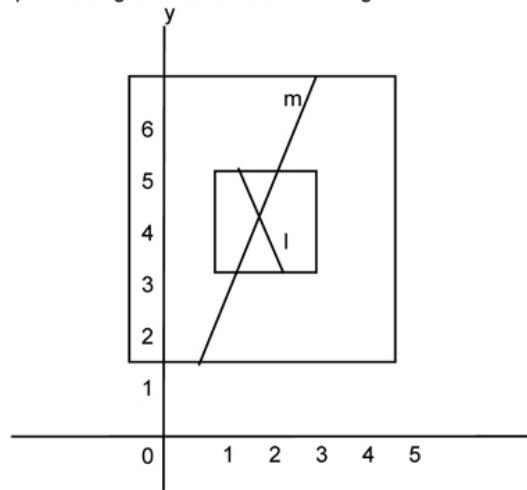
\therefore 1 and 0 occur an odd number of times, i.e., a total of two digits.

Choice (C)

12. Any side of a triangle is less than half the perimeter, i.e., $90/2 = 45$ cm. Among the options, only choices (A) and (D) are possible. Also, any side of a triangle must be longer than one-third the perimeter, i.e., $90/3 = 30$ cm. Therefore, choice (D) is also ruled out.

Choice (A)

13. The given co-ordinates can be plotted on a co-ordinate plane. By observation, the two quadrilaterals are rectangles. Any line that divides a rectangle into two equal areas must pass through the centre of the rectangle.



The centre of α is $\left(\frac{1+3}{2}, \frac{3+5}{2}\right)$ i.e., (2, 4)

The centre of β is $\left(\frac{-0.5+4.5}{2}, \frac{1.5+6.5}{2}\right)$ i.e., (2, 4)

m divides α into two equal parts.

\therefore It passes through (2, 4)

m divides β into two equal parts.

\therefore It passes through (2, 4)

i.e., m intersects α at (2, 4)

Alternative Solution:

Note: From the figure, it can be directly observed that the rectangles are concentric (with sides of the rectangles being along the x and y axes). Therefore, the common centre of the rectangles can easily be found to be (2, 4) by observation.

Choice (C)

14. From the given information, the ranking order from 1 to 26 is ZYXVU.... A. Hence Z wins 25 matches, Y wins 24 matches, X wins 23 matches and so on. A loses all matches. For this to be possible Z must beat every other team, Y must beat all teams from A to X. X must beat all teams from A to W and so on. N must beat all teams from

A to M. i.e. a total of 13 teams. Hence team N must beat team M. ∴ Both (B) and (C) are true. Choice (D)

15. Let v and u be Mandira's speed in still water and the speed of the stream respectively. Let d be the distance covered in each direction.

$$\text{Given that, } \frac{d}{v+u} = 6 \text{ and } \frac{d}{v-u} = 24$$

$$\Rightarrow \frac{v+u}{v-u} = 4 \Rightarrow v = \frac{5}{3}u \Rightarrow \frac{d}{v+\frac{3v}{5}} = 6$$

$$\Rightarrow \frac{d}{v} = \frac{8}{5} (6) = 9.6$$

∴ Time she takes to cover the same distance in still water is 9.6 minutes. Choice (B)

16. Let ABCD be the four-digit number with non-zero digits.
 $A + B + C + D = 12$
 $\Rightarrow 1 \leq (A, B, C, D) \leq 9$

This is same as writing 12 as a sum of four non-zero digits.

∴ The number of possibilities is ${}^{12-1}C_{4-1} = {}^{11}C_3$ i.e., 165. Choice (A)

17. The entire typing work is completed in 10 days.

$$\text{Rani's share} = \frac{10}{25} (6000) = 2400 \text{ and}$$

$$\text{Lakshmi's share} = \frac{10}{20} (6000) = 3000$$

$$\therefore \text{Veena's share} = \\ \text{₹}6000 - (\text{₹}2400 + \text{₹}3000) = \text{₹}600 \quad \text{Choice (B)}$$

Solutions for questions 18 to 20:

18. In 2007, Number of units sold = $2500 + 4000 - 5000 = 1500$
 Since the company follows FI-FU, (i.e., "first in first out"), all the units sold in 2007 must have been manufactured in 2006 ⇒ The cost of production is ₹85 for all the units

$$\text{Profit percentage} = \frac{150 - 85}{85} = \frac{65}{85} = 76.47\%$$

In 2008, number of units sold = $5000 + 8000 - 45000 = 8500$. As 1500 units of 2006 stock are sold in 2007, the remaining 1000 must have been sold in 2008. Moreover, the entire stock of production of 4000 should have been sold in 2008.
 $\Rightarrow 8500 - (4000 + 1000) = 3500$ units produced in 2008 are sold in 2008.

$$\text{Average cost price per unit sold in 2008} \\ = \frac{(1000 \times 85) + (4000 \times 100) + (3500 \times 110)}{8500} = 102.35$$

Selling price = 165

$$\text{Profit percentage} = \frac{165 - 102.35}{102.35} \approx 61.21\%$$

In 2011, number of units sold = $2000 + 12000 - 8500 = 5500$. As the closing stock in 2011 is less than the production, $12000 - 8500 = 3500$ units sold in 2011 are from 2011 production. Similarly, as the closing stock in 2010 is less than the production in 2010, the closing stock of 2010 must have been produced in 2010.

Then 2000 units sold in 2011 are produced in 2010

$$\text{Average cost price of units sold in 2011} \\ = \frac{(3500 \times 160) + (2000 \times 150)}{5500} \approx 156.36$$

$$\text{Profit percentage} = \frac{240 - 156}{156} = 53.85\%$$

Thus the profit percentage is the highest in 2007

Choice (A)

19. The number of units sold in 2010 = $5600 + 9000 - 2000 = 12,600$. Of the units sold, $9000 - 2000 = 7000$ units are manufactured in 2010. As the closing stock of 2009 is less than the production of 2009, all the units of closing stock must have been produced in 2009, i.e., at a cost of ₹140 per unit

Thus total cost = $(7000 \times 150) + (140 \times 5600) = ₹18,34,000$

Sales revenue in 2010 = $12,600 \times 225 = ₹2,85,000$

Profit in 2010 = $28,35,000 - 18,34,000 = ₹10,01,000$

Choice (C)

20. In 2006, number of units sold = $6000 - 2500 = 3500$.

Profit per unit = $125 - 85 = 40$

Total profit = $3500 \times 40 = ₹1,40,000$

From the earlier solution, the number of units sold in 2007 = 1500 and profit per unit = $150 - 85 = 65$

Total profit = $65 \times 1500 = ₹97,500$

From the earlier solution, we can see that the number of units sold in 2008 is much more than that in 2007, whereas the profit per unit is slightly lower

⇒ The profit in 2008 is more than the profit in 2007

Number of units sold in 2009 = $8500 + 4500 - 5600 = 7400$. Even if we assume all the units are manufactured in 2009, the profit per unit will be ₹60 which is very close to the profit per unit in 2007 and as the quantity sold is much higher than in 2007. Thus the profit is more than the profit in 2007. Thus the company earned the least amount of profit in 2007

Choice (B)

Solutions for questions 21 to 25:

21. $(\text{cosec } A + \cot A)(\text{cosec } B + \cot B)(\text{cosec } C + \cot C) \\ = (\text{cosec } A - \cot A)(\text{cosec } B - \cot B)(\text{cosec } C - \cot C) \dots (1)$

Multiplying (1) by
 $(\text{cosec } A + \cot A)(\text{cosec } B + \cot B)(\text{cosec } C + \cot C)$, we have

$$\{(\text{cosec } A + \cot A)(\text{cosec } B + \cot B)(\text{cosec } C + \cot C)\}^2 \\ = (\text{cosec}^2 A - \cot^2 A)(\text{cosec}^2 B - \cot^2 B)(\text{cosec}^2 C - \cot^2 C)$$

Now, $\text{cosec}^2 \theta - \cot^2 \theta = 1$.

$$\therefore (\text{cosec } A + \cot A)(\text{cosec } B + \cot B)(\text{cosec } C + \cot C) = (\text{cosec } A - \cot A)(\text{cosec } B - \cot B)(\text{cosec } C - \cot C) = \pm 1$$

Alternative Solution:

By observation, it can be seen that the given equation will be satisfied when $\cot A = \cot B = \cot C = 0$. In such cases $\text{cosec } A = \pm 1$, $\text{cosec } B = \pm 1$ and $\text{cosec } C = \pm 1$. Therefore, the possible values for the expression will be ± 1 .

Choice (D)

22. The given sequence of digits is $X = 12223333\dots$ i.e., the sequence formed by writing 1 one, 3 twos, 5 threes and so on. The number of digits in X , after all the single digit numbers are written down is sum of first nine odd numbers $1 + 3 + 5 + \dots + 17 = 9^2 = 81$.

We need the next $288 - 81 = 207$ digits after that.

There are 19 tens, 21 elevens, 23 twelves, 25 thirteens. We will have $19 + 21 + 23 + 25 = 88$ two-digit numbers as the 176 digits.

The next $207 - 176 = 31$ digits will come from the group of 27 fourteens. In this part all the odd-positioned digits are 1. Therefore, the 31st digit is 1. That is, the 288th digit is 1.

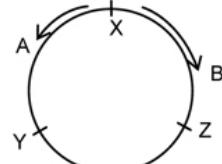
Alternatively, since, $9^2 = 81$ and $19^2 = 361$, every other digit starting from the 82nd digit till the 361st digit will be 1. Hence, the 288th digit will be 1.

Choice (D)

23. Given $(x-1)(x-3)(x-5)\dots(x-23)$ has 12 factors. In the expansion, the first term is x^{12} and the second term is $C_1 x^{11}$, where $C_1 = -(1 + 3 + 5 + \dots + 23) = -144$

Choice (C)

24. The ratio of speeds of A and B = $5 : 10 = 1 : 2$,
 \therefore when they are running in equal times, the distance covered by A and B will be in the ratio $1 : 2$



i.e., If they start their race at X, when they meet for the first time, they meet at Y, where length XY is one third of the length of the track. Now even if both double their speeds,

their speeds are again in the ratio 1:2 and hence the meet at Z where YZ is 1/3 the length of the track. Similarly, they again meet at the starting point X, for the next time. Thus they keep meeting each other at X, Y, Z i.e., at 3 points on the track;

Choice (A)

25. Given

$$3C + 2B = 2C + 3B + 1$$

↑ ↑
chocolates biscuits

$$\Rightarrow B = C - 1 \rightarrow (1)$$

And assume ice cream as I

$$C + 2B + 5 = B + 2I$$

From (1)

$$C + 2C - 2 + 5 = C - 1 + 2I$$

$$\Rightarrow 2C = 2I - 4$$

$$I = C + 2 \rightarrow (2)$$

From (1) and (2) the cost of 6 chocolates, 7 biscuits and 5

Ice cream is $6C + 7C - 7 + 5C + 10 = 18C + 3$

Calculating each of the options, we get

(a) $18C + 1$

(b) $18C - 3$

(c) $18C + 6$

(d) $18C + 3$

So (D) is the answer.

Alternately, after we get $B = C - 1$ and $I = C + 2$, we can simply assume $B = 1$, $C = 2$ and $I = 4$. Hence, given $6C + 7B + 5I = 39$. Now, calculating the options similarly gives (A) 37, (B) 33, (C) 42 and (D) 39. Hence choice (D).

Choice (D)

Solutions for questions 26 to 28:

26. To maximize the number of employees in a department, we have to minimize the number of employees in all other departments. Further the number of employees in a department will be maximized, if we maximize the number of employees in the department with maximum number of levels, i.e., department D3.

The minimum possible number of employees in other department D1 $\rightarrow 1 + 2 + 3 + 4 = 10$ Each of D2, D4, and D5 $\rightarrow 1 + 2 + 3 + 4 + 5 = 15$

The maximum possible number of employees in the company = 84. Maximum possible number of employees in department D3 = $84 - (10 + 3 \times 15) - 1$ (C.E.O) = 28

Choice (A)

27. The maximum possible number of employees = 84

The number of employees in the company can be minimized by minimizing the number of employees in each of the departments. From the earlier solution, the minimum possible number of employees in the department D1 is 10 and in each of departments D2, D4 and D5 is 15.

The minimum possible number of employees in department D3 $\rightarrow 1 + 2 + 3 + 4 + 5 + 6 = 21$

Thus the minimum possible number of employees in the company = $10 + (3 \times 15) + 21 + 1 = 77$

Required difference = $84 - 77 = 7$ Choice (D)

28. The salary pay-out will be maximized, if we maximize the number of employees at higher levels than at lower levels. Thus, we have to minimize the number of employees in the department/s with more number of levels and maximize the number of employees in departments with less number of levels \Rightarrow we have to maximize the number of employees in department D1.

Let us denote CEO as level 1, and the levels below him as levels 2, 3, 4

Now, only department D3 has level 7 levels.

The minimum possible number of level 7 employees is 6.

Thus the number of employees at each level for department D3 \rightarrow level 2 – 1; level 3 – 2; level 4 – 3; level 5 – 4; level 6 – 5 and level 7 – 6.

Similarly the minimum possible number of employees at the lowest levels in departments D2, D4, D5 is L6 – 5; L5 – 4; L4 – 3; L3 – 2; L2 – 1

Thus, we have $9(1 + 2 + 3 + 4 + 5) + 6 + 1(\text{C.E.O}) = 67$ employees in all the departments put together, except department D1.

\Rightarrow Department D1 can have 17 employees with one of them being the VP.

\Rightarrow In department D1 $a + b + c = 16$. As $a < b < c$ and as we have to maximize a, $a = 4$ $b = 5$ and $c = 7$.

Thus, the following table gives the calculation of total salary:

Level	No.of Employees	Total Amount
C.E.O	1	75,000
V.P	5	2,50,000
One level below vp	12	4,20,000
Two level below vp	17	5,10,000
Three levels below vp	23	5,29,000
Four levels below vp	20	3,60,000
Five levels below vp	6	72,000

Thus the maximum monthly total salary = ₹22, 16,000
Choice (D)

Solutions for questions 29 and 30:

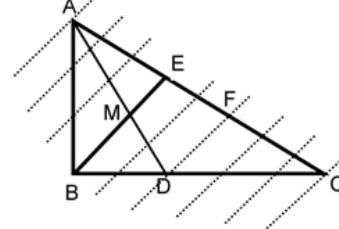
29. In the figure given in the question, consider triangle BEC. Draw DF parallel to BE. Now, by basic proportionality theorem, $EF : FC = BD : DC = 2 : 3 \rightarrow (1)$

Now, consider triangle ADF where ME is parallel to DF. Again, by basic proportionality theorem, $AM : MD = AE : EF = 3 : 2 \rightarrow (2)$

Hence, if $AE = 3k$, $EF = 2k$ and if $EF = 2k$, $EC = (EF + FC) = (2k + 3k) = 5k$. (from (1))

Hence $AE : EC = 3 : 5$

Alternative Solution:



As $AM : MD = 3 : 2$, we can divide AM and MD into 3 and 2 equal parts with lines parallel to BE as shown above. As $BD : DC = 2 : 3$, BD and DC can be divided into 2 and 3 equal parts with lines parallel to BE. Now, we can see (as in figure above) that $AE : EC = 3 : 5$. Choice (B)

30. If a number N written in base 8 has 6 digits, then $8^5 \leq N < 8^6$
That is $2^{15} \leq N \leq 2^{18} \rightarrow (1)$

Similarly, the number N, when written to base 16 has 4 digits.
 $\therefore 16^3 \leq N < 16^4$

That is $2^{12} \leq N < 2^{16} \rightarrow (2)$

From (1) and (2) $2^{15} \leq N < 2^{16}$

Hence, when written to the base 2, N will have 16 digits.

Choice (C)

Difficulty level wise summary - Section I	
Level of Difficulty	Questions
Very Easy	–
Easy	4, 17
Medium	1, 2, 3, 6, 7, 8, 9, 10, 14, 15, 16, 21, 23, 24, 25, 26, 27, 30
Difficult	5, 12, 13, 18, 19, 20, 22, 28, 29
Very Difficult	–

SECTION – II

Solutions for questions 1 to 3:

From conditions (ii), (iii), and (iv) David must have traveled by British Airways.

From conditions (i), (iv), (v), none of Zuma, Angela and William is from Germany \Rightarrow Nicholas is from Germany

As William is from France and David is from USA, none of them teaches Strategy. As Angela teaches HRM and Zuma teaches operations, Nicholas must teach strategy \Rightarrow He came in by Delta.

From the above, it can be derived that Angela and Zuma are from England and South Africa (in any order). William and David teach Marketing and Finance (in any order). William and Angela traveled by Emirates and Lufthansa (in any order).

The results can be tabulated as follows

Professors	William	David	Nicholas	Angela	Zuma
Country	France	USA	Germany	England or South Africa	South Africa or England
Subject	Marketing or Finance	Finance or marketing	Strategy	HRM	Operations
Airlines	Lufthansa or Emirates	British Airways	Delta	Emirates or Lufthansa	Qatar

- From the table, the professor from Germany teaches Strategy. Choice (C)
- From the table, David traveled by British Airways. Choice (B)
- William can teach either Finance or Marketing. Hence option (A) is not definitely false.
Angela traveled by either Lufthansa or Emirates. Hence, option (B) is not definitely false.
Zuma is from either England or South Africa. Hence option (C) is not definitely false.
Nicholas is from Germany and teaches Strategy. Hence option (D) is definitely false. Choice (D)

Solutions for questions 4 to 6:

As each of them made one different statement about the name of the island, the statements made by those other than the truth teller regarding the name of the island must be false \Rightarrow The other statement of the alternator must be true \Rightarrow His other statement cannot be "I always speak truth."

Thus the statements by the alternator are

- (i) The name of the island is xxxx }
(ii) Kamal/Vimal always lives } (1)

The truth teller's second statement can be "I always speak truth". (As the second person among Vimal / Komal is not a liar and if the truth teller makes a statement that Kamal/Vimal is a liar, it would be a lie, as the statement made by the alternator about the liar is true.)

Thus the statements of the truth teller are

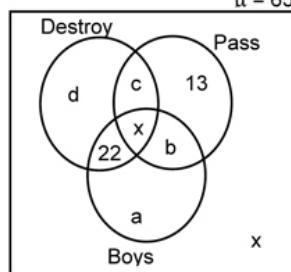
- (i) The name of the island is xxxx }
(ii) I always speak truth } (2)

- From (2) above, the truth teller definitely makes the statement "I always speak truth". Choice (B)
- If Vimal is the person who always lie then statement (ii) in (1) would be Vimal always lies \Rightarrow Vimal makes the statement "Kamal always lies". Choice (B)
- From (1) either Kamal or Vimal is the person who always lie \Rightarrow Ajmal is the one who either always speaks the truth or alternates between the truth and a lie. Thus Ajmal spoke at least one truth. Choice (C)

Solutions for questions 7 to 9:

Let us denote the given information in the form of a Venn Diagram

$$u = 65$$



In the above diagram,

Number of boys who passed in Destroy = Number of girls who failed in Save = x

Total numbers of boys: $a + b + x + 22$

Total number of girls : $c + d + 13 + x$

As number of boys is one more than the number of girls, number of boys = 33 and numbers of girls = 32 (because total = 65).

Now, $a + b + x + 22 = 33 \Rightarrow a + b + x = 11$ ----- (1) or
 $c + d + 13 + x = 32 \Rightarrow c + d + x = 19$ ----- (2)

further $c < b$ ----- (3)

- Number of students who studied Destroy = $22 + c + d + x = 22 + 19 = 41$
 \Rightarrow Number of students who studied Save = $65 - 41 = 24$
Required difference = $41 - 24 = 17$ more. Choice (A)
- Option (A) implies $x < b$. From equations (1), (2) and (3), this can be either true or false. Hence, option (A) is not definitely false.
Option (B) implies $13 > b$. From (1), this is true.
Option (C) implies $22 > x$. From (1), this is true.
Option (D) implies $a > d$. From (3), $b > c$
 $\Rightarrow a + b > c + d$, which is false as $c + d + x > a + b + x$
Thus option (D) is definitely false. Choice (D)

- Given that $x > 3$

Number of boys who failed in Save = a

$$\text{From (1)} a + b + x = 11$$

Since we have to maximize the value of a, we should minimize x and b $\Rightarrow x = 4$ and b = 1 (as b > c, b should at least be equal to 1)

$$\Rightarrow \text{Maximum possible value of } a = 11 - 5 = 6$$

Thus the maximum possible number of boys who failed in Save is 6. Choice (A)

Solutions for questions 10 and 11:

- On a careful scrutiny of the choices for this question, it can be gathered that either sentence 'a' or sentence 'd' can introduce the topic. But sentence 'a' is more specific and exemplifies the concept of 'Mentor' using Greek mythology. Also a reference to the concept of 'mentor' finds a mention in sentence 'c'. So sentence 'a' cannot be an introduction sentence. It can be clearly observed that the paragraph discusses a problem and a solution to the problem. Sentence 'd' is a general sentence which introduces the paragraph by stating the problem faced by the young leader. Sentence 'e' follows next. 'de' is a mandatory pair. 'the painful transition' in sentence 'e' refers to the phrase '....on the brink of becoming a leader....'. Sentence 'c' follows sentence 'e' by stating that the fortunate leader has a mentor and this concept has its origins in Greek mythology. Sentence 'a' brings in the Greek example to elaborate on the concept of 'mentor'. 'ab' is a mandatory pair. Sentence 'b' concludes the paragraph. So 'decab' provides a correct problem-solution sequence.

Choice (A) ('adecb') is incorrect because as mentioned earlier, sentence 'a' cannot begin the paragraph. Also Choice (A) disrupts the 'dec' and 'ab' flow or drift. Choice B ('abdec') though close is also incorrect as here specific examples are given first ('ab') and then the problem is discussed ('dec'). Choice (D) ('dbaec') disrupts the thought flow.

- If one looks at the starting elements of sentence 'b' (That much has been.....), sentence 'd' (Yet.....) and sentence 'e' (Indeed, the only bookshop....), one can infer that these sentences cannot be the introduction sentence for the paragraph as they would need a preceding sentence for elaboration. In any case, none of the choices has these sentences as the starting sentence. Between sentences 'a' and 'c', sentence 'c' is the topic sentence for the paragraph which describes Sir Winston Churchill. So the paragraph begins with the declaration that Americans love Sir Winston Churchill. 'cb' is a mandatory pair as 'That much has been obvious...' in sentence 'b' refers to the fact given in sentence 'c'. The pronoun 'him' in sentence 'b' also refers to 'Winston Churchill' in sentence 'c'. Sentence 'b' is followed by sentence 'd' which states that Americans continue to

love him. He is the only non-American to have a US warship named after him. 'de' is another mandatory link, the reference to books in sentence 'd' finds a continuation with '....the bookshop....' in sentence 'e'. Sentence 'a' concludes the paragraph by stating a parallel reason for the Americans' love for Sir Winston Churchill. Choice B ('abdec') is incorrect as sentence 'c' cannot end the paragraph. Choices C and D disrupt the overall thought flow. In choice D, sentence 'd' cannot be placed after sentence 'e'.
Choice (A)

Solutions for questions 12 and 13:

12. It is obvious that (a) is the starting sentence. It is clear that (a) and (c) belong to the same context since they both refer to the greatness of the Kuomintang. (d) indicates why the word 'decline' has been used. 'acd' are related and form a sequence. The odd one out is (b). (b) says few tears will be shed, instead of conveying that a lot of people will be unhappy about the dissolution of a great political party. Hence it neglects what is stated in the preceding sentences.
Choice (B)
13. It is clear that (a) and (b) belong to the same context. (c) continues by presenting a reality that cannot be ignored, connected by the word 'however'. 'bac' are related and form a sequence. (d) is out of context since it widens the scope of the discussion beyond just those companies in the energy business to 'all companies with financial arms'.
Choice (D)

Solutions for questions 14 and 15:

14. The use of 'prepare for' is similar and correct in (a) and (b). The error is in statement (c), which should read 'prepared from' since we are talking of the base material and not 'prepared with' since we are not talking of ingredients.
Choice (C)
15. In choice (B), it should be "roll in" and not "roll out". Other choices have the correct usage of the word.
In choice (D), the words 'began to roll' means 'gained momentum'.
Choice (B)

Solutions for questions 16 to 18:

16. Befall means that which happens to someone or something and carries a negative connotation. It does not make sense here. Endow and bestow are followed by prepositions 'with' and 'on' or 'upon' respectively. Bequeath here means 'give' or 'accord'. Entry barrier for the second blank is suitable. So, Choice C is the answer.
Choice (C)
17. Oppugnant in Choice A means opposing and antagonistic. This word is too strong for the given context and seems inapt. The same is the case with 'inimical' in Choice D. Besides, 'coordinated' in Choice A can be used to describe efforts but not processes. 'Irreproachable' (which means beyond criticism) in Choice C is a misfit. Choice B with the words 'complementary' and 'antithetical' (mutually incompatible) is the best option.
Choice (B)
18. Prudence in Choice B does not work and hence can be ruled out. Power in Choice C for the second blank is inapt because of redundancy (strength and power). Vision in Choice D is also farfetched. Choice A (profligacy and framework) is apt.
Choice (A)

Solutions for questions 19 and 20:

19. Parts b, c and d are erroneous. In 'b', we need 'on the same day' not 'at'. In (c) we need a comma after 2012 DA14 and we need 'exploded over' in place of 'exploded into'. The 55- feet meteor in part 'd' should be 55-foot meteor. (Note the hyphen). Part 'a' and 'e' are correct.
Choice (D)
20. Magnificent has been spelt incorrectly in part 'b'. The phrase 'regarded to be' in sentence 'e' is erroneous. Something is 'regarded as'. 'Considered' is followed by 'to be'. Parts a, c and d are error-free. The answer is Choice A.
Choice (A)

Solutions for question 21:

21. Choice (A) is in tune with the advice presented in the para. The sentence is also conclusive in tone. Choice (B) suffers from ambiguity ('as a professional' is abrupt). It does not specify the profession of writing, which is the topic of discussion. The phrase 'as a professional writer' would have made the meaning clear. The reference to academics in Choices (C) makes it tangential. Choice (D) introduces a new thought and can be easily ruled out. Choice (A)

Solutions for questions 22 to 30:

Number of words and Explanatory notes for RC:

Number of words :

Passage I : 480

Passage II: 411

22. (a) is supported by the last line of third para "reflect upon our own pretensions". (b) is supported by the lines of the fourth paragraph "soulless perfection", (c) is supported by "need for reform".
Choice (C)
23. 'incompetency' is an understatement, so (A) is ruled out. (B) is supported by the first line of para 4 "our love of Mrs. GampSo disgraceful a being". (C) goes overboard with 'popular'. (D) is not true, as Gamp is not genial.
Choice (B)
24. Only (B) provides contextual meanings for the given words.
Choice (B)
25. We can gather from the last sentence of para 3 (The slattern's ridiculous the permanent condition of mankind) that we (the readers) are prompted to think of our condition (that of pretense) as the permanent condition of mankind. Therefore, 'b' and 'd' apply.
Choice (D)
26. (a) can be inferred from the portrayal of Gamp and her profession. (b) is inferred from "incites us to ...". (c) is not true, North Korea, not the student, hates capitalism. (d) can be inferred from "unscripted communication with foreigners" and "no "compelled by .. master".
Choice (C)
27. The author states that "politicians ... hard pressed to tell the truth consistently" and qualifies Orwell's rhetoric with a tentative "perhaps". (D) is Orwell's case. (A) and (C) are categorical.
Choice (B)
28. The first paragraph mainly focuses on "justifiable" reasons to not tell the truth, since the opening of the next paragraph refers to "Honesty is not a wholly detached moral value demanding strict allegiance" ... (A) is vague. (B) paints with a wide brush. (C) endorses cheating.
Choice (D)
29. The passage states "No civilization can tolerate a fixed expectation of dishonest communications without falling apart from a breakdown in mutual trust" and "when we no longer assume that those who communicate with us are at least trying to tell the truth.... Laws of the jungle reemerge". (A) refers to "cultivate virtue" which is outside the scope of the passage. (B) focuses on the earlier part of the passage. (D) is a general statement.
Choice (C)
30. The "perception" is that it is foolish to expect "honesty on a regular basis" in "many key areas of contemporary life", as given in (C). (A) brings "democracy" into the picture. (B) is out of context. (D) is the outcome of the 'perception', not the 'perception' itself.
Choice (C)

Difficulty level wise summary - Section II	
Level of Difficulty	Questions
Very Easy	-
Easy	-
Medium	1, 2, 3, 4, 5, 6, 7, 11, 13, 15, 22, 26, 27, 28, 29, 30
Difficult	8, 9, 10, 12, 14, 16, 17, 18, 19, 20, 21, 23, 24, 25
Very Difficult	-