

**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 3: Answer the questions independently of each other.

1. A tank is fitted with two taps A and B. The tank can be filled by opening A for two hours and B for nine hours or alternately by opening A for three hours and B for six hours. If the tank has to be filled using only A, how many hours will it take?  
 (A) 5      (B) 4      (C) 12      (D) 15

- (A)  $\frac{x}{4}$  units.      (B)  $\frac{x}{\sqrt{2}}$  units.  
 (C)  $\frac{x}{6}$  units.      (D)  $\frac{x}{3}$  units.

2. For any real  $x$ ,  $-1 \leq x \leq 1$ , if  $\sin^{-1}x = x$ , then an inverse function  $\sin^{-1}x$  is defined such that  $\sin^{-1}x = \theta$ . Similarly, inverse functions are defined for the other trigonometric functions. Now, if  $\sin^{-1}x + \sin^{-1}(1-x) = \cos^{-1}x$ , then the possible value/s of  $2x^2 - x + 1$  is/are  
 (A) 0      (B)  $\frac{1}{2}$   
 (C) 1      (D) Both (B) and (C)

3. A semicircle  $S_1$  is drawn with a line segment AB, of length  $x$  units, as its diameter, with centre at C. Another two semicircles,  $S_2$  and  $S_3$ , are drawn with AC and CB as diameters respectively, both  $S_2$  and  $S_3$  lying inside  $S_1$ . If a full circle  $C_1$  is now drawn in such a way that it is tangential to all the three semicircles  $S_1$ ,  $S_2$  and  $S_3$ , such that  $C_1$  lies inside  $S_1$  but outside  $S_2$  and  $S_3$ , the radius of the circle  $C_1$  is

**DIRECTIONS** for question 4: The question is followed by two statements, I and II. You have to decide whether the information provided in the statements is sufficient for answering the question.

- Mark A if the question can be answered by using only one of the statements.  
 Mark B if the question can be answered by using either statement alone.  
 Mark C if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.  
 Mark D if the question cannot be answered even when both the statements are used together.
4. Is  $a + b - c + d$  an even integer, where  $a$ ,  $b$ ,  $c$  and  $d$  are all integers?
    - (I) Two of  $a$ ,  $b$ ,  $c$ ,  $d$  are even integers and the remaining two are odd integers.
    - (II) The product of  $a$ ,  $b$ ,  $c$ ,  $d$  is odd.

**DIRECTIONS** for questions 5 to 7: Answer the questions on the basis of the information given below.

ABC Metro Rail Corporation follows a well laid out procedure to construct metro rail networks in large cities. The following table gives the schedule prepared by the corporation to complete a project in a certain city.

Task	Pre-requisite Task/s	Time Required
Land acquisition	–	8 months
Rail casting	–	18 months
Pillar construction	Land acquisition	14 months
Station Buildings construction	Pillar construction	8 months
Rail laying	Rail casting, Pillar construction	3 months
Construction of Overhead Line	Rail laying	3 months
Fixing Elevators	Station Building construction	2 months
Construction of Parking Facilities	Land acquisition	2 months

Any task can be started only after all the pre-requisite tasks (as listed above) for that task are completed.

The project has to be completed in 26 months. While the completion of the project in a span of less than 26 months will not result in any additional savings, any delay will cost the company an additional amount of one crore rupees per each month of delay. If any of the processes is automated, then the time required for that task will be reduced by 50%. Land acquisition process cannot be automated. To automate any of the tasks, it would cost the company an amount of ₹3 crore.

5. If none of the tasks is automated, what is the minimum possible time required to complete the project?  
(A) 26 months                   (B) 28 months  
(C) 30 months                   (D) 32 months

6. If the company can automate exactly two tasks, then the minimum possible time required to complete the project is  
(A) 20 months.                   (B) 21 months.  
(C) 24 months.                   (D) 25 months.

7. What is the maximum amount that the company can save by automating one or more tasks?  
(A) ₹6 crore                      (B) ₹5 crore  
(C) ₹3 crore                      (D) ₹2 crore

**DIRECTIONS** for questions 8 to 12: Answer the questions independently of each other.

8. A center-coordinator was supervising the arrangements being made for a public examination. Tables, meant for individual candidates, were arranged in a big hall in several columns, each column having the same number of tables. All the tables were numbered, starting with a particular number on the first table at the beginning of the first column and proceeding with successive numbers to the end of that column and then again continuing from the first table at the beginning of the second column and proceeding to the end of that column and so on. The coordinator noticed that the sum of the digits of the number on the table at the end of the first column was 4 and the values of the same for the tables at the end of the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> ..... 10<sup>th</sup> columns were 17, 12 16, 20, 15, 19, 14, 18 and 22 respectively. Which of the following is a possible value for the number of tables in each column?  
(A) 94      (B) 95      (C) 96      (D) 97

9. P started running around a circular track of length 800 m, from the starting point A. When P reached the 600 m mark, Q started running around the track from A, in the same direction as P. When Q reached the 400 m mark, R started from A, in the same direction as Q. When R reached the 200 m mark, S started from A, in the same direction as R. If when P reached A for the first time, Q, R and S also reached A for the first time, what is the ratio of the speeds of P, Q, R and S?

**10.** WIMCO employs a total of 75 units to make coir products for export. The total monthly revenue from all the units is ₹10,00,000. The total manufacturing cost and the total overheads (both of which vary with

**DIRECTIONS** for questions 15 to 18: Answer the questions on the basis of the information given below.

In a certain company, every year, all the departments are ranked in the descending order of their revenues and the top four departments in a year are those which earn the top four highest revenues for that particular year. The following diagrams give the revenues earned by the top four departments of the company in each of the years from 2007 to 2011. The

the number of units working) for all the units are ₹1,50,000 and 1,00,000 every month respectively. If in one month, the total profit reduces by ₹35,000, how many units, on an average, were not working everyday?



12. P, Q and R are assigned a piece of work, which they can complete by working together in 14 days. Their efficiencies are in the ratio  $1 : 3 : 4$  respectively. After half of the work is completed, any one of them must be withdrawn due to a budget constraint. If their wages per day are in the ratio  $2 : 4 : 5$  respectively and the work is done at optimal cost, the number of days in which the remaining two persons can complete the remaining work is  
 (A) 7.      (B) 8.      (C) 9.      (D) 10.

**DIRECTIONS** for question 13: The question is followed by two statements, I and II. You have to decide whether the information provided in the statements is sufficient for answering the question.

- Mark A** if the question can be answered by using only one of the statements.

**Mark B** if the question can be answered by using either statement alone.

**Mark C** if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

**Mark D** if the question cannot be answered even when both the statements are used together.

13. The ratio of the incomes of Anil and Komal is  $3 : 4$ . Does Anil save more than Komal, given that a person earns more than he/she spends?

(I) The ratio of the expenditures of Anil and Komal is  $2 : 3$ .

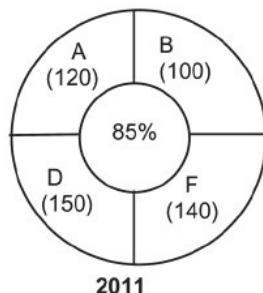
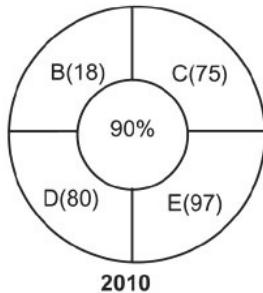
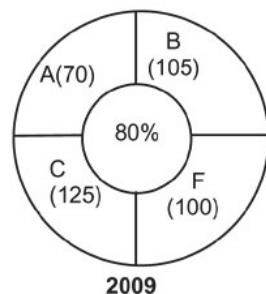
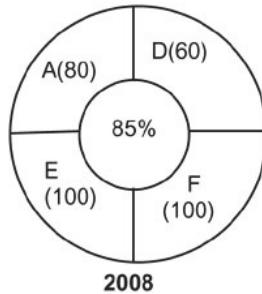
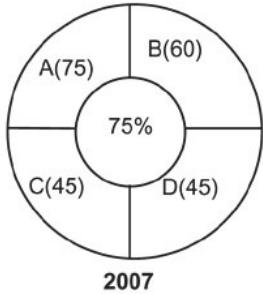
(II) The ratio of the expenditures of Anil and Komal is  $4 : 5$ .

**DIRECTIONS** for question 14: Answer the questions independently of each other.

14. A person has five tickets of a lucky draw for which a total of 12 tickets were sold and exactly six prizes are to be given. The probability that the person will win at least one prize is

(A)  $\frac{61}{132}$     (B)  $\frac{151}{132}$     (C)  $\frac{51}{132}$     (D)  $\frac{11}{12}$

numbers in the brackets are the revenues earned (in ₹crore) by those particular departments. The percentage figure given in the middle is the contribution of the top four departments to the overall revenue of the company from all the departments put together in that year. The company has a total of six departments – A, B, C, D, E and F.






**DIRECTIONS** for questions 19 to 21: Answer the questions independently of each other.

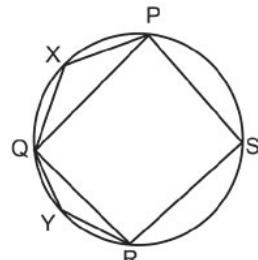
19. Tulasinath has one coin each, of the following denominations: 1 np, 2 np, 3 np, 5 np, 10 np, 20 np, 50 np, one rupee and two rupees. How many different amounts can he make by taking one or more of these coins at a time?

(A) 324      (B) 328      (C) 335      (D) 342

20. If  $y$  is real and  $y^2(25 + 24m) + y(94 + 4m^2) + (24m + 25) \geq 0$ , then find the complete range of values that  $m$  can assume.

(A)  $m \in (-\infty, 1) \cup (11, \infty)$   
 (B)  $m \in [1, 11]$   
 (C)  $m \in (-\infty, \frac{-25}{24})$   
 (D) None of these

21.



In the above figure,  $\angle QYR = 120^\circ$  and  $\angle PXQ = 150^\circ$ . If  $\angle QPS = 105^\circ$  and the area of the quadrilateral PQRS is  $2(\sqrt{3}+2)$  sq. cm, find the area (in sq. cm) of the circle.

(A)  $3\pi$       (B)  $4\pi$       (C)  $6\pi$       (D)  $8\pi$

**DIRECTIONS** for question 22: The question is followed by two statements, I and II. You have to decide whether the information provided in the statements is sufficient for answering the question.

**Mark A** if the question can be answered by using only one of the statements.

**Mark B** if the question can be answered by using either statement alone.

**Mark C** if the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

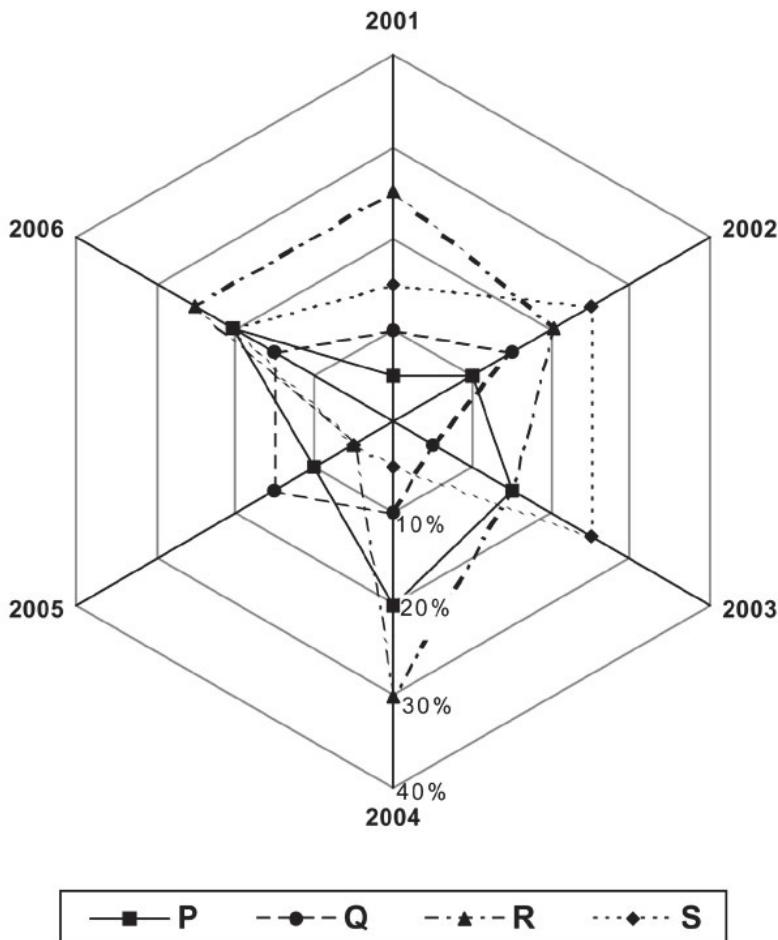
**Mark D** if the question cannot be answered even when both the statements are used together.

22. In an exam comprising of 50 questions, three marks are awarded for each correct answer, one mark is deducted for each wrong answer and half a mark is deducted for each question left unattempted. How many questions did Anil mark correctly?

(I) Anil obtained 115 marks in the paper.

(II) The number of wrong answers that Anil marked was more than the number of questions he left unattempted.

**DIRECTIONS** for questions 23 to 25: Answer the questions on the basis of the information given below.



The above web chart gives the share of the number of units sold by each of four companies – P, Q, R, and S – as a percentage of the total number of units sold in the market, for the years 2001 to 2006.

The table below gives the price per unit sold, for each of the companies during the same period.

(price in ₹)

Year Company \	2001	2002	2003	2004	2005	2006
P	100	120	125	80	75	120
Q	80	100	150	140	160	100
R	75	90	100	150	100	105
S	90	70	120	90	80	110

Sales Revenue = Number of Units Sold × Price per Unit

23. Which company sold the highest number of units in 2004?  
 (A) Q  
 (B) R  
 (C) P  
 (D) Cannot be determined
24. In 2002, which of the given companies has the highest market share in terms of sales revenue?  
 (A) P      (B) Q      (C) S      (D) R
25. Which of the following statements is definitely true?  
 (A) In 2003, the market share in terms of sales revenue is the highest for S.  
 (B) In 2006, the market share in terms of number of units sold is the highest for R.  
 (C) In 2004, the market share in terms of sales revenue is the highest for R.  
 (D) In 2001, the market share in terms of number of units sold is the highest for R.

**DIRECTIONS** for questions 26 and 27: Answer the questions independently of each other.

26. If  $M = 30!$

$$\left( \frac{1}{30!} + \frac{1}{29!} + \frac{1}{28!2!} + \frac{1}{27!3!} + \dots + \frac{1}{3!27!} + \frac{1}{2!28!} + \frac{1}{1!29!} + \frac{1}{30!} \right),$$

find the quotient when  $M - 1$  is divided by 1023.

- |                  |                           |
|------------------|---------------------------|
| (A) $2^{20} - 1$ | (B) $2^{20} - 2^{10} + 1$ |
| (C) $2^{20} + 1$ | (D) $2^{20} + 2^{10} + 1$ |

27. In how many ways can 16200 be written as a product of two factors which are relatively prime?

- |       |       |       |       |
|-------|-------|-------|-------|
| (A) 3 | (B) 4 | (C) 7 | (D) 8 |
|-------|-------|-------|-------|

**DIRECTIONS** for questions 28 and 29: Answer the questions on the basis of the information given below.

Two containers, one in the shape of an inverted cone (i.e., vertex pointing downwards) and the other in the shape of a right circular cylinder, are interconnected at the bottom using a thin rubber pipe, so that water can flow freely between the two. The height of the cone and the height of the cylinder are both 48 cm and the radius

of the cylinder and the radius of the base of the cone are both  $r$  cm. Initially, both containers are filled to exactly half their heights with water, and the vertex of the cone is at the same level as the base of the cylinder.

28. If when the cylinder is raised by  $x$  cm, the cone is just filled to the brim, find  $x$ .

- |        |        |        |        |
|--------|--------|--------|--------|
| (A) 18 | (B) 24 | (C) 38 | (D) 42 |
|--------|--------|--------|--------|

29. If the cylinder is lowered by 18 cm, find the water level (in cm) in the cone.

- |       |                   |
|-------|-------------------|
| (A) 8 | (B) 9             |
| (C) 6 | (D) None of these |

**DIRECTIONS** for question 30: Answer the questions independently of each other.

30. A flag-post is placed on the top of a building of height 200 m. The angles of elevation of the top of the flag-post observed from the foot and the top of another nearby building of height 150 m, are  $60^\circ$  and  $30^\circ$  respectively. Find the height of the flag-post.

- |          |          |            |           |
|----------|----------|------------|-----------|
| (A) 75 m | (B) 25 m | (C) 37.5 m | (D) 100 m |
|----------|----------|------------|-----------|

## SECTION – II

### Number of Questions = 30

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

Eight students – Amar, Binay, Chako, Don, Emran, Farhan, Gaurav, and Hari – have opted for two subjects each, from among eight subjects – Maths, Physics, Chemistry, Botany, Zoology, Geography, History and Commerce – such that each of these subjects was opted for by at least one student and no two students opted for the same combination of subjects. Further, it is known that,

- (i) any person who opted for Maths opted for neither History nor Chemistry.
  - (ii) Hari, who opted for Chemistry, opted for neither Zoology nor Botany.
  - (iii) any person who opted for Geography did not opt for any of Botany, Physics and History.
  - (iv) no other student chose any of the subjects chosen by Binay.
  - (v) none of the subjects was chosen by more than three persons and Maths is one of the subjects chosen by Don.
  - (vi) Chako, Emran and Farhan have opted for no subject in common with each other and none of them opted for Geography.
  - (vii) Amar opted for History and Chako opted for Chemistry.
  - (viii) any person who opted for Physics opted for neither Maths nor Chemistry.
  - (ix) Farhan opted for Zoology and Gaurav opted for Botany.
  - (x) except the subjects chosen by Binay, every other subject was chosen by at least two students.
1. Which of the following subjects are chosen by Emran?
- |                         |
|-------------------------|
| (A) Physics and History |
| (B) Botany and History  |
| (C) Botany and Physics  |
| (D) Botany and Maths    |

2. Who among the following has opted for both Botany and Physics?

- |           |            |
|-----------|------------|
| (A) Emran | (B) Chako  |
| (C) Don   | (D) Gaurav |

3. Which of the following subjects was opted for by more than two persons?

- |             |               |
|-------------|---------------|
| (A) Botany  | (B) Chemistry |
| (C) Zoology | (D) Physics   |

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

A bus started from a stop P and traveled to another stop U. In between, it stopped at four stops, Q, R, S and T, in that order. The distance between any two consecutive stops is one kilometer. The following information is known about six persons – A through F – who traveled in the bus:

- (i) At any point, not more than two persons among the given six persons were present in the bus and each person traveled for at least one kilometer.

- (ii) A boarded the bus at a stop immediately before the stop at which C boarded the bus, while B and D boarded the bus at the same stop.

- (iii) F traveled for more distance than E, who boarded the bus at Q.

- (iv) B is the only person to get down from the bus at S.

- (v) C got down from the bus at U.

- (vi) F and E did not travel together between any two stops.

4. At which stop did A board the bus?

- |       |                          |
|-------|--------------------------|
| (A) R | (B) S                    |
| (C) T | (D) Cannot be determined |

5. At which of the following stops could more than one person have boarded the bus?

- |                                 |
|---------------------------------|
| (A) P                           |
| (B) R                           |
| (C) S                           |
| (D) More than one of the above. |

6. Which of the following statements is definitely true?
- D and E traveled together for at least one kilometer.
  - F is the person who traveled for the maximum distance.
  - A and C traveled together for at least one kilometer.
  - F and A traveled together for at least one kilometer.

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

A group of six friends – P, Q, R, S, T and U – attended a party. There are two housewives, one doctor, one editor, one manager and one engineer in the group. There are two married couples in the group. The engineer is married to S, a housewife, while T is not a housewife. No

woman in the group is either an editor or a doctor. P is married to a housewife, while U, the manager, is married to R, the doctor.

- T is
  - a manager.
  - an editor.
  - a doctor.
  - an engineer.
- Which of the following is a married couple?
  - P and S
  - Q and T
  - S and T
  - P and Q
- How many persons in the group are males?
  - 2
  - 3
  - 4
  - Cannot be determined

**DIRECTIONS** for questions 10 to 13: Read the following passage and answer the questions that follow it.

The ethical position advocated by Kierkegaard in "Equilibrium Between the Aesthetic and the Ethical in the Composition of Personality" (*Either-Or Part II*) is a peculiar mix of cognitivism and noncognitivism. The metaethics or normative ethics are cognitivist, laying down various necessary conditions for ethically correct action. These conditions include: the necessity of choosing seriously and inwardly; commitment to the belief that predication of good and evil of our actions have a truth-value; the necessity of choosing what one is actually doing, rather than just responding to a situation; actions are to be in accordance with rules; and these rules are universally applicable to moral agents.

The choice of metaethics, however, is noncognitive. There is no adequate proof of the truth of metaethics. The choice of normative ethics is motivated, but in a noncognitive way. Kierkegaard seeks to motivate the choice of his normative ethics through the avoidance of despair. Here despair (*Fortvivelse*) is to let one's life depend on conditions outside one's control (and later, more radically, despair is the very possibility of despair in this first sense). For Kierkegaard, the choice of normative ethics is a noncognitive choice of cognitivism, and thereby an acceptance of the applicability of the conceptual distinction between good and evil.

From Kierkegaard's religious perspective, however, the conceptual distinction between good and evil is ultimately dependent not on social norms but on God. Therefore it is possible, as Johannes de Silentio argues was the case for Abraham (the father of faith who was asked by God to offer his son Isaac as a burnt offering), that God demand a suspension of the ethical (in the sense of the socially prescribed norms). This is still ethical in the second sense, since ultimately God's definition of the distinction between good and evil outranks any human society's definition. The requirement of communicability and clear decision procedures can also be suspended by God's fiat. This renders cases such as Abraham's extremely problematic, since we have no recourse to public reason to decide whether he is legitimately obeying God's command or whether he is a deluded would-be murderer. Since public reason cannot decide the issue for us, we must decide for ourselves as a matter of religious faith.

Kierkegaard's ultimate advocacy of divine command metaethics is tempered somewhat by his detailed analyses of the nuanced ways individuals need to relate to God's commands. These analyses amount to a subtle moral psychology, which borders on virtue ethics. It is not enough simply for God to issue a command; we need to hear and obey. But obedience is not straightforward. We can obey willingly or begrudgingly. We can refuse altogether. We can be selectively deaf, or be so filled with our egotistical desires that we are altogether deaf to our duties. In order to obey we first need to cultivate faith, since obedience to a divine command is nonsense unless we at least believe the command has come from God. To cultivate faith in a transcendent, eternal, omnipresent God, who allegedly became incarnate in the form of a particular human being who was put to death, requires one to overcome the offense to one's reason and to adopt a tolerance for paradox. To imagine the enormity of the consequences of sin, yet to relish the possibilities of freedom, engenders anxiety. We need to learn to navigate the treacherous maelstroms of despair, to recognize the self-absorption of demonic states, to veer away from prudence and vanity, and to avoid mere conformity to social mores. We also need to cultivate hope, patience, devotion, and above all love. We also need to be vigilant about our capacity for self-deception and be prepared to suffer for love and for our ultimate spiritual identity.

- In the passage, the author is primarily concerned with
  - denoting the different meanings of ethics in Kierkegaard's work.
  - delineating the decision procedures in Kierkegaard's ethical position.
  - examining the noncognitivism in Kierkegaard's ethical perspective.
  - highlighting the cognitivist element in Kierkegaard's normative ethics.
- If you were to interview the author, what follow up question would you ask him to further your understanding of the topic of discussion?
  - Would accepting responsibility for one's actions, making existential choices with full awareness of consequences and conforming to social norms of moral action be cognitive aspects of normative ethics?
  - How should people respond to God's will?

- (C) Is faith the opposite of sin and the solution to despair?

(D) How can one cope with absolute freedom which may increase individuality and decrease spirituality?

12. The passage indicates that Kierkegaard would agree with which of the following statements about Abraham's would-be sacrifice?

(A) Abraham recognized that his duty to obey God's commands superseded his social duties.

(B) Abraham justified his would-be sacrifice in terms of how it served his community.

(C) Abraham repudiated both his duty not to kill a human being and his commitment to his son by his would-be sacrifice.

(D) Abraham suspended his ethical beliefs when God asked him to sacrifice Isaac.

13. Kierkegaard's analyses of divine command metaphysics supports which of the following conclusions?

(A) We are absolutely reliant on God's grace for realizing our spiritual selves.

(B) Faith is the foundation of the true self which God judges for eternity.

(C) It is with faith that we can navigate through testing circumstances enroute to spiritual completeness.

(D) We should take individual responsibility for knowing where we stand on ethical and religious issues.

**DIRECTIONS** for question 14: The sentences given in the following question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. From among the four choices given below the question, choose the most logical order of sentences that constructs a coherent paragraph.



**DIRECTIONS** for questions 15 to 17: Read the following passage and answer the questions that follow it.

**F**igures...do not show the failure of colleges and universities to work out any purposeful integration of instruction in academic and arts subjects - James Ackerman, "The Arts in Higher Education," 1973.

For the ancient Greeks, the liberal arts were the subjects thought necessary for a free man to study. If he is to remain free, in this view, he must acquire knowledge of the best thought of the past, which will cultivate in him the intellectual depth and critical spirit required to live in an informed and reasonable way in the present.

The division between vocational and liberal arts education, which began during the 19th century with the advent of the land-grant state universities in the United States, is today tilting further and further in favor of the vocational. Even within the liberal arts, more and more students are, in the words of Andrew Delbanco, Director of American Studies at Columbia University, "fleeing from 'useless' subjects to 'marketable' subjects such as economics," in the hope that this will lend them the practical credentials and cachets that might impress prospective employers.

Delbanco reminds us of Max Weber's distinction between "soul-saving" and "skill-acquiring" education. The liberal arts, in their task to develop a certain roundedness in those who study them and their function, in Delbanco's phrase, "as a hedge against utilitarian values," are (or at least were meant to be) soul-saving. Whether, in the majority of students who undertook to study the liberal arts, they truly were or not may be open to question, but what isn't open to question is that today, the liberal arts have lost interest in their primary mission. That mission, as Delbanco has it, is that of 'attaining and sustaining curiosity and humility,' while 'engaging in some serious self-examination.' John Henry Cardinal Newman had said that a liberal education 'implies an action upon our mental nature, and the formation of our character.'

Delbanco warns that it won't do to posit some ideal but antiquated golden age when higher education approached perfection. Surely he is correct. A good deal of the old liberal arts education was dreary. The profession of teaching, like that of clergyman and psychiatrist, calls for a higher sense of vocation and talent than poor humanity often seems capable of attaining. "A liberal arts education does not hold a higher position in the world's regard today." One of the chief reasons for its slippage, which Delbanco fails directly to confront, is that so many of its teachers themselves no longer believe in it.

15. It can be understood from the passage that the phrase "soul-saving" is used to indicate that -

  - (A) skill acquiring curricula are flat in nature.
  - (B) utilitarian values and liberal arts do not necessarily go together.
  - (C) utilitarian values are necessary to keep body and soul together.
  - (D) skill acquiring education and the liberal arts are mutually exclusive.

16. The author views the "golden age" of liberal arts with  
(A) disparagement      (B) disapproval  
(C) condescension      (D) skepticism
17. Which of the following choices will most weaken the view of Delbanco in the passage?  
(A) Liberal arts education, as it is, can result in replacing authoritative judgment with rivaling expert opinions, in questioning the second- and third-rate in politics and art.  
(B) There is a dichotomy between vocational education and liberal arts education. In the latter, one concentrates on "true intellectual achievement, what constitutes an educated man or woman, or why one work of art is superior to another, or what in life is serious and what is trivial."  
(C) Liberal arts have lost out to professional education because they are not 'marketable' subjects.  
(D) The decline of "Useless subjects" has subtle and unsubtle consequences - neither lending students practical work credentials nor helping them attain utilitarian values.

**DIRECTIONS for question 18:** In the following question, 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.

18. BREAK

- (A) It's wonderful to own a horse, but you wouldn't be able to ride him until you break him in.  
(B) He has decided to break with tradition this Diwali since he has realised that it would be cheaper to decorate the windows with strings of electric bulbs than with oil lamps.  
(C) His astonishing run in domestic tournaments, this season, has helped him break into the big league.  
(D) We could see, far off the distance, a long line of low hills, broken up by a few intervening valleys.

**DIRECTIONS for questions 19:** The sentences given in the following question, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. From among the four choices given below the question, choose the most logical order of sentences that constructs a coherent paragraph.

19. (a) This requires an integrated character, a oneness primarily with self but also with life.  
(b) Integrity, which is conforming reality to our words, includes and goes beyond honesty, which is conforming our words to reality.  
(c) Personal integrity generates trust and is the basis of many different kinds of deposits.  
(d) People can seek to understand, remember the little things, keep their promises, clarify and fulfill expectations, and still fail to build reserves of trust if they are inwardly duplicitous.  
(e) Lack of integrity can undermine almost any other effort to create high trust accounts.  
(A) cedba      (B) bceda  
(C) ebcad      (D) edcab

**DIRECTIONS for question 20:** 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.

20. Most Western businesspeople believe that privatization is the key to salvaging state-owned enterprises in Eastern Europe and the former Soviet Union. According to this conventional wisdom, privatization invariably improves corporate governance, management, and performance. My experience with dozens of Eastern European companies, most of them in Poland, has convinced me that this is an incomplete truth and therefore, like a runway that is just a bit too short, extremely dangerous. The reality is that most newly privatized companies need dominant, experienced shareholders to compensate for the weaknesses of managers never before exposed to best business practice. Without the support and prodding of such shareholders, Eastern companies tend to operate very much along the lines learned in the days of central planning, insider control, and relentless focus on production. Old-guard managers simply lack the skills and experience to convert a company from its old communist predilections to a genuine market orientation.

- (A) In addition to privatisation, then, economies in Eastern Europe would do well to launch aggressive campaigns to draw in foreign investors.  
(B) But when these same enterprises receive support from strong, capable – most often Western – shareholders, they have shown that they can perform to international standards and even outperform some leading Western competitors.  
(C) But investors earn exceptional returns only when they themselves add value in the form of leadership and systems, experience and direction.  
(D) There is no way the enterprise could emerge from its troubles without tremendous operational and financial restructuring.

**DIRECTIONS for questions 21 and 22:** There are two blanks in each of the following sentences. From the pairs of words given below each question, choose the pair that fills the blanks **most appropriately**.

21. With every passing day, there seem fewer issues where Republicans and Democrats can find common ground but on the issue of high rates of \_\_\_\_\_ among released prisoners, there is \_\_\_\_\_ support for the pursuance of smart policies that drastically reduce the likelihood of repeat offenses, make communities safer and reduce the costs of the criminal justice system, saving taxpayers' money.  
(A) recidivism . . . bipartisan  
(B) disambiguation . . . bicameral  
(C) cataplasia . . . dichotomic  
(D) retrogradation . . . phantasmagorical

22. The sceptic in religion is not \_\_\_\_\_, nor does he or she reject religious claims \_\_\_\_\_; he or she is simply unable to accept the case for God unless it is supported by adequate evidence.  
(A) evidential . . . ad finem  
(B) iconoclastic . . . ad hominem  
(C) dogmatic . . . a priori  
(D) plangent . . . a fortiori

**DIRECTIONS** for questions 23 to 25: Read the following passage and answer the questions that follow it.

There is, in California, an inherent strangeness that has always attracted loners, dreamers, and outliers. Hemmed in on all sides by mountains, forests, deserts, and the sea, California is an island in every sense but the literal, with its own distinct climate, air, soil, flora, and fauna. Geographically and culturally, California is a world unto itself.

The first white man to lay eyes on it was the Portuguese explorer Juan Rodriguez Cabrillo, who anchored in San Diego Bay on September 28, 1542. It was more than 200 years before a party of religious ascetics finally returned, bent on saving souls. The first settlement they built, Mission San Diego de Alcalá, was 1,500 miles from the colonial capital of Mexico City, a four-month trek on foot through treacherous desert. Over the next 50 years, the Franciscan friars managed to crawl their way north, one mission at a time, 21 in all, each a day's walk from the next. And walking was necessary, at least northbound. The prevailing winds on the coast blow from the north-northwest, and the California Current streams south virtually every day of the year. Sailing "downhill" is, to this day, a breeze and a blast; north is a miserable business. Rather than beating relentlessly upwind, the Spanish in Mexico would head to their more important possession, the Philippines, all the way across the Pacific, and recross the ocean to visit California on the return trip. Well before the term was invented to describe Australia in the age of sail, California was afflicted by the "tyranny of distance." Only the mildness of the weather and the abundance of the land mitigated what was, in every other respect, a hard, lonely life. Naturally, it drew a certain kind of man — and they were all men.

The Gold Rush drew a different type of man. (Though this time, 10 percent of the migrants were women, many of them disreputable.) Religious fanaticism gave way to greed, lust, treachery, and vaulting ambition to have it all. The '49ers were Herculean workers but more interested in enjoying the trappings of civilization than in building one. That task fell to the farmers, grocers, carpenters, merchants, entrepreneurs, and other skilled tradesmen who followed to make a living and build fortunes on the miners' lucre and on their failures. This combination of eminent practicality and pie-in-the-sky fabulism still shapes the character of the state.

Once the gold was gone, yet another kind of man began to arrive. One might say that these men formed California's first significant cohort of stable adults: low-church Protestants from the Midwest and Great Plains who started coming even before World War I and mostly settled in the Southland and in the Santa Clara Valley. The next war, the war that "created money," brought the second, and last, wave of adults to California. They came to build the arsenal of democracy or passed through San Francisco or San Diego on their way to fight in the Pacific. Hundreds of thousands decided to settle in California. Millions more joined them to partake in arguably the greatest and longest economic boom in human history.

These people, now revered as the "greatest generation," built modern California. It was built from scratch, overnight, at the farthest reaches of the world, land's end for Western civilization, on a foundation of virtues cultivated and nourished in Old Europe and the American heartland. But something in the character of the place and of the people who chose it drives them restlessly to seek (or invent) new virtues, new modes of living, to sweep aside all that has come before and start over, unencumbered.

Writer Virginia Postrel has commented on the extraordinary sensation of freedom that washed over her when she moved from Boston to Los Angeles. Arnold Schwarzenegger, arriving from Austria in 1968, was struck by how "everyone could come here and have opportunities." The old rules didn't apply in California. In his *Esquire* piece, Wolfe wrote that George Barris, the Giotto of the car customizers, "was making next to nothing at first but he never remembers feeling hard up, nor does any kid out there today I talked to. They have a magic economy or something." High expectations flow inexorably. And for a while, California had an uncanny knack for meeting those expectations. In hindsight, it's clear that the virtues sewn into the linings of people's coats were at least as instrumental as any quality inherent in the land.

**DIRECTIONS** for questions 26 and 27: 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 and usage (including spelling, punctuation and logical consistency). Then, choose the **most appropriate** option.



**DIRECTIONS** for questions 29 and 30: Read the following passage and answer the questions that follow it.

**F**or nineteenth-century internationalists, the future conjured up a new dispensation for humankind, a dispensation they looked forward to with a confidence based on their control over a universe of facts: hence Jeremy Bentham's vision of a perfect system of law that depended on the accumulation of all useful knowledge, or Karl Marx's path to a communist future through the history of capitalism's past. To twentieth-century institution-builders from Jan Smuts to Franklin Delano Roosevelt, Robert Jackson to Walt Rostow, the future could be planned and tackled with foresight on behalf of entire communities and nations – perhaps even for the world as a whole. Today, when the primacy of the fact is challenged by the World Wide Web – a recent article hails the fact's death — the future, more important than ever, has been privatized, monetized and turned into a source of profit. An entire corporate sector is dedicated to commodifying and modeling it; our financial markets in general take the future as the determinant of present values in a way that simply was not true a century ago. No one now feels the burden of an essential but unknowable future more acutely than the stockbroker and trader. But this money-driven individualistic future has crowded out an older vision of what the public good might look like.

In the ongoing atomization of society, citizens and classes have vanished as forces for change and given way to a world of individuals who come together as consumers of goods or information, and who trust the Internet more than they do their political representatives or the experts they watch on television. Governing institutions like the United Nations today have lost sight of the principle of politics rooted in the collective values of a *res publica*, even as they continue to defend the "civilization of capital." As for the rituals of international life, these are well established. The world's heads of state flock annually to the United Nations General Assembly. There are discussions of reform and grandiose declarations of global targets, which will mostly go unmet. Politicians, journalists, bankers and businessmen make their pilgrimage to the heavily guarded Alpine precinct of Davos, seeking to confirm through this triumph of corporate sponsorship that a global ruling elite exists and that they are members. Our political representatives continue to hand over power to experts and self-interested self-regulators in the name of efficient global governance while a skeptical and alienated public looks on. The idea of governing the world is becoming yesterday's dream.

## (Key and Solutions for AIMCAT1407)

### Key

#### SECTION – I

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

#### SECTION – II

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

### Solutions

#### SECTION – I

##### Solutions for questions 1 to 3:

1. T is the capacity of other tank (in litres) and A and B are the flow rates of the two taps (in litres/hour)  
 $\therefore T = 2A + 9B = 3A + 6B$   
i.e.  $A = 3B$   
 $\therefore T = 5A$ , i.e., tap A alone takes 5 hours to fill the tank.  
Choice (A)

2. Given,  $\sin^{-1}x + \sin^{-1}(1-x) = \cos^{-1}x$   
Let  $\sin^{-1}x = \theta_1 \Rightarrow \sin\theta_1 = x \Rightarrow \cos\theta_1 = \sqrt{1-x^2}$   
Similarly, Let  $\sin^{-1}(1-x) = \theta_2 \Rightarrow \cos\theta_2 = \sqrt{1-(1-x)^2}$   
and Let  $\cos^{-1}x = \theta_3 \Rightarrow \sin\theta_3 = \sqrt{1-x^2}$   
Given equation is now simply  $\theta_1 + \theta_2 = \theta_3 \rightarrow (1)$   
Taking sine value on both sides of (1)  
 $\sin(\theta_1 + \theta_2) = \sin\theta_3$   
 $\Rightarrow \sin\theta_1 \cos\theta_2 + \cos\theta_1 \sin\theta_2 = \sin\theta_3$   
 $\Rightarrow x\sqrt{1-(1-x)^2} + (1-x)\sqrt{1-x^2} = \sqrt{1-x^2}$   
 $x\sqrt{1-(1-x)^2} = x\sqrt{1-x^2}$   
 $x\left(\sqrt{1-(1-x)^2} - \sqrt{1-x^2}\right) = 0$   
 $\Rightarrow x = 0 \text{ or } \sqrt{1-(1-x)^2} = \sqrt{1-x^2}$   
i.e.,  $x = 0 \text{ or } 2x - x^2 = 1 - x^2$   
i.e.,  $x = 0 \text{ or } x = \frac{1}{2}$   
When  $x = 0$ ,  $2x^2 - x + 1 = 1$   
When  $x = \frac{1}{2}$ ,  $2x^2 - x + 1 = 2\left(\frac{1}{4}\right) - \frac{1}{2} + 1 = 1$

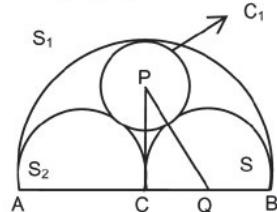
##### Alternative Solution 1:

Using options, if choice (A), is correct we get  $2x^2 - x + 1 = 0$ , for which  $x$  cannot be real, since the discriminant is negative. Similarly, for choice (B) also,  $x$  cannot be real. Given the other two choices, the correct answer must be choice (C).

##### Alternative Solution 2:

Let  $\sin^{-1}x = \alpha$  and  $\sin^{-1}(1-x) = \beta$   
 $\Rightarrow \cos^{-1}x = 90 - \alpha$ . Given equation implies  $\alpha + \beta = 90 - \alpha$   
 $\Rightarrow \beta = 90 - 2\alpha$ . Also, since  $x + (x-1) = 1$ , we get  
 $\sin\alpha + \sin\beta = 1 \Rightarrow \sin\alpha + \sin(90 - 2\alpha) = 1$   
 $\Rightarrow \sin\alpha + \cos 2\alpha = 1 \Rightarrow \sin\alpha + (1 - 2\sin^2\alpha) = 1$   
 $\Rightarrow x + 1 - 2x^2 = 1 \Rightarrow 2x^2 - x + 1 = 1$   
Hence Choice (C). Choice (C)

3. The semicircles  $S_1$ ,  $S_2$ ,  $S_3$  and the circle  $C$  are drawn below:



Let the radius of  $C_1$  be  $a$  units.

Let  $P$  be the centre of  $C_1$  and  $Q$  be the centre of  $S_3$ . Then,  $PC^2 + QC^2 = PQ^2$

$$\begin{aligned} &\Rightarrow \left(\frac{x}{2} - a\right)^2 + \left(\frac{x}{4}\right)^2 = \left(a + \frac{x}{4}\right)^2 \\ &\Rightarrow \frac{x^2}{4} - xa + a^2 + \frac{x^2}{16} = a^2 + \frac{x^2}{16} + \frac{ax}{2} \Rightarrow \frac{x^2}{4} = \frac{3ax}{2} \\ &\therefore a = \frac{x}{6} \end{aligned}$$

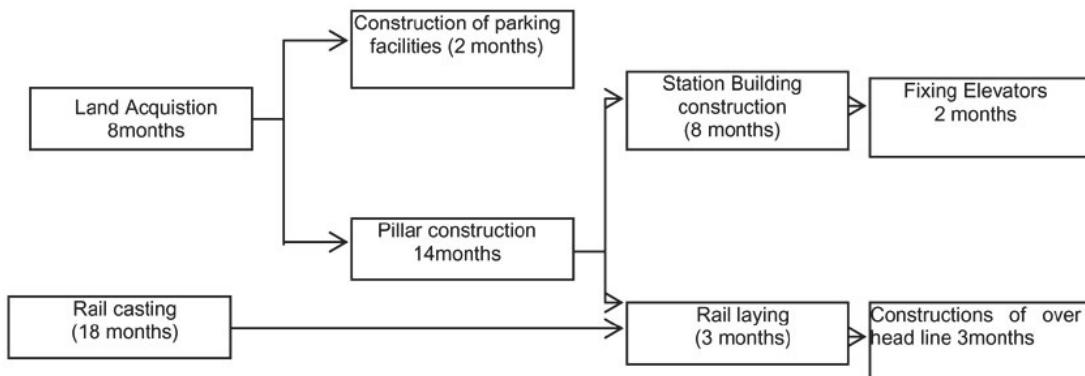
Choice (C)

##### Solution for question 4:

4. From statement I, two of the four integers are even and the remaining two are odd. Since  $(a+b-c+d)$  involves only addition and subtraction, two odd and two even numbers will always yield an even number. Statement I alone is sufficient. From statement II, since the product  $(a)(b)(c)(d)$  is odd, all of  $a$ ,  $b$ ,  $c$  and  $d$  are odd. Therefore  $a+b+c-d$  is even. Statement II alone is sufficient. Thus, either statement alone is sufficient to answer the question. Choice (B)

### Solutions for questions 5 to 7:

The order in which the tasks have to be completed can be represented as follows.



Thus the last task can be construction of parking facilities or fixing elevators or construction of overhead lines.

Constructions of parking facilities can be completed within  $8 + 2 = 10$  months.

Fixing elevators can be completed within  $= 8 + 4 + 8 + 2 = 32$  months

Rail casting can be completed within  $= 8 + 14 + 3 + 3 = 28$  months.

5. The minimum possible time that is required to complete, the project is the maximum of the above i.e, 32 months.  
Choice (D)

6. As the line of tasks involving the fixing of elevators is taking the maximum possible time, automation of any task on that line reduces the overall time to completion.  
If pillar construction is automated time, required to complete fixing elevators is  $8 + 7 + 8 + 2 = 25$  months and time required to complete construction of overhead lines is  $18 + 3 + 3 = 24$  months.

Thus, the second task that is to be automated can be either station building construction or fixing elevators.

Depending on the task being automated total time for fixing elevators will be 24 months or less than that.

As completion of construction of overhead lines requires 24 months, the project can be completed in 24 months.  
Choice (C)

7. Without any automation it would take 32 months to complete the project which would result in an additional expenditure of  $32 - 26 = 6$  crore.  
By automating pillar construction the time required for completion can be brought down to 25 months resulting in no additional expenditure.  
In such a case savings =  $6 - 3 = ₹3$  crore. Choice (C)

### Solutions for questions 8 to 12:

8. In any AP, the remainders of successive terms for any divisor form a cyclic pattern. The number on the last tables in successive columns are in an AP, say P (the common difference of successive terms of P is the number of tables in each column). Their 9's remainders are 4, 8, 3, 7, 2, 6, 1, 5, 0; 4, ....If these are arranged as shown below, the pattern is more revealing.

4	8	4	8
3	7	3	7
2	6	2	6
1	5	1	5
0		0	

∴ The common difference of P has a 9's remainder of 4.  
Among the options, only 94 has a 9's remainder of 4.  
Choice (A)

9. When P covers the last 200 m, Q completes 800 m. Hence their speeds are in the ratio 1 : 4. In the same way the

speeds of Q and R are in the ratio 1 : 2 and that of R and S are in the ratio 3 : 4.

∴ The required ratio of speeds is 3 : 12 : 24 : 32.

Choice (A)

10. Total revenue = 10,00,000  
Manufacturing Expenses = 1,50,000  
Overheads = 1,00,000  
Total Expenses = 2,50,000  
Profit = 7,50,000  
Profit/Unit = 10,000  
Reduction in profit = 35,000  
∴ Average number of idle units =  $\frac{35,000}{10,000} = 3.5$

Choice (B)

11. Let the integers be x and y. We have  $2(x + y) = xy$   
 $\Rightarrow 2x + 2y = xy$   
 $\Rightarrow y = \frac{2x}{x-2} = \frac{2x-4+4}{x-2} = 2 + \frac{4}{x-2}$   
 $\frac{4}{x-2}$  is an integer, if and only if  $x - 2 = 1, 2, 4$  or  $-1, -2, -4$   
i.e.,  $x = 3, 4, 6, 1, 0, -2$  and correspondingly  $y = 6, 4, 3, -2, 0, 1$ . Thus there are only 4 pairs (3, 6), (4, 4), (1, -2) and (0, 0).  
Choice (A)

12. Let P, Q and R do 1 unit, 3 units and 4 units of work per day and take wages of ₹2x, ₹4x and ₹5x per day respectively.  
Since they together complete the work, total work =  $14(1 + 3 + 4) = 112$  units.  
Since one of them has to be withdrawn to reduce the costs, it should be the person who is paid the highest per unit of work.

P, Q, R are paid ₹2x, ₹ $\frac{4x}{3}$  and ₹ $\frac{5x}{4}$  per unit of work.  $\Rightarrow$  P

is paid the highest per unit of work and hence he should be withdrawn P, Q, R.

Before P is withdrawn, together complete half the work.

So, the remaining work is  $\frac{112}{2}$  units i.e., 56 units.

This work can be done by the remaining two (i.e., Q and R)  
in  $\frac{56}{3+4} = 8$  days.  
Choice (B)

### Solution for question 13:

13. From statement I, the ratio of the expenditures of Anil and Komal is 2 : 3.

Let us take different cases to find out who saves more.

Case I	Anil	Komal
Income	300	400
Expenditure	20	30
Savings	280	370

The savings of Komal are more than the savings of Anil.

Case II	Anil	Komal
Income	300	400
Expenditure	240	360
Saving	60	40

The savings of Anil are more than the savings of Komal.  
Therefore, statement I alone is not sufficient.

From statement II, the ratio of the expenditures of Anil and Komal is 4 : 5.

Considering different cases,

Case I	Anil	Komal
Income	300	400
Expenditure	40	50
Saving	260	350

Case II	Anil	Komal
Income	300	400
Expenditure	300	375
Saving	0	25

As we increase the value of their expenditures, the difference between their savings decreases. We see that even when Anil does not save anything, Komal saves ₹25. Therefore, the savings of Komal will always be more than those of Anil.

The question can be answered from statement II alone, but cannot be answered from statement I alone. Choice (A)

### Solutions for question 14:

14. A person doesn't win a prize if all the 5 tickets that he picked are not prized. The probability that the person wins no prize is  $\frac{6c_5}{12c_5} = \frac{1}{132}$

$$\therefore \text{the probability that the person wins at least one prize} \\ = 1 - \frac{1}{132} = \frac{131}{132}. \quad \text{Choice (B)}$$

### Solutions for questions 15 to 18:

The total revenues of the company in each of the years is 2007 – (75 + 60 + 45 + 45)/0.75 = 300 crore.

2008 – (100 + 100 + 80 + 60)/0.85 = 400 crore

2009 – (70 + 105 + 125 + 100)/0.80 = 500 crore

2010 – (80 + 97 + 75 + 18)/0.90 = 300 crore

2011 – (120 + 100 + 150 + 140)/0.85 = 600 crore.

In 2007 A, B, C & D together earned 225 crore. As C and D earned 45 crore each, none among E and F can earn more than ₹45 crore. As the total revenue in 2007 is ₹300 crore, the minimum that a department can earn is 300 – 225 – 45 = ₹30 crore. Thus the revenues of E and F for 2007 range between ₹30 – ₹45 crore.

In 2008 A, D, E & F together earned ₹340 crore. As D earned ₹60 crore. None among B and C can earn more than ₹60 crore. As the total revenue in 2008 is ₹400 crore. The minimum that a department can earn is 400 – 340 – 60 = ₹0 crore. Thus the revenues of B and C for 2008 range between 0 – 60 crore.

Similarly, for 2009, the revenues of D and E range between 30 – 70 crore.

For 2010, the revenues of A and F range between 12 – 18 crore

For 2011, the revenues of C and E range between 0 – 90 crore

The minimum and maximum possible revenues for each of the departments will be as follows.

Department		A	B	C	D	E	F
Minimum possible revenue	2007	75	60	45	45	30	30
	2008	80	0	0	60	100	100
	2009	70	105	120	30	30	100
	2010	12	18	75	80	97	12
	2001	120	100	0	150	0	140
Total	357	283	245	365	257	382	
Maximum possible revenue	2007	75	60	45	45	45	45
	2008	80	60	60	60	100	100
	2009	70	105	125	70	70	100
	2010	18	18	75	80	97	18
	2011	120	100	90	150	90	140
Total	363	343	395	405	402	403	

15. If the minimum possible revenues from a department are more than the maximum possible revenues of every other department, then we can say that particular department had the highest revenues during the given period. From the above table, no department satisfies this condition. Hence the department with the highest possible revenues cannot be determined.

Choice (D)

16. The revenues of department A, when arranged in ascending order are (12 – 8), 70, 75, 80 and 120. Thus irrespective of the revenues in 2001, the median of revenues for A is 75 crore.

The revenues of departments B are 18, (0 – 60), 60, 100 and 105 crore. Thus irrespective of the revenues in 2008, the median is 60 crore.

The revenues of C are 45, (0 – 60), (0 – 90) 75 and 125 crore.

Thus the median of revenues for C, depends on the actual revenues of C in 2008 and 2011. Hence the median cannot be determined.

The revenues of D are 45, 60, (30 – 70), 80 and 150. The median depends on the actual revenues of D in 2009 and hence it cannot be determined.

Similarly the median of E depends on the actual revenues of E in 2007, 2009 and 2011. Hence the median cannot be determined.

The revenues of F are (12 – 18), (30 – 45), 100, 100 and 140 crore. Thus, irrespective of the revenues of F in 2007 and 2010, the median is 100 crore.

Hence, the median of the annual revenues can be uniquely determined for three departments.

Choice (B)

17. The value is maximized if the revenues of department B are maximized and that of department A are minimized.

$$\text{Hence required value} = \frac{343}{357} = 96.1\% \quad \text{Choice (A)}$$

18. The difference between the maximum possible and the minimum possible revenues for each of the departments is A – 363 – 357 = 6 crore

C – 395 – 245 = 150 crore

E – 402 – 257 = 145 crore

F – 403 – 382 = 21 crore

Thus, the difference is the maximum for department C.

Choice (B)

**Solutions for questions 19 to 21:**

19. The total amount we can make taking all the coins together is 391. But, some amounts may not be possible. Let us check what amounts can be made and what amounts cannot be made using the given denominations. We can clearly see that using the coins 1np, 2np, 3np and 5 np, we can get the amounts 1 to 11.

Using 10 np coins with the above amounts, we can make amounts till 21.

Using 20 np coin with the above amounts 1 to 21, we can make amounts till 41.

But, we cannot make totals 42 to 49 [i.e., eight amounts] Using the amounts 1 to 41 (that we could make above) along with 50 np coin, we can make amounts 50 to 91.

But, we cannot make amounts 92 to 99. [another 8 amounts] Similarly, we can see that even after using one rupee and two rupee coins along with the above we cannot make some more amounts.

The amounts that cannot be made are:

42 – 49	-----	8 totals
92 – 99	-----	8 totals
142 – 149	-----	8 totals
192 – 199	-----	8 totals
242 – 249	-----	8 totals
292 – 299	-----	8 totals
342 – 349	-----	8 totals

A total of 56 amounts out of 391 cannot be made.

$$\therefore \text{Number of distinct amounts that can be made} = 391 - 56 = 335$$

**Alternative Solution:**

Since there are 9 coins, all the possible sums (including duplicates) will be  $2^9 - 1 = 511$ .

Now, there will be duplication in the following cases:

- when 1, 2 are not selected but 3 is. Number of cases =  $2^6$
- when 2, 3 are not selected but 5 is. Number of cases =  $2^6$
- when 2, 3, 5 are not selected but 10 is. Number of cases =  $2^5$
- when 2, 3, 5, 10 are not selected but 20 is. Number of cases =  $2^4$

$$\text{Hence, total unique sums} = 511 - 2^6 - 2^6 - 2^5 - 2^4 = 335.$$

Choice (C)

20. Given,  $y^2(25 + 24m) + 2y(47 + 2m^2) + (25 + 24m) \geq 0$   
Since the above quadratic in  $y$  has a minimum, (i.e., 0), the coefficient of  $y^2$  must be positive  $\Rightarrow 25 + 24m > 0$

$$\Rightarrow m > \frac{-25}{24} \quad \text{--- (1)}$$

Also, as  $y \in \mathbb{R}$ , the given quadratic expression is a parabola that lies completely above the x-axis and can at most touch the x-axis from above.

Hence,  $[2(47 + 2m^2)]^2 - 4(25 + 24m)^2 \leq 0$  (i.e., roots are either complex or real and identical)

$$\Rightarrow (2m^2 - 24m + 22)(2m^2 + 24m + 72) \leq 0$$

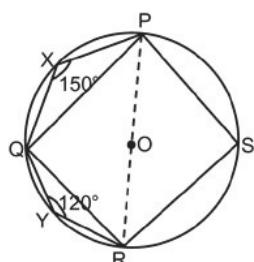
$$\Rightarrow (m^2 - 12m + 11)(m^2 + 12m + 36) \leq 0$$

$$\Rightarrow (m^2 - 12m + 11)(m + 6)^2 \leq 0$$

$$\text{Hence, } 1 \leq m \leq 11 \text{ or } m = -6 \quad \text{--- (2)}$$

Considering the conditions (1) and (2), we get  $m \in [1, 11]$   
Choice (B)

21.



Join PR

Clearly  $\angle QPR = 60^\circ$  [ $\because$  PQYR is a cyclic quadrilateral]

Similarly  $\angle QRP = 30^\circ$

$$\Rightarrow \angle PQR = 90^\circ$$

$\therefore$  PR is the diameter.

In  $\triangle PQR$ ,  $\angle Q = 90^\circ$ ,  $\angle P = 60^\circ$  and  $\angle R = 30^\circ$ ,

Let  $PQ = x$  cm

$$\Rightarrow PR = 2x$$

$\angle QPS = 105^\circ$  and  $\angle QPR = 60^\circ$

$$\Rightarrow \angle SPR = 45^\circ$$
 and  $\angle SRP = 45^\circ$

The perpendicular distance of PR from Q and S is  $\frac{\sqrt{3}x}{2}$  cm and  $x$  cm respectively.

$$\therefore \text{Area of PQRS} = \frac{1}{2} \cdot 2x \left[ \frac{\sqrt{3}x}{2} + x \right]$$

$$\text{Given } \frac{1}{2} \cdot 2x \left[ \frac{\sqrt{3}}{2}x + x \right] = 2(\sqrt{3} + 2)$$

$$\Rightarrow x^2 = 4 \Rightarrow x = 2$$

Radius of the circle is 2.

Hence area is  $4\pi$  sq.cm.

Choice (B)

**Solution for question 22:**

22. From statement I, Anil obtained 115 marks in the paper. Let the number of correct and wrong answers by Anil be C and W respectively.

$$\text{His score} = 3c - w - \frac{(50 - c - w)}{2} = 115$$

$$7c - w = 280$$

The solution sets are as follows:

Correct, wrong, unattempted

No of questions

$$1. \quad 40 \quad 0 \quad 10$$

$$2. \quad 41 \quad 7 \quad 2$$

Since we do not have a unique value for the number of questions answered correctly, we cannot answer the question from statement I alone.

From statement II, we only know that the number of questions he marked wrong was more than the number of questions he left unattempted.

Thus statement II alone is not sufficient.

Combining both the statements, we can conclude that Anil marked 41 questions correctly.

Therefore, the question can be answered by combining both the statements.

Choice (C)

**Solutions for questions 23 to 25:**

23. In 2004, the percentage share of units sold by each of P, Q, R and S are 20%, 10%, 30%, and 5%  $\Rightarrow$  The four companies together accounted for  $20 + 10 + 30 + 5 = 65\%$  of units sold.

As we don't know the number of units sold by the companies other than the given four companies and as a company can have a maximum share of  $100 - 65 = 35\%$ , the company which sold the highest number of units cannot be determined.

Choice (D)

24. Let the total number of units sold in 2002 be  $x$ .

Then, the sales revenue of each of the given companies is as follows

$$P = 120 \times 0.10 x = 12x$$

$$Q = 100 \times 0.15 x = 15x$$

$$R = 90 \times 0.20 x = 18x$$

$$S = 70 \times 0.25 x = 17.5x$$

Hence, R has the highest share in terms of revenue.

Choice (D)

25. As the selling price per unit is known only for four companies, the position of a company in terms of revenue cannot be determined. Hence, option (A) and (C) cannot be definitely true.

In 2001, the market share of P, Q, R and S together is  $5 + 10 + 25 + 15 = 55\%$ . Hence, other companies can have a maximum share of 45%. Hence statement (D) is not definitely true.

In 2006, P, Q, R, S together accounted for  $20 + 15 + 25 + 20 = 80\%$  market share. Thus, any other company can have a maximum share of 20%  $\Rightarrow$  The market share of R is the highest in 2006. Hence, option (B) is definitely true.

Choice (B)

#### Solutions for questions 26 and 27:

26.  $M = \frac{30!}{30!0!} + \frac{30!}{29!1!} + \frac{30!}{28!2!} + \dots + \frac{30!}{0!30!}$

These terms can be observed to be nothing but the binomial co-efficients in the expansion of  $(1+x)^{30}$ , where  $x$  can be assumed as 1, which will lead to the conclusion that  ${}^{30}C_0 + {}^{30}C_1 + {}^{30}C_2 + \dots + {}^{30}C_{30} = 2^{30}$

$$(\therefore {}^nC_0 + {}^nC_1 + {}^nC_2 + \dots + {}^nC_n = 2^n)$$

$$\frac{2^{30} - 1}{1023} = \frac{(2^{10})^3 - 1}{2^{10} - 1} = (2^{10})^2 + 2^{10} + 1 = 2^{20} + 2^{10} + 1$$

Choice (D)

27.  $16200 = 2^3 \times 3^4 \times 5^2$

The number of prime factors is 3 (i.e. 2, 3, 5)

Then, the number of ways in which it can be expressed as a product of 2 co-primes  $= 2^{3-1} = 2^2 = 4$  ways.

Choice (B)

#### Solutions for questions 28 and 29:

Fig.1

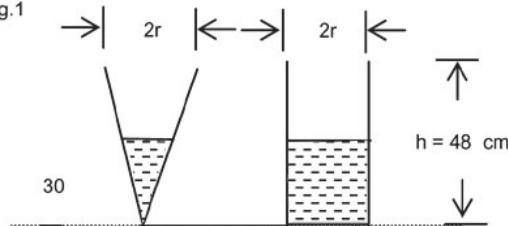


Fig.2

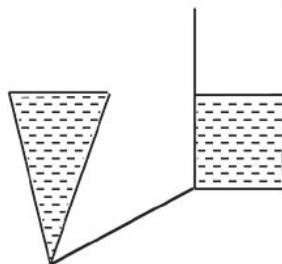
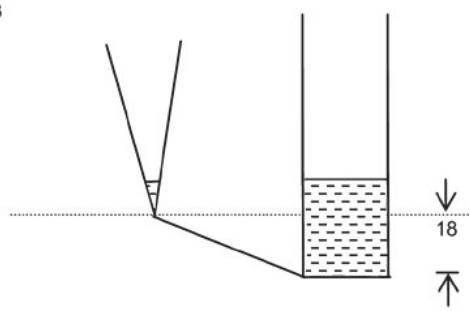


Fig.3



28. The volume of the cone is  $(1/3)\pi r^2 h = 16\pi r^2 = 8v$  (say) and that of the cylinder is  $\pi r^2 h = 48\pi r^2 = 24v$ . The volume of the water in the cone is  $v$  and that of the water in the cylinder is  $12v$ , i.e. the total is  $13v$ . If the cone is full to the brim, there is only  $5v$  in the cylinder. As the height corresponding to  $12v$  is 24 cm, the height corresponding to  $5v$  is 10 cm.  $\therefore x = h - 10 = 48 - 10 = 38$ , i.e. the cylinder is raised through 38 cm.

Choice (C)

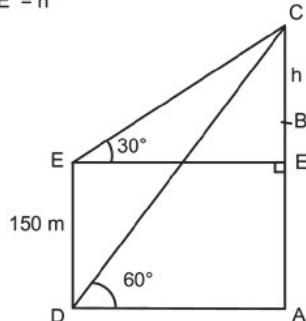
29. The cylinder is lowered by 18 cm. If there is no redistribution of water, the level in the cylinder would be 6 cm above the reference line (the initial level of the base of the cylinder and the tip of the cone). The level in the cone would be 24 cm. If all the water in the cone enters the cylinder, i.e. the volume of  $v$  enters the cylinder, the corresponding height of the water column would be 2 cm ( $\because$  for  $12v$  it is 24 cm)

$\therefore$  The actual water level, if the water is redistributed to maintain the same level in the two containers, would be between 6 cm and 8 cm from the reference line.

Choice (D)

#### Solution for question 30:

30. Let E' be a point, at a height of 150 m, on the first building. Let CE' =  $h$



$$\therefore EE' = \sqrt{3} h$$

$$AD = EE' = \sqrt{3} h$$

$$AC = \sqrt{3} (AD) = 3h$$

$$\therefore AE' = 2h = 150 \text{ m}$$

$$\Rightarrow AC = 3h = 225 \text{ m}$$

Since, the height of the first building AB = 200 m, the height of the flag-post is  $225 - 200$  i.e. 25 m.

Choice (B)

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

## SECTION – II

#### Solution for questions 1 to 3:

From condition (iv) no other student has opted for the subjects chosen by Binay  $\Rightarrow$  All other students chose their subjects from the remaining six subjects from condition (vi). Chako, Emran and Farhan have opted for no subject in common  $\Rightarrow$  they chose two subjects each from the six subjects and the remaining two subjects were chosen by Binay.

As none of Chako, Emran and Farhan chose Geography, it must be one of the subjects chosen by Binay. From above and from condition (iii), Binay cannot choose any of Botany, Physics and History. Further he cannot opt for Maths, Chemistry and Zoology as they were chosen by Don, Chako and Farhan respectively  $\Rightarrow$  Commerce must be the second subject chosen by Binay.

Thus all others must choose from Maths, Physics, Chemistry, Zoology, Botony and History.

The results obtained so far can be tabulated as follows.

Amar	Binay	Chako	Don	Emran	Farhan	Gaurav	Hari
History	Geography	Chemistry	Maths		Zoology	Botany	Chemistry
	Commerce						

From condition (i) Hari cannot opt for Maths and from condition (viii) Physics is not one of the subjects chosen by him. From condition (ii) he can neither opt for Botany nor opt for Zoology  $\Rightarrow$  History is the second subject chosen by Hari.

As no two students chose the same combination Chako cannot opt for History. From condition (i) and (viii), he cannot choose any of Physics and Maths. As Farhan opted for Zoology, he cannot choose the same, as per condition (vi)  $\Rightarrow$  Botany is the second subject chosen by Chako.

From above Emran must have chosen two subjects from Maths, Physics and History. However, from condition (i) and (iii) he can neither choose Physics nor choose History, if he were to choose Maths  $\Rightarrow$  Physics and History are the subjects chosen by him. From above, Maths must be the second subject chosen by Farhan.

The results obtained so far can be tabulated as follows.

Amar	Binary	Chako	Don	Emran	Farhan	Gaurav	Hari
History	Geography	Chemistry	Maths	Physics	Zoology	Botany	Chemistry
	Commerce	Botany		History	Maths		History

From condition (i) and (viii) Don cannot choose any of History, Chemistry and Physics  $\Rightarrow$  He chooses either Botany or Zoology. As Farhan already chose Zoology – Maths combination, Don must choose Botany.

As all subjects except Geography and Commerce are chosen by at least two persons, Physics and Zoology must be chosen by Gaurav and Amar (one subject each)

Amar can either choose Physics nor choose Chemistry as Emran has a combination of History – Physics and Hari has a combination of History – Chemistry and from condition (i) he cannot choose Maths  $\Rightarrow$  His second subject must be Zoology.

Thus Gaurav must choose Physics

Amar	Binary	Chako	Don	Emran	Farhan	Gaurav	Hari
History	Geography	Chemistry	Maths	Physics	Zoology	Botany	Chemistry
Zoology	Commerce	Botany	Botany	History	Maths	Physics	History

1. Emran chose Physics and History. Choice (A)
2. Gaurav opted for Botany and Physics. Choice (D)
3. Botany was chosen by three persons. Choice (A)

Stop	P	Q	R	S	T	U
Board	B, D	E				-
De board	-	D		B		C

As B is the only person to get down at S, E must get down at R. Only one among A or F can board the bus at R as B is already present in the bus. If A boards the bus at R, then both F and C must board the bus at S. However, as only B can get down at S there will be three persons in the bus at S.  $\Rightarrow$  A cannot board the bus at R.

$\Rightarrow$  A boards the bus at S and C boards the bus at T — (6)

F can board the bus at either R or S. If he boards the bus at R, he can get down at either T or U and A can get down at either T or U depending on F.

If F boards the bus at S, he has to get down at U  $\Rightarrow$  A gets down at T.

Thus the final arrangement can be as follows.

Case (i)

Stop	P	Q	R	S	T	U
Board	B,D	E	-	F,A	C	-
De board	-	D	E	B	A	F,C

Case (ii)

Stop	P	Q	R	S	T	U
Board	B,D	E	F	A	C	-
De board	-	D	E	B	F/A/F&A	C&A/C&F/C

4. In both the cases, A boarded the bus at S. Choice (B)

The result obtained so far can be tabulated as follows

5. Both P and S can be the stops where more than one person has boarded the bus.  
Choice (D)
6. Option (A) is not true in both the cases.  
In case (i) F cannot be the person who traveled the highest distance. Hence option (B) is not definitely true.  
In case (i) A and C did not travel together. Hence, option (c) is not definitely true.  
In both the cases, F and A traveled together for at least one kilometer. Hence, option (D) is definitely true.  
Choice (D)

#### Solutions for questions 7 to 9:

Given

$$\text{Engineer} \leftrightarrow \text{Housewife}$$

$$(\text{Male}) \quad (\text{S})$$

$$\text{Manager} \leftrightarrow \text{Doctor}$$

$$(\text{U}) \quad (\text{R})$$

As neither the editor nor the doctor is a female, in the second couple U is the female and R is the male.

As P is married to a house wife.

$\Rightarrow$  P must be the engineer and S is his wife.

$$\text{Engineer} \leftrightarrow \text{Housewife}$$

$$(\text{P}) \quad (\text{S})$$

As T is not a housewife, he is the editor and Q is the housewife.

7. T is the editor. Choice (B)

8. P and S is a married couple. Choice (A)

9. There are three males. Choice (B)

#### Solutions for questions 10 to 13:

##### Number of words and Explanatory notes for RC:

Number of words : 617

10. (A) is oversimplifying the passage. (B) relates only to para 1. (D) is brushed aside by (C). "The choice of metaethics is noncognitive" and "The choice of normative ethics is a noncognitive choice ...", are mentioned in the second paragraph. The author then moves on to divine command distinction of good and evil which are discussed in detail in the third and fourth paras. Choice D states the opposite aim of the author in the passage. In a sense, the author lists the cognitive conditions for ethically correct action but highlights the "noncognitive choice of cognitivism" element in the choice of normative ethics.

Thus, (C) is correct. Choice (C)

11. (A) can be reasonably inferred from para 1 which lists some cognitivist conditions for ethically correct action. Refer to the third sentence of para 1: These conditions include ..... applicable to moral agents. But the choice of normative ethics, is motivated in a noncognitive way. Refer to the last sentence of the second paragraph. (B) and (C) have been answered in the last paragraph. (B) has been answered through the lines: We can obey God willingly or begrudgingly.....In order to obey we first need to cultivate faith.....to cultivate faith in God.....tolerance for paradox.....be vigilant about self-deception and suffer for love. Choice C has also been answered through "subtle moral psychology", "obedience to God", "cultivate faith", "navigate treacherous maelstroms of despair" and the sentence "To imagine the enormity of the consequences of sin, yet to relish the possibilities of freedom, engenders anxiety or despair (which is to let one's life depend on conditions outside one's control or the very possibility of despair)." The author's important thesis is that Kierkegaard says that the choice of normative ethics is noncognitive and faith in God or religion can provide a direction or allow people to be led forward to make ethically sound choices.

So it is not one's cognition alone that drives us but faith which is a great element of the noncognitive choice. The author concludes by saying that we need to be vigilant about self-deception.....ultimate spiritual identity. Thus choice D can be put as a counter-question to the author because he does not sufficiently address the question of how one would deal with individuality and a decrease in spirituality, resulting from absolute freedom of choices in cases where belief in God is not paramount.

Choice (D)

12. The passage states distinctly that "God's definition of the distinction between good and evil outranks any human society's definition". This is given in the third sentence of the third para. So (A) is implicit. (B) and (C) are not stated. (D) is not completely correct, as Abraham obeyed the "ethical in the second sense".

Thus, (A) is correct.

Choice (A)

13. (A) and (D) are not completely wrong, but they are not as specific as (B) and (C). Refer to the last paragraph, ninth sentence onwards – "We first need to cultivate faith (in order to obey) and not be deaf ..... we need to learn to navigate ..... cultivate hope .... ultimate spiritual identify". Faith and hope and other values are required for spiritual wholeness. (B) skips the choices we need to make – "recognize the self absorption of demonic states, veer away from prudence and vanity and avoid mere conformity to social mores" and takes the true self, a result of much hard work, for granted. (C) is more comprehensive. Also the word 'absolutely' in choice A makes it extreme.

Thus, (C) is correct.

Choice (C)

#### Solutions for question 14:

14. Statement 'd' contains the central idea of the paragraph and is a more appropriate introductory sentence (Achieving unity is the best, delicious fruit...) as compared to statement 'b'. The sentence 'd' having the word 'unity' would precede sentence 'b' having the words '.....create unity....'. After having identified statement 'd' as the introduction sentence, one can observe the 'deb' link. 'best delicious fruit...' in statement 'd' is linked with '....fruit of unity..... and fruit of disunity....' given in sentence 'e' which also says that unity is precious. Statement 'b' follows next with the declaration that living a life of love and service that creates unity is not easy. Statement 'a' follows statement 'b' with the idea that though difficult, it is possible to live a life of love and service. Statement 'c' is a fitting conclusion to the paragraph. Choice C does not take the paragraph forward to a positive conclusion and distorts the thought flow wrongly with the 'bac' link. Choices A and B wrongly place the introductory sentence 'd' in the middle of the paragraph. So 'debauc'. The paragraph is taken from the book 'Seven habits of Highly Effective People' where Stephen R. Covey presents a holistic, integrated, principle-centred approach for solving personal and professional problems

Choice (D)

#### Solutions for questions 15 to 17:

##### Number of words and Explanatory notes for RC:

Number of words : 418

15. A liberal arts education enables one to acquire knowledge of the best thought of the past so as to live in an informed and reasonable way in the present. Students are favouring the vocational over the liberal arts and even within the liberal arts, students are choosing marketable or practical job-oriented subjects like economics. In the fourth para, Delbano mentions that the liberal arts are "soul-saving" (as a hedge against utilitarian values). Utilitarianism holds that the proper course of action is the one that maximizes utility, usually defined as maximizing happiness and reducing suffering. There is a difference between "soul-saving" and "skill-acquiring" education. So the passage implies that there is a conflict between "soul-saving" and

"utilitarian". This is best captured in choice B. Choice A is nowhere implied though the author does mention that a good deal of the old liberal arts education was dreary (Refer last paragraph). The nature of "skill-acquiring" curricula cannot be said to be flat or boring in nature. The same has not been discussed. So choice A can be eliminated. Choice C is not the assumption – one should not confuse "soul-saving" with "soul and body together". Choice C is a very general sentence and does not apply to the passage. There may be an overlap in the curriculum of "skill-acquiring education" and "liberal arts". So "mutually exclusive" as given in choice D cannot be inferred.

Choice (B)

16. In the last para, Delbanco warns that it won't do to posit (assume) some ideal but antiquated golden age when higher education approached perfection. The liberal arts education was dreary and people were not capable of understanding it. He also mentions in the third sentence of the penultimate para – Whether, in the majority of students who undertook to study the liberal arts, they truly were "soul-saving" or not may be open to question, but what isn't open to question is that today, the liberal arts have lost interest in their primary mission. So the author views the "golden age" of liberal arts with skepticism – (doubts whether the ideal objective was ever achieved). The author does not disapprove of the "golden age" of liberal arts. He mentions in the fourth para that the liberal arts had an important primary mission (....'attaining and sustaining curiosity and humility'....'engaging in some serious self-examination'....'action upon our mental nature, and the formation of our character'). So choice B is incorrect. 'condescension' is the trait of displaying arrogance by patronizing those considered inferior. The author does not have a condescending view of the "golden age" of liberal arts. So choice C is incorrect. Choice A is incorrect. 'disparaging' means to "speak in a slighting or disrespectful way; depreciating; belittling." This is not how the author views the "golden age" of liberal arts.      Choice (D)

17. Choice B does not weaken Delbanco's view who agrees with Max Weber that there is a distinction between "soul-saving" (liberal arts education) and "skill-acquiring" (vocational education) education. In the third para, the author says that students are "fleeing from 'useless' subjects to 'marketable' subjects such as economics," in the hope that this will lend them the practical credentials and cachets that might impress prospective employers. The penultimate sentence of the passage states that a liberal arts education does not hold a higher position in the world's regard today. So choice C is in agreement with Delbanco's view. Choice D again does not weaken Delbanco's view. Delbanco says that the liberal arts have lost interest in their primary mission of attaining and sustaining curiosity and humility in students, as given in the last sentence of the fourth paragraph. Choice A weakens Delbanco's view. In the last para, Delbanco warns that .....a good deal of the old liberal arts education was dreary ..... a liberal arts education does not hold a higher position in the world's regard today. Choice A seems to convey that the death of the liberal arts education would constitute a serious subtraction. Rivaling expert opinions and the vaunting or boasting of the second- and third-rate in politics and art would take over the first rate opinions or judgements or standards that constitute the liberal arts education or training.      Choice (A)

#### Solutions for questions 18:

18. The correction is required in choice D. One needs to use 'broken' and not 'broken up'. The sentence should read "We could see, far off the distance, a long line of low hills, broken by a few intervening valleys." This means that the valleys "varied or disrupted the uniformity or continuity of the hills". The other choices have the correct usage of the word "break". "break him in" in choice A indicates "to train or adapt for a purpose or for use by humans". "break with

tradition" in choice B means "to do something different from what is usually done". "break into" here means "to gain acceptance at new or improved levels of performance in a same or different activity." In other cases, "break into" can have other meanings like "success in an area of activity", "to enter into a new area or activity" etc. So the answer is D.      Choice (D)

#### Solutions for questions 19:

19. If one observes carefully, the paragraph moves from 'personal integrity' to 'integrated character'. Looking at key words in the paragraph, we can identify the 'ced' link. The paragraph begins with statement 'c' ('.....trust.....different kinds of deposits') which is followed by statement 'e' ('.....high trust accounts'). This in turn is followed by statement 'd' ('.....build reserves of trust.....'). Also statement 'd' by mentioning '.....seek to understand, remember the little things, keep their promises, clarify and fulfill expectations, and still fail to build reserves of trust.....' clarifies the '....almost any other effort...' mentioned earlier in statement 'e'. So 'ced'. Statement 'b' follows next. The '....going beyond.....' mentioned in statement 'b' links with the requirement of 'integrated character' as given in statement 'a'. The key word approach makes the other choices wrong. So even though there are stand-alone sentences which can be arranged in any order, the key phrases as discussed above make the other choices wrong. 'cedba' is the correct sequence. The one clear link ('ba') helps one in confirming the answer.

Choice (A)

#### Solution for question 20:

20. The author begins the paragraph by questioning the idea that privatization invariably improves corporate governance, management, and performance. He then stresses the importance of the shareholders. The penultimate sentence focuses on the weakness of the managers. So the last sentence should complete the idea that shareholders' support to an enterprise can help in minimizing the weakness of the managers. So option B is the best choice to complete the paragraph. Choice D is a new line of thought (operational and financial restructuring) which needs expansion. Choice C runs tangent to the argument. "Investors when they themselves add value" .....shifts the focus of the topic of discussion. Choice A can begin a new paragraph and cannot serve as an end statement. It is an extended thought (In addition to privatization ....) and speaks about a course of action to attract foreign investors. This would need elaboration.

Choice (B)

#### Solutions for questions 21 and 22:

21. The sentence wishes to convey that Republicans and Democrats may not agree on a number of things. The second part of the sentence has the contrast word 'but'. So that part states that there may be a point of agreement between the two. The second blank needs a positive word. Both the Republicans and Democrats are looking to pursue smart policies that reduce the likelihood of repeat offenses among released prisoners.

Upon reading the sentence, we infer that the first blank is to be filled by a synonym of 'relapse' or 'repeat offenses'. The word 'recidivistic' means 'habitual relapse into crime'. 'Cataplasia' is a term that refers to the degenerative reversion of cells or tissue to a less differentiated or more primitive form. 'Retrogradation' means 'moving or tending backward' or 'reverting to an earlier or inferior condition'. 'disambiguation' (clarification that follows from the removal of ambiguity) is contextually inappropriate. One is not speaking of 'disambiguation' among released prisoners.

'bipartisan' means 'of, consisting of, or supported by members of two parties, especially two major political parties'. 'Bicameral' means, 'pertaining to both the houses of a legislative body'. 'Dichotomic' means, 'pertaining to the

division into two mutually exclusive, contradictory groups'. 'Phantasmagorical' which means 'characterized by fantastic imagery and incongruous juxtapositions' can be eliminated right away.

So on looking at the specific meanings of the words, the first blank is filled appropriately by 'recidivism' and the second blank is filled by 'bipartisan'. The correct answer option is A (recidivism.....bipartisan). Choice (A)

22. 'Dogmatic' means accepting beliefs without arguments, without considering evidence or lack thereof. 'Plangent' means expressing sadness. 'Iconoclastic' means critical of popular beliefs and established customs without taking into account their relevance. So the first blank needs a word to go with 'reject religious claims.' So 'dogmatic' is the best word to fill this blank. 'Iconoclastic' and 'plangent' are contextually inappropriate.

The second blank needs to be filled by a word that is, in a sense, antonymous to 'dogmatic'. To 'reject claims apriori' means to use just the information available at hand to come to a conclusion, without conducting experiments or seeking more facts. 'a fortiori' (meaning, with an even stronger reason), 'ad hominem' (meaning, directed against a person's character rather than his argument) and 'ad finem' (to the end) are contextually inappropriate. Choice (C)

#### Solutions for questions 23 to 25:

##### Number of words and Explanatory notes for RC:

Number of words : 740

23. Refer to the fifth or the penultimate para of the passage. The paragraph mentions that California was built from scratch.....on the foundation of virtues cultivated and nourished in Old Europe and the American heartland. At the same time, its people are practical. They seek or invent new virtues and new modes of living to start over all again, unencumbered (not burdened, impeded, or hampered). The words "start all over, unencumbered" imply that California is a land of opportunity. So Choice C is correct. (This is reiterated by "extraordinary sensation of freedom", "everyone could come here and have opportunities", "knack for meeting high expectations" etc. as given in the last para). The melting pot is a metaphor for a heterogeneous society becoming more homogeneous, the different elements "melting together" into a harmonious whole with a common culture. This assimilation of people is not referred to in the fifth paragraph. So choice B is also incorrect. Choices A and D are not implied and are incorrect. Choice (C)

24. Refer to the second sentence of the second para of the passage - It was more than 200 years before a party of religious ascetics finally returned, bent on saving souls. The author follows up this quote with a blatant criticism of religious ascetics as religious fanatics in the third paragraph where he states – Religious fanaticism gave way to greed, lust, treachery, and vaulting ambition to have it all. So the tone of the author would be sarcastic when he quotes – "bent on saving souls". Prophecy (a prediction of the future, made under divine inspiration or an inspired utterance of a prophet, viewed as a revelation of divine will) and piety (quality of being pious, devoted or respectful to a higher power) are incorrect. So statement 'a' is incorrect.

Refer to the second sentence of the third para of the passage. It has been mentioned that "Religious fanaticism gave way to greed, lust, treachery, and vaulting ambition to have it all." But the 49ers refers to gold prospectors (The Gold Rush drew a different type of man – men with greed, lust, treachery, and vaulting ambition to have it all) and not "religious fanatics". So statement 'b' is incorrect.

Statement 'c' is incorrect. The passage describes the genesis of California and how different circumstances and different people (waves of people) entering California at different points of time left a profound mark or impact on

the land. Historiography is usually used to refer to the principles, theories, or methodology of scholarly historical research and presentation.

Refer to the seventh sentence of the second para of the passage - Sailing "downhill" is, to this day, a breeze and a blast; north is a miserable business. So walking north or upwind was a challenge. One walked against the wind while going north. "California was afflicted by distance" would be incorrect when one is southbound. So statement 'd' is incorrect. None of statements (a), (b), (c) and (d) are true. Choice (D)

25. The first settlers in California were religious ascetics who built settlements almost 200 years after the Portuguese explorer Juan Rodriguez Cabrillo discovered the place in 1542. (Refer to the second paragraph). The Gold rush happened much later. So statement 'a' is incorrect.

Refer to the third sentence of the fourth para of the passage - The next war, the war that "created money," brought the second, and last, wave of adults to California. So the Second World War is the war that created money and chronologically, the second war follows the First World War. So statement 'b' can be inferred. The use of the word 'after' is also correct here. One is not stating that California entered a phase of rapid and considerable development immediately following World War I (which would be incorrect).

Refer to the seventh sentence of the second para of the passage - Sailing "downhill" is, to this day, a breeze and a blast. So statement 'c' can be inferred.

There is no data in the passage to infer statement 'd'.

Refer to the third sentence of the second para - The first settlement they (the party of religious ascetics) built, Mission San Diego de Alcalá, was 1,500 miles from the colonial capital of Mexico City.....Also 1542 was more than 200 years before this event. So statement 'e' (Part of California was a Mexico colony during the 1700s) can be inferred.

So statements 'b', 'c' and 'e' can be supported by the passage. Choice (B)

#### Solutions for questions 26 and 27:

26. In part 'b', 'by' has to be corrected as 'for' (.... lambasting .... for ignoring). In part 'c' pullulates has to be followed by the proposition 'with' and in part 'd' the correction is 'ensconced in' ('ensconced between' is wrong). Only parts 'a' and 'e' are correct. Choice (A)

27. In sentence a, the word 'reckon' should be used, not 'reckoning'. Here 'used to reckon' is not an adjective phrase describing 'Western intelligence agencies' (because this would require another verb after ..... 2004). 'used (to reckon)' is a verb, here. So part 'a' has an error. In sentence 'b' the preposition 'of' is incorrect. 'on' or 'about' should be used in place of 'of'. One always publishes/writes a report on ..... or one publishes/writes a report about ..... Here one is not using 'report' to indicate information that one has heard or oral (verbal) information (eg. The report of his crimes ..... etc). So part 'b' has an error and it should be corrected as ..... published a report in November 2011 about Iran's refusal to allow the agency's inspectors ..... In part 'c', there is a punctuation error. The word 'implosion type' should be hyphenated. The word should read 'implosion-type'. Part 'd' is correct. Part 'e' is also correct. Choice (D)

#### Solution for question 28:

28. It should be noted that the paragraph as a whole focuses on the connotations associated with ideology and not on ideologies. Sentence B is a general stand-alone sentence that begins the paragraph portraying a contrast. It states that the connotations associated with ideology have undergone changes even though the core definition of

ideology has remained the same. Sentence A gives a past reference. Totalitarian ideology is symbolized as evil and democracy as good. Sentence C again speaks of the bad connotation of the 'ideology of the new capitalism'. So sentences B, A and C in that order form a coherent para. Sentence D just gives a structural feature of ideology and does not flow with the remaining sentences. It can come in another paragraph. So sentence D is the odd man out.

Choice (D)

**Solutions for questions 29 and 30:**

**Number of words and Explanatory notes for RC:**

Number of words : 413

29. Choice A is not true. The Davos meeting is for business and other elites (not 'heads of state'). Choice B refers to the past ideals of the United Nations. Refer to the second sentence of the second paragraph - Governing institutions today have lost sight of the principle of politics rooted in the collective values of a *res publica*, even as they continue to defend the "civilization of capital." *res publica* is latin for "the public thing or affair". "Res" is a nominative singular latin noun for a substantive or concrete thing. "*publica*" is an attributive adjective meaning "of and / or pertaining to the state or the public". So choice C is true. Choice D is extreme.

Choice (C)

30. "governing the world" refers to "the future could be planned and tackled with foresight on behalf of entire communities and nations – perhaps even for the world as a whole." This is attributed to twentieth-century institution-builders of institutions such as the United Nations. So statement I is incorrect.

Refer to the third sentence of the first para. "it" refers to the future, more important than ever, which has been

privatized, monetized and turned into a source of profit. So statement II is incorrect.

Refer to the sentences in the first para: Today, when the primacy of the fact is challenged by the World Wide Web – a recent article hails the fact's death – the future, more important than ever, has been privatized, monetized and turned into a source of profit. .... But this money-driven individualistic future (unknowable) has crowded out an older vision of what the public good might look like. For the 20<sup>th</sup> century institution builders, the future could be tackled .... with foresight on behalf of .... nations and world. So statement III is correct.

Refer to the penultimate sentences of the passage: Our representatives continue to hand over power to experts and self-interested self-regulators in the name of efficient global governance while a skeptical and alienated public looks on. Here "alienated public" helps us infer statement IV.

"hand over power to experts and self-interested self-regulators" refers to corporate tycoons and not lobbyists. One also cannot say that all politicians are members of an international ruling elite. So statement V is not true. So statements III and IV are correct.

Choice (B)

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