

# CAT 2016 Question Paper

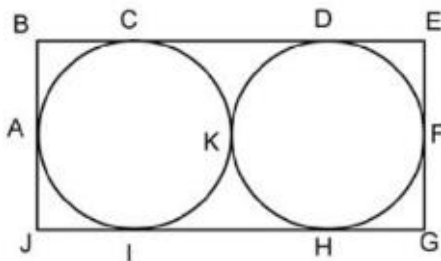
## INSTRUCTIONS

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 6: Answer the questions independently of each other.

1. Two friends, P and Q, regularly go for a walk in a park. The park has paths laid out for walkers as shown in the figure below, with two identical circular paths touching each other, enclosed perfectly within another rectangular path.



Everyday, both P and Q start simultaneously from the point A. P continuously walks along the rectangular route A B C D E F G H I J A, whereas Q continuously walks along the route A C K H F D K I A (describing a figure of '8' in each round). The radius of each of the circular paths is 5 m. What is the ratio of the speeds of Q and P, if they meet for the first time (after the start) when P completes exactly 5 rounds and Q completes exactly 4 rounds?

- (A)  $4\pi : 15$  (B)  $15 : 5\pi$   
(C)  $15 : 4\pi$  (D)  $5\pi : 16$

3. If  $p, q, r, s$  are four positive numbers, and  $f(x) = |p + q| - |p - q| + |r + s| - |r - s|$ , then  $f(x)$  is equal to  
(A)  $\text{Min}(p, q) + 2 \text{Max}(r, s)$   
(B)  $\text{Max}(p, q) + 2 \text{Min}(r, s)$   
(C)  $2 \text{Max}(p, q) + 2 \text{Max}(r, s)$   
(D)  $2 \text{Min}(p, q) + 2 \text{Min}(r, s)$
4. There are five blue chairs and four pink chairs in a class of nine students, comprising five boys and four girls. Before lunch, the five boys sat on the blue chairs and the four girls sat on the pink chairs. If after lunch, no girl sat on the same chair on which she was sitting before lunch, but all the girls sat on pink chairs, in how many ways can all the students be seated?  
(A)  $3^4 5!$  (B)  $15(5!)$  (C)  $4!(5! - 1)$  (D)  $9(5!)$
5. Given  $a, b, c, d$  are distinct prime numbers such that  $X = a^p b^q c^r d^s$  has 2016 factors;  
 $Y = b^p d^q a^s$  has 168 factors;  
and  $Z = c^q b^r d^s$  has 288 factors.  
What is the minimum possible value of  $p + q + r + s$ ?  
(A) 23 (B) 29 (C) 25 (D) 26
6. Amit borrowed ₹21,000 from Vinay at 10% p.a., under compound interest, compounded annually. If Amit has to repay the loan in two equal annual instalments, find the amount that he needs to pay in each instalment.  
(A) ₹12,100 (B) ₹12,600  
(C) ₹12,705 (D) ₹12,000

2. Two of the vertices of a regular pentagon drawn on the co-ordinate plane are known to be (10, 20) and (17, 40). What is the ratio of the maximum possible area to the minimum possible area of such a

pentagon?  $\cos 36^\circ = \frac{(\sqrt{5}+1)}{4}$ .

- (A)  $4 - \frac{\sqrt{5}}{2}$                       (B)  $2 + \frac{\sqrt{5}}{2}$   
 (C)  $\frac{3}{2} + \frac{\sqrt{5}}{2}$                       (D)  $3 + \frac{2}{\sqrt{5}}$

**DIRECTIONS** for question 7: 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.

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

7. If the points scored in a basketball match are always whole numbers, did Ajay score the highest number of points for his team in the basketball match?
- I. All the seven players who played for Ajay's team in the match scored points and Ajay scored 35 points out of a total of 74 points scored by his team.
  - II. Ajay scored 32 points in the match but his team lost to their opponents who scored a total of 60 points.

**DIRECTIONS** for questions 8 to 10: Answer the questions on the basis of the information given below.

A company has five clients – A, B, C, D and E. The number of hours of work done for each client and the billing rates for each client are given, for each year from 2004 to 2009, in the following tables:

**Number of hours**

Client	Year					
	2004	2005	2006	2007	2008	2009
A	25,000	27,500	29,500	32,000	28,000	30,000
B	15,000	18,000	23,000	30,000	32,000	29,000
C	24,000	26,000	28,000	27,000	30,000	32,000
D	16,000	18,000	19,000	26,000	24,500	22,000
E	18,000	21,500	23,500	30,000	42,000	36,000

**Billing rates**

(in ₹per hour)

Client	Year					
	2004	2005	2006	2007	2008	2009
A	400	450	525	600	500	550
B	300	350	350	400	450	500
C	250	350	300	450	500	300
D	300	250	300	400	450	500
E	450	500	600	550	350	450

Revenue = Number of hours of work × Billing rate per hour

**DIRECTIONS** for questions 11 to 17: Answer the questions independently of each other.

11. Two persons A and B work on a certain job on alternate days. If A works on Day 1, the job gets completed in 17 days. If B works on Day 1, the job gets completed in  $17\frac{3}{4}$  days. If both of them work together on the job, then the job will be completed in
- (A)  $8\frac{4}{7}$  days                      (B)  $5\frac{4}{5}$  days  
 (C)  $8\frac{4}{5}$  days                      (D)  $6\frac{3}{7}$  days
12. If  $5^a = 6$ ,  $6^b = 7$ ,  $7^c = 8$ ,  $8^d = 9$  .....  $24^t = 25$ , then the product  $abcde \dots st =$
- (A)  $\frac{25!}{4!}$       (B)  $\frac{24!}{5!}$       (C) 5      (D) 2
13. Everyday Sheldon saves ₹41 in a shelf at 10:00 a.m. His friend Cooper checks the amount in the shelf everyday at 10:00 p.m. and if the amount in the shelf is more than or equal to ₹100, Cooper takes ₹100 from it. On January 1<sup>st</sup> of a certain year, Sheldon observed that the amount in the shelf was exactly one rupee before saving the amount for that day. If after some days Sheldon noticed that for the first time in that year the shelf was empty when he opened it to save the amount for that day, and he stopped saving money from that day onwards, what was the total amount taken by Cooper from the shelf in that year?
- (A) ₹2297    (B) ₹5700    (C) ₹1600    (D) ₹2300
14. If  $A = \{1, 2, 3, 4, \dots, 19, 20\}$ , then how many subsets of A are possible such that the product of all the elements of the subset is even.
- (A)  $2^{10} - 1$                       (B)  $2^{19} - 2^9$   
 (C)  $2^{20} - 2^{10}$                       (D)  $2^{10} (2^{10} - 1) - 1$
15. Gautham, who was traveling in a 400 metre long train, standing exactly at the midpoint of the train, sees a pole pass by him at 8:00 a.m. He immediately starts to walk 100 m towards the engine, after which he immediately turns back and walks 50 m, and then turns back and walks 25 m, and so on. If the speed of train is 45 km/hr and Gautham walks at a uniform speed of 5 m/s, how far is Gautham from the pole when he stops walking?
- (A)  $666\frac{1}{3}$  m                      (B)  $633\frac{1}{3}$  m  
 (C)  $533\frac{1}{3}$  m                      (D)  $566\frac{2}{3}$  m

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8. The maximum revenue earned by the company from any single client in any single year was from client  
(A) A. (B) B. (C) C. (D) E.
9. Considering the total revenue earned by the company from each of the five clients over the given period, the minimum revenue (in ₹ crore) earned from any client was  
(A) 4.04 (B) 4.74 (C) 5.98 (D) 6.03
10. For which of the following clients is the percentage increase in revenue from 2004 to 2009 the highest?  
(A) A (B) B (C) D (D) E
16. Ram and Shyam invested ₹36,000 and ₹54,000 respectively to start a business together. At the end of every year, Ram got a fixed amount as annual salary from out of the year's profit, for managing the business. After Ram was paid his salary, the remaining profit was distributed to both of them in the ratio of their investments. If at the end of the first year, the total amounts received by Ram and Shyam were in the ratio of 3 : 2, then what percent of profit did Ram receive as salary?  
(A) 25% (B)  $33\frac{1}{3}\%$  (C) 20% (D) 50%

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17. What is the remainder when 853853853..... upto 100 digits is divided by 1001?  
 (A) 641 (B) 718 (C) 0 (D) 530

**DIRECTIONS** for questions 18 and 19: Answer the questions on the basis of the information given below.

All the 600 employees working in an IT company were surveyed for their preference of beverage between coffee and tea. The proportion of employees in each department who prefer each beverage is given below:

Department	Beverage preferred	
	Coffee	Tea
Accounts		0.7
Strategy	0.4	
IT		0.5
Administration		
Total		0.585

The number of employees working in the Accounts, Strategy, IT and Administration departments were in the ratio of 6 : 3 : 7 : 4 respectively.

18. In which department is the number of employees who prefer coffee the least?  
 (A) Accounts (B) Strategy  
 (C) IT (D) Administration
19. The highest difference in the number of employees who prefer tea across any two departments is  
 (A) 60 (B) 69 (C) 51 (D) 72

**DIRECTIONS** for questions 20 to 23: Answer the questions independently of each other.

20. In a society, 50 people know Telugu, 40 know Hindi and 30 know English. The number of people who know Telugu and Hindi is 15. The number of people who know Hindi and English is 8 and the number of people who know Telugu and English but not Hindi is 4. If each member of the society knows at least one of the three languages, what is the number of people in the society?  
 (A) 93  
 (B) 87  
 (C) 96  
 (D) Cannot be determined

23. A shopkeeper bought an article at ₹1000 and marked up its price by  $x\%$ . If he then gave a discount of  $\frac{2x}{5}\%$  and still got a profit percentage of

$\frac{2x}{5}\%$ , find the amount of discount given?

- (A) ₹200 (B) ₹300 (C) ₹500 (D) ₹600

**DIRECTIONS** for questions 24 to 27: Answer the questions on the basis of the information given below.

On a certain national holiday, Raman had nothing much to do, and so decided to take a ride in a city bus. Therefore, he went to Worli Bus station (WBS), and boarded an empty bus which was to go to Thane Bus Station (TBS). As the bus was an executive service, it had only five intermediate stops in between. Since he was idling away his time while the bus was still parked at WBS, he decided to take note and keep track of the number of passengers, other than himself, who boarded and got off the bus at different stops. He noted down these values at each stop and finally, when the bus reached TBS, he had the following information with him. He also observed that no person got off at the same stop at which he/she boarded.

Bus Stop	Number of passengers who	
	Boarded	Got Off
WBS (First stop)	16	0
Bandra	11	8
Andheri	15	14
Borivili	16	9
Juhu	18	17
Goregaon	8	13
TBS (Last stop)	0	*

\* All the remaining passengers got off the bus at the last stop.

24. What is the maximum number of passengers who travelled from WBS to TBS in the bus?  
 (A) 6 (B) 4 (C) 7 (D) 5
25. At most how many passengers who boarded the bus at Andheri got off at Juhu?  
 (A) 9 (B) 11 (C) 13 (D) 14

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21. If  $T = 2\cos^4\theta + \sin^2\theta + 3$ , then the range of T is

- (A)  $\left[\frac{1}{2}, 5\right]$  (B)  $[2, 3]$   
(C)  $\left[\frac{31}{8}, 5\right]$  (D)  $\left[\frac{31}{7}, 4\right]$

22. Amol purchased some bananas, oranges and mangoes such that the number of bananas was not less than half the number of mangoes and the number of oranges was not less than one-third the number of bananas. If the prices (in ₹) of each banana, orange and mango are 12, 16 and 10 respectively, and Amol selected the numbers of fruits of each variety so as to minimize the average cost of all the fruits purchased, which among the following can be the total number of fruits purchased by him?

- (A) 75 (B) 70 (C) 73 (D) 77

26. At most how many passengers who boarded the bus at any stop got off at the immediately next stop?

- (A) 57 (B) 63 (C) 65 (D) 69

27. At most how many passengers who boarded the bus at any stop got off at the third stop after that?

- (A) 15 (B) 12  
(C) 17 (D) 18

**DIRECTIONS** for questions 28 to 30: Answer the questions independently of each other.

28. If  $\log_2(\log_4 2^{a-b}) = 2\log_2(\sqrt{a} - \sqrt{b}) + 1$ , what percentage of  $a$  is  $b$ ?

- (A) 44.44%  
(B) 36%  
(C) 60%  
(D) Cannot be determined

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29. Find the sum of the series  $S = \frac{1}{\sqrt{1+\sqrt{3}}} + \frac{1}{\sqrt{2+2}} +$

$$\frac{1}{\sqrt{3+\sqrt{5}}} + \frac{1}{2+\sqrt{6}} \dots \dots \dots \frac{1}{\sqrt{119+\sqrt{121}}}$$

- (A) 5  
(B)  $\frac{2\sqrt{15}+1}{2}$   
(C)  $5 + \frac{2\sqrt{15}-1}{\sqrt{2}}$   
(D)  $\frac{10+2\sqrt{30}+\sqrt{2}}{2}$

30. In a very large grass field there is a rectangular plot, of dimensions 15 m × 5 m, fenced on all four sides. If at one corner inside the plot, a goat is tied with a rope of length 10 m, calculate the area (in sq.m.) over which the goat can graze. (The goat cannot cross the fence)

- (A)  $25\pi$   
(B)  $\frac{25\pi}{4}$   
(C)  $\frac{100\pi+150\sqrt{3}}{12}$   
(D)  $\frac{100\pi+25\sqrt{3}}{4}$

## SECTION – II Number of Questions = 30

**DIRECTIONS** for question 1: There are two blanks in the question. From the pairs of words given below the sentence, choose the pair that fills the blanks most appropriately.

1. Every year, as Mother's Day grows more consumerist and \_\_\_\_\_, I like it less; it's the worst of the heathen red-letter days that dot the modern calendar, \_\_\_\_\_ by supermarkets and greetings-card manufacturers to extend the "Occasion Day" gift-fest months past Christmas.
- (A) meretricious . . . promoted  
(B) eponymous . . . bolstered  
(C) vicissitudinous . . . advocated  
(D) blatant . . . faked

**DIRECTIONS** for questions 2 to 5: Read the following passage and answer the questions that follow it.

Literature today seems to emerge from an apolitical and borderless cosmopolis and it is often peopled by characters with exotic names and postmodern inclinations. Even the mildly adversarial idea of the "postcolonial" that emerged in the 1980s, when authors from Britain's former colonial possessions appeared to be "writing back" to the imperial centre, has been blunted. The announcement this month that the Man Booker, a literary prize made distinctive by its Indian, South African, Irish, Scottish and Australian winners, will henceforth be open to American novels is one more sign of the steady erasure of national and historical specificity.

Tim Parks, among others, has deplored the dominance of the "global novel" as practised by Haruki Murakami, Umberto Eco, Kazuo Ishiguro and Salman Rushdie. Marked by an internationally identifiable and translatable literariness, not to mention cuddly-bear politics, such fictions threaten to render obsolete, according to Parks, "the kind of work that revels in the subtle nuances of its own language and literary culture". More recently, the English critic Philip Hensher has complained that "a superficial multicultural aspect" of this year's Man Booker shortlist conceals "a specifically North American taste".

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It's too easy to blame such fears of covert suburbanisation on a condescending Little-Englandism. Naguib Mahfouz, little read in the Anglophone world before his 1988 Nobel Prize in Literature, addressed a predominantly Egyptian public for much of his life. Today, it is the prospect of international success that tempts – and often shapes the work of – many aspiring writers from Asia and Africa. Gliding between exotically sited literary festivals, and often educated, or resident, in Europe or America, they can appear to embody the bland consensus of transnational elites, denuded of the differences and antagonisms that define a genuinely pluralist culture. Books don't sell on their own merits and are hostage to marketing ploys and dubiously judged literary awards. The literary festivals have flourished. You take an exotic location, a mobile and relatively wealthy expatriate audience, throw in the global aspirations of educated indigenous elites, the ubiquity of the English language, package it in boutique hotels serving Chardonnay and Canapés and you have the makings of a cerebral cornucopia with tropical characteristics. Authors are quizzed about the how and why of their oeuvres, rather than the meaning of their stories.

Soon after independence, things had begun to fall apart in Asia and Africa's fledgling nation-states. No one recoiled from postcolonial dysfunction more intensely and quickly than the indigenous bourgeoisie for which expatriation to the West – spiritual as well as physical – became an intense aspiration and an ideal. Western-style pedagogy had already produced many **deracinated** colonials in the tropics, who spent their time fantasising about eating apples in temperate climes – pretending “to be real”. Literary fictionists were often expected to supply the myths and legends that an insufficiently imagined community needed in order to become cohesive and coherent.

But the homogenising and depoliticising effects of the “global novel” can also be exaggerated, to the point where every writer of non-western origin seems to be vending a consumable – rather than a challenging-cultural otherness. The Benetton-ish cosmopolitanism ascribed to them, or such hip self-identifications as “Afropolitan”, risks obscuring the fact that military coups, civil wars, despotic regimes, fundamentalisms and economic calamities – still mould the themes and preoccupations of writers from Africa and Asia, and oblige them to explore social as well as intimate relationships.



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Remarking once on the dazzling artistic vitality of crisis-ridden Europe in the early 20th century, the historian Perry Anderson worried that the "contemporary artist in the West" finds himself facing "the closure of horizons: without an appropriate past, or imaginable future, in an interminably recurrent present". This end-of-history gloom in the arts can seem as exaggerated as its political Fukuyama-ist counterpart: literature of appreciable quality continues to be produced by the chroniclers of pacified capitalist democracies. It is true, nevertheless, that writers from incompletely modern Asia and Africa still find themselves at historical crossroads – the place where Louis Vuitton coexists with child soldiers. And it is likely that a bolder cartography of the imagination will emerge from these revelatory conjunctures of countries "poised", as Arundhati Roy wrote in *The God of Small Things*, "between the terror of war and the horror of peace".

2. The author discusses Mahfouz to drive home the point that
  - (A) his realist novels focussed public attention on Egypt's social, economic and political ills.
  - (B) today's postcolonial writers play to the international and elitist gallery.
  - (C) he achieved universal recognition only when he won the Nobel Prize.
  - (D) North America is not receptive to overly nationalistic literature.
3. Which of the following echoes the point of view expressed by the author in the penultimate paragraph?
  - (A) "Benetton-ish cosmopolitanism" symbolizes the impact of a West organized for profit and power on tradition minded societies.
  - (B) Having a global perspective on postcolonial issues helps Afropolitans camouflage their mixed cultural identity.
  - (C) The globalised Asian and African intelligentsia, once programmed to boost the West's most flattering self-images, is now politically more recalcitrant and internally diverse.
  - (D) Close examination may indicate that, in some 'global' novels, African and Asian writers attempt to cope with the traumas of the postcolonial world.

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

In a Railway Station, the parcel supervisor processed five parcels – a Basket of Vegetables, a Motorcycle, a Computer, a Set of Magazines and a Bundle of Textiles – booked for five different destinations – Delhi, Mumbai, Chennai, Bangalore and Hyderabad. However, the clerk, while marking the destinations on the packages, made a mistake, as a result of which none of the packages reached its correct destination, i.e., the destination for which it was booked. The packages were loaded on to five different trains – Shatabdi Express, Rajadhani Express, A.P. Express, Himsagar Express and Duronto Express – each destined for a different city among the five intended destinations.

Further, it is known that

- (i) the Basket of Vegetables was not booked for Chennai and it was loaded on to Shatabdi Express.
- (ii) the Motorcycle, which was booked for Bangalore, reached Delhi.
- (iii) the Computer was booked for Hyderabad and A.P. Express goes to Hyderabad.
- (iv) the Bundle of Textiles was loaded on to Himsagar Express and either the Bundle of Textiles or the Set of Magazines was booked for Mumbai.
- (v) Rajadhani Express is the only train that goes to Bangalore.

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4. It can be understood from the passage that
- (A) multiculturalism, political correctness, translatable literariness and native idioms can be attributed to the "Global novel".
  - (B) the author of the passage is a political leader in exile.
  - (C) the word 'deracinated' means "pulled up as if by the roots and displaced from one's accustomed geographical, social or cultural environment."
  - (D) in the first paragraph, the author upholds the literary fragment against the grand narrative of history and progress.
5. If you were to interview the author, what follow-up question would you ask him in order to further your understanding of the passage?
- (A) Is the global writer something of a contortionist these days?
  - (B) Can vitality in writing be achieved in spite of placidity of circumstance?
  - (C) Are writers' festivals the literary equivalent of a catwalk?
  - (D) Does Bennettonizing literature amount to seeking consensus and advertising the uniform and non-problematic rather than highlighting the different and the antagonistic that challenge a writer to write?
6. If Shatabdi Express goes to Chennai, at which of the following stations was the Bundle of Textiles unloaded?
- (A) Chennai
  - (B) Hyderabad
  - (C) Mumbai
  - (D) Cannot be determined
7. If the parcel booked for Mumbai reached Hyderabad, then the parcel booked for Delhi reached
- (A) Bangalore.
  - (B) Mumbai.
  - (C) Chennai.
  - (D) Either (B) or (C).
8. Which of the following parcels reached the station for which the Bundle of Textiles was booked?
- (A) The Basket of Vegetables
  - (B) The MotorCycle
  - (C) The Computer
  - (D) The Set of Magazines
- DIRECTIONS** for question 9: In the question, there are five sentences or parts of sentences that form a paragraph. Identify the sentence(s) or part(s) of sentence(s) that is/are correct in terms of grammar, punctuation, spelling and usage. Then, choose the **most appropriate** option.

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9. (a) Ahmedabad's sveltering temperatures  
(b) keep usually visitors at a minimum,  
(c) but more than 100 officials from Baroda descended  
(d) last week in the city to investigate what State media  
(e) has dubbed Ahmedabad's biggest financial scandal in years.
- (A) Only c                      (B) c and d  
(C) a, b and e                (D) Only d

**DIRECTIONS** for questions 10 to 12: Each of the following questions 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.

10. I have often wondered whether man's ability to think might not have arisen from a retrogressive evolutionary step. Instead of the brilliant, incisive and locked-on brain of an animal, some faulty gene gave a muddled, fuzzy indecisive brain that was always making mistakes. The locked-on brain has instant and precise recognition followed by appropriate action. The bee, the hawk, the deer

the numbers into a business decision based on the probability of alternative strategic assumptions.

- (A) Whole layers of management will think better of making decisions or leading; they will function as "relays" – human boosters for the faint, unfocussed signals that pass for communication in the traditional pre-information organization.  
(B) The large business, 20 years hence, is more likely to resemble a hospital or a symphony than a typical manufacturing company; the "quill pen" will be replaced by information technology and the "barefoot runners" by the telecommunication system; helping in a better analysis of strategic assumptions.  
(C) So the decision both presupposes a business strategy and challenges that strategy and its assumption; what was once a budget exercise becomes an analysis of policy.  
(D) Anyone with a spreadsheet or data-processing capacity should be able to quickly analyze a proposed capital-investment by understanding the expected rate of return, payout period, investment's expected productive life, cost and risk in case of failure and finally the opportunity cost.

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have built-in circuitry that recognizes the situation and releases the appropriate action. A fuzzy and blurry brain takes much longer to recognize something. It has to learn from experience and to devise images and a sort of language in order to re-run experience at the moment of action. The fuzzy brain can also make mistakes that allow for inappropriate action and the crossing of lines that leads to creativity. \_\_\_\_\_

- (A) It could be that human matters are so complicated by interactive change and feedback loops that our ordinary linear thinking is unable to cope.
- (B) The human mind is incapable of taking meaningful and appropriate actions but man's relative stupidity is probably his greatest resource.
- (C) In order to make sense of a complex world, human thinking may have developed some habits and orthodoxies, which had a certain usefulness at first but then prevented further progress.
- (D) The incapacity of the human baby as compared to the operational efficiency of the fawn is remarkable.

Businesses especially large ones, have little choice but to become information based. The centre of gravity in employment is moving fast from manual and clerical workers to knowledge workers who resist the command-and-control model that business took from the military. So far most computer users still use the advanced data-processing technology only to do faster what they have always done before, crunch conventional numbers. But as soon as a company takes the first tentative steps from data to information; its decision processes, management structure and even the way its work gets done begins to be transformed. The availability of relevant information transforms the capital investment analysis from opinions into diagnosis, that is, into the rational weighing of alternative assumptions. Then the information transforms the capital-investment decision from an opportunistic, financial decision governed by

12. Most countries are still in the early phase of broadband development, with fewer than 10 percent of all households subscribing. A small number of early adopters, attracted by high-speed internet access – often no more costly than their current extensive use of narrow band – and by the convenience of keeping their telephones free while they surf, lead demand for the technology. Supply, however, is constrained: incumbents tend to delay any serious move into broadband until it starts competing for their valuable customers and, even then, need time to roll out networks to the population as a whole. \_\_\_\_\_

- (A) So many broadband providers disappeared after the dot-com boom that casual observers might think broadband itself has met with indifference from Internet users.
- (B) During this phase, companies in general should start tailoring their Internet-related business to the needs of broadband users and one option is to join with leading broadband operators to form partnerships that will help sell the technology.
- (C) Prices, given the early adopters' willingness to pay, therefore remain near their fairly high initial levels.
- (D) So far, faster and better access to the Internet is the sole killer application of broadband and to make serious profits from it, network providers must find something that excites users more.

**DIRECTIONS** for question 13: In the following question, the word in capitals is used in four different ways. Choose the option in which the usage of the word is INCORRECT or INAPPROPRIATE.

13. LAY

- (A) I'll lay you twenty to one that Team A will win the match.
- (B) He laid me in for breaking the tea-pot.
- (C) The murder case was so intricate and complex that understanding the lay of the land took time.
- (D) He managed to lay money by for his post-graduation education.

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**DIRECTIONS** for questions 14 to 16: Read the following passage and answer the questions that follow it.

**O**N its way to becoming the world's biggest economy, China is passing another landmark. Its e-commerce market is overtaking America's. And one giant firm dominates the market: Alibaba, by some measures already the world's largest e-commerce company. Last year two of Alibaba's portals together handled 1.1 trillion yuan (\$170 billion) in sales, more than eBay and Amazon combined. Alibaba is on track to become the world's first e-commerce firm to handle \$1 trillion a year in transactions.

Alibaba's story so far has been one of canny innovation. Mr. Jack Ma started the company in 1999 with Alibaba.com, a business-to-business portal connecting small Chinese manufacturers with buyers overseas. Its next invention, Taobao, a consumer-to-consumer portal not unlike eBay, features nearly a billion products and is one of the 20 most-visited websites globally. Tmall, a newish business-to-consumer portal that is a bit like Amazon, helps global brands such as Disney and Levi's reach China's middle classes.

Alibaba could grow fast. By 2020 China's e-commerce market is forecast to be bigger than the existing markets in America, Britain, Japan, Germany and France combined. And although it is not about to challenge Amazon in America, Alibaba is expanding globally by capturing the spending of Chinese overseas and by moving into emerging economies. In this the firm is helped by Alipay, its novel online-payments system that relies on escrow (releasing money to sellers only once their buyers are happy with the goods received). This builds trust in societies where the rule of law is weak.

Perhaps Alibaba's greatest untapped resource is its customer data. Its sites account for over 60% of the parcels delivered in China. It knows more than anyone about the spending habits and creditworthiness of the Chinese middle class, plus millions of Chinese merchants. Alifinance is already a big microlender to small firms; it now plans to expand lending to ordinary consumers. In effect, it is helping liberalise Chinese finance. China's big state banks, which channel cheap capital to state-owned enterprises, have long neglected everyone else. The firm is using its online platforms to deliver insurance products too, and more such innovations are on the way.

Alibaba thus sits at the heart of "bamboo capitalism" – the sprawling tangle of private-sector firms that are more efficient than China's state-owned enterprises. Some 6m vendors are listed with its sites. The firm's efforts are boosting productivity in China's woefully inefficient retail and logistics sectors. And, more than any other company, it is speeding up the country's much-needed shift away from an investment-heavy model of growth towards one that is driven by consumption.

All very promising but like the Yangzi alligator, which is now endangered, there is nothing inevitable about Alibaba's future fortunes. Three things could yet throw the firm off-course. The most obvious is that it could overreach – and stumble. Coping with the stepping aside of a formidable founder is rarely easy. By China's low standards, Alibaba generally gets good marks for governance, with one caveat: observers have doubts about the murky way in which Mr. Ma spun out Alipay from the parent company a few years ago. It will not be able to get away with that as a public company. The same transparency is needed with its products. By Chinese standards it has done a lot to fight fakes, so much so that the American government recently gave Taobao its official blessing. Yet it is still too easy to find knock-offs on that site.

Tidying up these things is not just good management. It ties into the second risk – that foreign governments will clamp down on Alibaba. China's companies are viewed with suspicion abroad: its resource-hungry state enterprises have suffered a backlash in Africa; its firms listed on North American stock exchanges have been punished in the wake of accounting scandals; and Huawei, a telecoms giant, has been branded an enemy of the state by American congressmen. It would be sad if Alibaba, which seems to have far fewer ties to the Chinese state, was tarred with the same brush.

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But the greatest threat to the company's future will be at home. Like Amazon or eBay, Alibaba needs to be monitored by antitrust regulators. But the politics of China pose a particular risk. Big banks are already lobbying against its financial arm. The Communist Party is bound to be jealous of an outfit that has so much data on Chinese citizens. For the government to clip Alibaba's wings without a good cause would be wrong. Alibaba has the potential to become the world's most valuable company, and in the process help create a better China.

14. In the passage, the use of the parallel 'endangered Yangzi alligator' implies \_\_\_\_\_?
- (A) The dethroning of Mr. Jack Ma, the founder of Alibaba.
  - (B) The surrender of other countries including the US before China in the world business space.
  - (C) The floundering future of Alibaba that lurks ahead.
  - (D) Big banks lobbying against Alibaba's financial arm.
15. What support is Alibaba relying on to gain the customers' confidence and trust?
- (A) Support from the huge Chinese diaspora.
  - (B) Support from an escrow based online payment system.
  - (C) Support from Alifinance that reaches out to the laymen.
  - (D) Support from the insatiable shopping spree of the Chinese.
16. Which of the following can be inferred to be true from the passage?
- (a) The American Congress poses the greatest threat to Alibaba's inevitable leap towards becoming the world's premier e-commerce company.
  - (b) Taobao has got official blessing from America because it is marked by good governance and it showcases only the choicest products.
  - (c) The powers-that-be pose a considerable threat to Alibaba's future.



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- (iii) If a customer purchases a Sharpener, then he also purchases a Pencil.
- (iv) Erasers were purchased by both B and C.
17. If A purchased Sharpeners, then which of the following can be the pair of customers who have purchased no type of item in common?
- (A) A and B  
(B) B and D  
(C) D and C  
(D) More than one of the above
18. Which of the following statements (taken one at a time) will help determine the types of items purchased by all the four customers?
- (I) D purchased Sharpeners and A purchased Pencils.  
(II) B purchased Pencils and A purchased Sharpeners.  
(III) C purchased Rulers and D purchased Sharpeners.
- (A) Both I and II                      (B) Only III  
(C) Only II                              (D) Both II and III
19. Which of the following statements is definitely true?
- (A) If D purchased Sharpeners, then A purchased Erasers.  
(B) If D purchased Pencils, then B purchased Pencils.  
(C) If D purchased Pencils, then C purchased Rulers.  
(D) If D purchased Sharpeners, then A purchased Pencils.
22. (a) Each conception of a super-industrial utopia or anti-utopia needs to be embodied in many forms – films, plays, novels and works of art – rather than a single work of fiction.  
(b) These concepts, however, can no longer be produced in the old way.  
(c) Today we need powerful new utopian and anti-utopian concepts that look forward to super-industrialism rather than backward to simpler societies.  
(d) We therefore need a revolution or collaborative utopianism in the production of utopias; we need to construct “utopia factories.”  
(e) It may also be too difficult for any individual writer, no matter how gifted, to describe a convincingly complex future.  
(f) No book, by itself, is adequate to describe a super-industrial future in emotionally compelling terms.
- (A) cfbeda (B) cbefad (C) cbfaed (D) afbecd
23. (a) Everything else is subordinate to that.  
(b) They can then lean on the administration by threatening to cut off funds if the professors don't say what they want to hear and that happens too.  
(c) Normally the goal is in no conflict with the location goal of improving the citizenry, but on occasion some conflict arises, as in the case of Socrates himself.  
(d) Conflict arises when trustees and legislators who've contributed large amounts of time and money to the location take points of view in opposition to the professors' lectures or public statements.  
(e) The primary goal of the Church of reason is

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20. Which of the following statements is false?
- (A) At least one customer purchased Pencils and Erasers.
  - (B) At least one customer purchased Pencils and Rulers.
  - (C) At least one customer purchased Erasers and Rulers.
  - (D) At least one customer purchased Sharpeners and Pencils.

**DIRECTIONS** for question 21: The following question presents four statements, of which three, when placed in appropriate order, would form a contextually complete paragraph. Pick the statement that is not part of that context.

21. (A) What makes it seem fresh is the insight and thoroughness of his analytical directions.
- (B) Bhaskar's writing is not always very accessible.
- (C) Hence Andrew Collier's Critical Realism should play an important role in popularising the work of Bhaskar to the wider audience it deserves.
- (D) His dense use of technical terms along with his own considerable vocabulary of neologisms and acronyms mean that his works need to be read at a rather gradual pace in order to be absorbed.

**DIRECTIONS** for questions 22 to 24: The sentences given in the following questions, when properly sequenced, form a coherent paragraph. Each sentence is labelled with a letter. From among the four choices given below each question, choose the most logical order of sentences that constructs a coherent paragraph.

always Socrates' old goal of truth, in its ever changing forms, as it's revealed by the process of rationality.

- (A) dbeac (B) eacdb (C) ceadb (D) ecdab
24. (a) In the case of some high-impact innovations, the technological appraisal agency might be empowered to seek restraining legislation, or to obtain an injunction forcing delay until full public discussion and study is completed.
- (b) Where an innovation appears likely to entail seriously disruptive consequences, or to generate unrestrained accelerative pressures, these facts need to be weighed in a social cost-benefit accounting procedure.
- (c) In this way, the society would not need to wait for disasters before dealing with its technology induced problems.
- (d) In other cases, such innovations might still be released for diffusion – provided ample steps were taken in advance to offset their negative consequences.
- (e) By considering not merely specific technologies, but their relationship to one another, the time lapse between them, the proposed speed of diffusion, and similar factors, we might eventually gain some control over the pace of change as well as its direction.
- (f) At the level of social consequences, a new technology might be submitted for clearance to panels of behavioural scientists, who would determine to the best of their ability, the probable strength of its social impact at different points in time.
- (A) fadbce (B) bfadec (C) adcfbe (D) fbadce



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- (A) fadbce                      (B) bfadec  
(C) adcfbe                      (D) fbadce

**DIRECTIONS** for questions 25 to 27: Read the following passage and answer the questions that follow it.

**W**hile it is true that rigorous history and ethnography often give up generality for accuracy and precision, their conclusions can nonetheless have considerable importance. Scientific significance is not limited to the discovery of general laws – that idea is a hangover from an age in which the scientific task was seen as one of fathoming the Creator's rulebook, of thinking "God's thoughts after Him." The sciences, recall, are collections of models, directed at answering questions. Not every question matters: there are countless issues about the variation of your physical environment while you read these sentences that should be of no concern to anybody. Generality is to be prized, partly because it is often the key to answering questions wholesale rather than retail, partly because generalizing explanations are often deeper; but there are many non-general issues, concrete and individual questions, that rightly occupy natural scientists. Where exactly do the fault lines run in Southern California? What is the relation among the various hominid species? By the same token, there are many specific questions that occupy historians and anthropologists.

Some of these questions are causal, about the factors that generated large events or that sustain particular social systems. Yet there are others that should be emphasized. When Emmanuel Le Roy Ladurie writes a study of a medieval population on the Franco-Spanish border, or when Jean L. Briggs reports on family life among the Inuit, these scholars are not primarily interested in tracing the causes of events. History and ethnography are used instead to show the readers what it is like to live in a particular way, to provide those of us who belong to very different societies with a vantage point from which to think about ourselves and our own arrangements. Their purpose, to borrow an old concept, is a kind of understanding that derives from imaginative identification.

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Although studies such as these make no pretense at generality, their impact can be very large. They can unsettle the categories that are taken for granted in all kinds of decisions, from mundane reflections about how to respond to other people to large matters of social policy. "Collateral damage," for example, comes to seem an inappropriate way to talk about the victims of the Dresden fire-bombing. Humanistic studies can also challenge the categories used to frame lines of scientific inquiry. History and anthropology are sites at which new concepts are forged. Their deliverances can do what Thomas Kuhn memorably claimed for the study of the history of the sciences: they can change the images by which we are held. The Bush administration tacitly concurred with Kuhn's view when, at a time of shrinking budgets for the arts and humanities, it launched an initiative to support historical studies of iconic American figures and achievements. One effect of history (the verdicts of which Bush aimed to counter) may be a rethinking of social institutions. (I should add that neither in the natural sciences nor in human inquiry should one conclude that the applications tell the whole story of significance: comprehending something for its own sake also counts.)

Once the intertwining of human inquiry with social change has been recognized, it is easy to see why history and ethnography demand constant rewriting. Returning to the same materials is valuable when historians or anthropologists gain new evidence – like their colleagues in the natural sciences, they are sometimes lucky in acquiring new data, and thus led to revise. Yet there are other reasons for revisiting themes and episodes that have already been thoroughly treated. Gibbon's history of the Roman Empire needs to be rewritten because the changes in our own society make new aspects of the past pertinent. Older histories such as his may have played a useful role in generating styles of social thought that we take for granted, but in the light of our newer conceptions contemporary historians may view different questions as significant. This may leave the impression of an enterprise in which nothing ever accumulates, but the impression is incorrect. If Gibbon has been in many respects superseded, we should be nonetheless grateful for the impact that his monumental history made on his many readers. Historians return to Gibbon because his words are not ours – it would be odd to speak as he does of the "licentiousness," "prostitutions," and "chastity" of the empress Theodora. If our questions are different, it is because we live in a very different culture, one that his history helped to bring about.

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25. All of the following can be understood from the passage EXCEPT?

- (a) Kuhn claimed that comprehending science for its own sake, regardless of applications also counts.
  - (b) Kuhn believed that scientists resist new approaches to understanding established theories.
  - (c) According to Briggs, culture is irreducible and autonomous and cultural transmission occurs only when we relate to different human domains.
  - (d) The answers to society's most pertinent questions today could be found by looking at old works of history in a new light.
  - (e) In the first paragraph, the author anticipates the fact that science readily succumbs to over-generalizations as a possible objection to her argument that scientific laws, applications and approaches should prize non-generality.
  - (f) Studies such as those of Briggs indicate that experiences of a different existence help us revisit our own.
- (A) a, b, c and e  
(B) c, d, e and f  
(C) a and c  
(D) b, d and f

26. The author makes the observation that Gibbon's history of Rome "needs to be rewritten" because

- (A) of the death of the grand old narrative.
- (B) no large vision of history emerges from our understanding of Rome.
- (C) a modern reading reveals glaring shortcomings in Gibbon's account.
- (D) of a rethinking of social institutions.

27. It can be inferred from the passage that "the impression of an enterprise" is based on which of the following assumptions?

- (a) Social science holds no promise of additive progress.

- (b) History and anthropology should be characterized by perennial grand doctrines.

- (c) Judgments of value pervade the environment in which historical research is done.

- (d) The broadest frameworks of today's history reflect the selections of the past.

- (e) A framework for studies in history and anthropology, once validated and accepted, would remain the basis for further study in the field.

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

**DIRECTIONS** for questions 28 to 30: Answer the questions on the basis of the information given below.

In Parklane Apartments, the security guard observed that there are eight cars parked in a row. He observed that each car belongs to a company among Ronda, MBW and ODI, and the colour of each car is either Blue or Red. He observed that the cars are parked in such a way that no two consecutive cars are of the same company or the same colour. The number of cars of Ronda is the same as the number of cars of MBW. Neither the first nor the last car is a Ronda. The second car from the left is of the same company as the third car from the right. The only red Ronda is fourth from the left.

28. The third car from right is a

- (A) red ODI.
- (B) blue ODI.
- (C) red MBW.
- (D) Cannot be determined

29. If a car is considered to be unique if there is no other car (among the eight cars parked) of the same colour and the same company, then how many unique cars are there?

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

30. How many cars are present between the red ODI and the red Ronda?

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