Unproctored Mock-9 2012 Answers and Explanations

1	a	**2**	b	**3**	c	**4**	d	**5**	d	**6**	b	**7**	c	**8**	b	**9**	c	**10**	a
11	b	**12**	c	**13**	d	**14**	a	**15**	d	**16**	a	**17**	d	**18**	c	**19**	b	**20**	d
21	c	**22**	a	**23**	b	**24**	c	**25**	c	**26**	b	**27**	d	**28**	a	**29**	c	**30**	a
31	b	**32**	a	**33**	c	**34**	b	**35**	d	**36**	b	**37**	d	**38**	c	**39**	c	**40**	d
41	d	**42**	c	**43**	a	**44**	a	**45**	c	**46**	b	**47**	c	**48**	a	**49**	a	**50**	d
51	b	**52**	a	**53**	c	**54**	c	**55**	a	**56**	a	**57**	b	**58**	b	**59**	c	**60**	d

1. a Let the number of cans required to fill the field be 'n'.

Volume of sand (in cm^3) in a can = $\pi \times (24)^2 \times 100$.

Total volume of sand (in cm^3) in 'n' cans

$= n \times \pi \times (24)^2 \times 100$ ...(i)

Total volume of sand (in cm^3) to be filled in the field

$= \pi \times (2000)^2 \times 18$ ...(ii)

Solving (i) and (ii) for 'n' we get:

n = 1250

2. b Since it is given that the four numbers are consecutive natural numbers and a < b,

b = a + 1, c = a + 2 and d = a + 3.

$P = b^2c^2 - ac - bd$

$P = (a + 1)^2(a + 2)^2 - a(a + 2) - (a + 1)(a + 3)$

$P = a^4 + 6a^3 + 11a^2 + 6a + 1$

$P = (a^2 + 3a + 1)^2$

$\sqrt{P} = a^2 + 3a + 1$, which is always a rational number, though not necessarily prime. E.g. at a = 6.

3. c Surface area of the cube = $6 \times 16^2 = 1536\ cm^2$.

Length of IK = $\sqrt{12^2 + 16^2} = 20$ cm.

Area of the rectangle exposed = $16 \times 20 = 320\ cm^2$.

Hence, total surface area added = $320 \times 2 = 640\ cm^2$.

The required percentage increase

$= \frac{640}{1536} \times 100 = 41.67\%$.

4. d $(A\phi B)\phi(A\$B) = \left((A\times B)^{\frac{1}{2}} \times \left[\frac{A}{B}\right]^{\frac{1}{2}}\right) \phi \left(\frac{(A\times B)^{\frac{1}{2}}}{\left[\frac{A}{B}\right]^{\frac{1}{2}}}\right)$

$= \left(\left((A\times B)^{\frac{1}{2}} \times \left[\frac{A}{B}\right]^{\frac{1}{2}}\right) \times \left(\frac{(A\times B)^{\frac{1}{2}}}{\left[\frac{A}{B}\right]^{\frac{1}{2}}}\right)\right)^{\frac{1}{2}} \times \left[\frac{\left((A\times B)^{\frac{1}{2}} \times \left[\frac{A}{B}\right]^{\frac{1}{2}}\right)}{\left(\frac{(A\times B)^{\frac{1}{2}}}{\left[\frac{A}{B}\right]^{\frac{1}{2}}}\right)}\right]^{\frac{1}{2}}$

$= (A\times B)^{\frac{1}{2}} \times \left[\frac{A}{B}\right]^{\frac{1}{2}}$

$(A\phi B)\$(A\$B) = \left((A\times B)^{\frac{1}{2}} \times \left[\frac{A}{B}\right]^{\frac{1}{2}}\right) \$ \left(\frac{(A\times B)^{\frac{1}{2}}}{\left[\frac{A}{B}\right]^{\frac{1}{2}}}\right)$

$= \frac{\left(\left((A\times B)^{\frac{1}{2}} \times \left[\frac{A}{B}\right]^{\frac{1}{2}}\right) \times \left(\frac{(A\times B)^{\frac{1}{2}}}{\left[\frac{A}{B}\right]^{\frac{1}{2}}}\right)\right)^{\frac{1}{2}}}{\left[\frac{\left((A\times B)^{\frac{1}{2}} \times \left[\frac{A}{B}\right]^{\frac{1}{2}}\right)}{\left(\frac{(A\times B)^{\frac{1}{2}}}{\left[\frac{A}{B}\right]^{\frac{1}{2}}}\right)}\right]^{\frac{1}{2}}}$

$= \frac{(A\times B)^{\frac{1}{2}}}{\left[\frac{A}{B}\right]^{\frac{1}{2}}}$

$\left(\frac{(A\phi B)\phi(A\$B)}{(A\phi B)\$(A\$B)}\right) = \frac{(A\times B)^{\frac{1}{2}} \times \left[\frac{A}{B}\right]^{\frac{1}{2}}}{\frac{(A\times B)^{\frac{1}{2}}}{\left[\frac{A}{B}\right]^{\frac{1}{2}}}} = \left[\frac{A}{B}\right]$

5. d Let's assume that each worker completes W units of the job in a day. The number of units completed by 10 workers in 10 days = $10 \times 10 = 100W$.

If one more worker joins them, then the number of units completed on the 11th day will be 11W.

As it took exactly 20 days to finish the job, it can be concluded that the job consisted of (100W + 11W + 12W + … + 20W) = 255W units of work.

In the second situation, let the number of workers who started the job be n.

Hence, $nW + (n-1)W + (n-2)W + ... + W \geq 255W$

or $\frac{n(n+1)}{2} \geq 255$

The minimum possible value of n which satisfies the above inequality is 23. However, it must be noticed that 23 + 22 + 21 + … + 7 = 255.
Hence, the work will get completed in exactly 23 – 6 = 17 days.

6. b Probability that the man finds all three traffic lights red

$$= \frac{5}{8} \times \frac{5}{6} \times \frac{3}{5} = \frac{5}{16}$$

Probability that he finds at least one light which is not

$$\text{red} = 1 - \frac{5}{16} = \frac{11}{16}$$

7. c The sum will be maximum when all of them are equal i.e. when a = b = c = d = 5, which gives
Max (a + b + c + d) = 20.

Alternate Method:
Note that we also have an inequality rule:
$(a^2 + b^2 + c^2 + \ldots..)(x^2 + y^2 + z^2 + \ldots\ldots) \geq (ax + by + cz + \ldots\ldots)^2$
Where a, b, c,…and x, y, z….. are all real numbers.

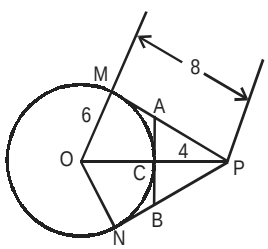
Using this,
$(a^2 + b^2 + c^2 + d^2)(1^2 + 1^2 + 1^2 + 1^2) \geq (a + b + c + d)^2$
$\Rightarrow 100 \times 4 \geq (a + b + c + d)^2$
or Max (a + b + c + d) = 20.

8. b This can be done using the Divisibility Rule of a number like 9 or 11. E.g. Since 35! is divisible by 11, either the sum of the digits at the odd places must be equal to the sum of the digits at the even places or their difference should be a multiple of 11. In this case the latter is not possible. Hence, 66 + a = 72 and a = 6.

9. c Sumer will come to rest after 20 seconds. The combined distance covered by them every second is 60 m. Since the track length is 120 m, they will meet after every 2 seconds. So they would have met 10 times by the time Sumer comes to rest.

10. a CP = OP – OC = 10 – 6 = 4 units
In right angled triangle OMP,

$$MP = \sqrt{OP^2 - OM^2} = 8 \text{ units.}$$



Triangles MOP and CAP are similar as $\angle MPO = \angle CPA$.

Hence,

$$\frac{AP}{CP} = \frac{OP}{MP} \text{ or } AP = CP \times \frac{OP}{MP} = 4 \times \frac{10}{8} = 5 \text{ units.}$$

Subsequently, AC = 3 units and AB = 6 units.
Inradius of triangle ABP

$$= r = \frac{\Delta}{s} = \frac{\frac{1}{2} \times 4 \times 6}{\frac{1}{2}(6 + 5 + 5)} = \frac{24}{16} = 1.5 \text{ units}$$

For questions 11 to 13:
Let Interest Payment be x% and Non-Planned Capital Account be y% of Budgeted Expenditure. From pie chart B, x + y = 22% and x – y = 12%. Thus, x = 17 and y = 5.
Now 76% – 19% i.e. 57% of Budgeted Revenue is given as Rs. 285 thousand crores. Thus Budgeted Revenue = Rs. 500 thousand crores.
Budgeted Expenditure = Budgeted Revenue + Rs. 625 thousand crores = Rs. 1125 thousand crores.

11. b The difference between Budgeted Expenditure and Budgeted Revenue when expressed as a percentage of Budgeted Revenue

$$= \frac{625}{500} \times 100 = 125\%$$

12. c The sum of Planned Revenue Account and Planned Capital Account (Rs. 281.25 thousand crores) exceeded the Non-Tax Revenue (Rs. 95 thousand crores) by Rs. 186.25 thousand crores.

13. d Since nothing is mentioned about the break-up of Budgeted Revenue in FY 2011-12, the percentage share of Tax Revenue cannot be determined.

14. a Any number of the form xxxx…..xxxx is divisible by 7, 11 and 13 if the number of digits is of the form 6k, where 'k' is a natural number.
From Statement A:
18n + 6 is of the form 6k. So the number is divisible by 13 and the remainder is 0.
From Statement B:
We cannot find the remainder using this statement alone.

15. d If y is the total number of votes polled and x is the number of votes against the resolution, then
x + 900 = 0.7 × y ...(i)
x = 0.3 × y ...(ii)
Solving (i) and (ii), y = 2250.

16. a Let there be N students in all. According to the question: $N = 7k_1 + 3 = 8k_2 + 5 = 9k_3 + 7$, where k_1, k_2, k_3 are all natural numbers.
Let us take the first two terms initially.

$$7k_1 + 3 = 8k_2 + 5 \Rightarrow k_1 = \frac{8k_2 + 2}{7}$$

The least value of k_2 that makes k_1 a natural number is 5. Hence, the smallest number satisfying the first two conditions is $8 \times 5 + 5 = 45$. So the complete series of the type LCM (7, 8) × K + 45 will satisfy the first two conditions, where K is a whole number. So the series is 56K + 45. Now we take the third condition.

$$56K + 45 = 9k_3 + 7 \Rightarrow k_3 = \frac{56K + 38}{9}$$

The least value of K which makes k_3 a natural number is 8. Hence, the smallest number satisfying the above three conditions is $56 \times 8 + 45 = 493$ and the total number of students = LCM (7, 8, 9) × P + 493. So N = 504P + 493, where P is whole number. N when divided by 12 leaves remainder 1. Hence, if 12 students are put in each row, 1 student will be left.

17. d The students who passed in at least two subjects are those who didn't fail in more than one subject.
The number of students who didn't fail in any of the three subjects = 500 – 199 = 301
The number of students who failed in exactly one of the three subjects = 35 + 70 + 55 = 160
The number of students who passed in at least two subjects = 301 + 160 = 461
Hence, the percentage of students who passed in at least two subjects $= \frac{461}{500} \times 100\% = 92.2\%$

18. c Let the number representing A be a, and the common difference be d.
$\Rightarrow a + (a + 2d) + (a + 4d) = 36$ ...(i)
and $(A + C + E + G) – (A + C + E) = 60 – 36$
$\Rightarrow G = 24$
$\Rightarrow a + 6d = 24$ ...(ii)
From (i) and (ii)
$(3a + 6d) – (a + 6d) = 12$
$\Rightarrow 2a = 12 \Rightarrow a = 6$ and $d = 3$
So $B + D + F + H = 4a + 16d$
$= 24 + 48 = 72$

19. b Percentage change for the year 1971 is the highest and the value is

$$\frac{14469775 - 10664018}{14469775} \times 100 = 26.30\%$$

20. d The absolute difference for the year 1981 is clearly much more than that for the other four years and the value is 12188903.

21. c **From Statement A:**
Using this statement, we can find the relative positions of Ram and Sameer but we don't know about the relative positions of the other two and so we can't answer the question.

From Statement B:
This statement provides only the relative arrangement of Shyam and Gopal. So we cannot answer the question using statement B alone.

Combining statements A and B:
If we combine statements A and B, we get the relative positions of the four people and can conclude that Gopal is sitting opposite Sameer.

22. a According to the given condition

$$\frac{0.5x + 0.6(x + 2) + 0.7(x + 3)}{x + (x + 2) + (x + 3)} = 0.65$$

$$\Rightarrow \frac{0.5x + 0.6x + 1.2 + 0.7x + 2.1}{3x + 5} = 0.65$$

$\Rightarrow 1.8x + 3.3 = 1.95x + 3.25$

$\Rightarrow .05 = 0.15x$

$$\Rightarrow x = \frac{5}{15}$$

$$\Rightarrow x = \frac{1}{3} = 0.33$$

23. b The digit 3 is used 100 + 80 times while writing the first 400 natural numbers. So it will be used 181st time in 403, 182nd time in 413, 183rd time in 423 and 184th time in 430.

24. c It can be concluded that 5 and k are the two distinct roots of the equation $ax^2 + bx + 1 = 0$.

Also, product of the roots $= \frac{1}{a} < 0$ (as $a < 0$).

Hence, $5k < 0 \Rightarrow k < 0$.

For questions 25 to 27:

25. c Among males, Performance Scores of Kaushik and Maneet don't fall in the interval [70, 100] and so they are Low on Happy Growth Index. Among females, Performance Scores of Asmita and Amit don't fall in the interval [60, 90] and so they are Low on Happy Growth Index. So 4 students in all are Low on Happy Growth Index at Primary Stage of Education.

26. b Among males at Senior Secondary Stage, Saurabh and Mudit are High on Happy Growth Index. Among females at Primary Stage, Meenal, Manjari and Renuka are High on Happy Growth Index. So the required ratio is 2 : 3.

27. d Renuka is High on Happy Growth Index. Meenal and Manjari are the only female students whose Academic Score is less than 50 and who are High on Happy Growth Index.

28. a $s = p - q$

$q = \frac{(p+r)}{2} \Rightarrow p + r = 2q \Rightarrow r = -p + 2q$

$r^2 = s^2$ (given)

Putting the values of r and s in the given equation:

$(-p + 2q)^2 = (p - q)^2$

$\Rightarrow p^2 + 4q^2 - 4pq = p^2 + q^2 - 2pq$

$\Rightarrow 3q^2 = 2pq \Rightarrow p = \frac{3q}{2}$

29. c If p is prime and m is not a multiple of p, then m^{p-1} when divided by p leaves remainder 1.

So $(w + x + y + z)^p$ when divided by p will leave remainder $(w + x + y + z)$ and so will $(w^p + x^p + y^p + z^p)$.

Hence, $(w + x + y + z)^p - (w^p + x^p + y^p + z^p)$ will always be divisible by p.

30. a The total number of solutions for $x + y + z = 36$, if x, y and z are whole numbers is given by

$^{36+3-1}C_{3-1} = {}^{38}C_2 = 703$.

The number of solutions where x = y will be 19 {from (x, y) = (0, 0) to (18, 18)}.

The number of solutions where x is not equal to y = 703 – 19 = 684

Among these 684 solutions, half will have x > y and the rest will have y > x.

Hence, the total number of solutions where $x \geq y$

$= 19 + \frac{684}{2} = 361.$

31. b Option (b) follows directly from the passage. Refer to the first paragraph of the passage–"We refers to our selves, in the full-blooded person-constituting sense. "Narratives" refers to the stories we tell about ourselves and our exploits in settings as trivial as cocktail parties and as serious as intimate discussions with loved ones. We express some in speech. Others we tell silently to ourselves, in that constant little inner voice. The full collection of one's internal and external narratives generates the self we are intimately acquainted with. Our narrative selves continually unfold." Option (a) is an inference that can be drawn from the passage but is not the meaning of the phrase "we are our narratives", so it is incorrect. Option (c) is incorrect as it is our narrative that give us the sense of 'self' but the narrative is not the true reflection of our identity. Option (d) is incorrect as it does not follow from the passage.

32. a Option (a) follows from the passage. Refer to the last few lines. The silent, inner speech produced by the brain's speech areas is understood and interpreted by the comprehension areas of the brain. This creates the narrative self. The narrative self is not simply a collection of narratives about our past behaviours. So (b) is ruled out. Option (d) is incorrect as the author describes Gazzaniga's "interpreter"' but does not equate this to "the narrative self".

33. c Option (a) is incorrect. Since, in light of the passage, the "interpreter" is the glue. 'Alter ego' means 'other self'; a person's secondary or alternative personality or an intimate and trusted friend. The concept of our inner voice being our alter ego makes option (b) incorrect. Option (d) is not mentioned in the passage. The passage states "The full collection of one's internal and external narratives generates the self we are intimately acquainted with". So option (c) can be inferred from the passage. Option (d) is not mentioned in the passage.

34. b Option (a) does not follow from the passage. "Self-love" is mentioned in connection with Adam Smith but the passage does not talk about the virtues of selfishness. Option (c) is negated since nothing is mentioned about rational solutions. Option (d) inflates one factor in the Smithian model. It does not follow from the passage that such compliance "ultimately" defines morality. Option (b) follows directly from the passage.

35. d Option (d) is a possibility that has been mentioned in the passage. "…selection could favour strategies that involve self-sacrifice due to returned benefits in the future –associated with the individual's reputation and status in his community." Option (a) is incorrect. While altruistic punishment is mentioned in the passage, nothing can be inferred about the extent to which rewards and punishments, in general, sustain morality at the level of social rules. Option (b) is incorrect. The passage does not talk about species survival. It cannot be inferred that humans select strategies that ensure the survival of their species. Option (c) is eliminated since nothing is mentioned about natural selection.

36. b Option (b) follows from the passage- "most of the work in evolutionary approaches to morality deals only with the evolution of moral behaviour." Option (a) and option (c) cannot be concluded from the passage as the passage does not talk about the relative merits and demerits of Smith's formulation vis-a vis Darwin's. Option (d) cannot be concluded since the passage only talks about how moral behaviour can help in survival. It does not imply that moral behaviour is a "prerequisite" for the survival of any species.

37. d Options (a) and (b) cannot be definitely concluded from the passage. According to the passage, what sets Botticelli's Madonnas apart is their realistic portrayal. So, option (c) is incorrect. Option (d) follows from the passage.

38. c Option (c) follows from the passage-"work somewhat more than is usual of the true complexion of humanity…It is this which gives to his Madonnas their unique expression and charm".

39. c The author starts by talking about the Botticelli's concerns-that his morality is all sympathy. Then he goes on to describe why Botticelli's Madonnas are distinctive. Option (a) is incorrect. The passage does not talk about the religious structure of Botticelli's art per se. Option (b) is incorrect. Nothing is mentioned about Botticelli's reverential approach to art and life. Option (d) does not deal with the primary purpose of the passage. Option (c) links Botticelli's realism to Botticelli's Madonnas. Hence, option (c) is correct.

40. d Option (a) is correct-'bear out' means to prove true; to confirm. Option (b) is correct- 'bear upon' means to be relevant to something. Option (c) is correct- 'bear hard on/upon' means cause suffering. Option (d) is incorrect. The correct expression is 'bear with' which means to endure.

41. d "Run off something" means to drive or travel off something (tracks, a road, etc.) "Run deep" means to be very strong or well established. "Run with it" means to do something independently. "Run on" means to continue running; to continue for a long time. The sentence uses "run on" incorrectly. The correct phrasal verb in this case is "run along" i.e. to leave.

For questions 42 and 43: The given information can be tabulated as shown below.

Name	Direction w.r.t Colony	Distance (in units)
Anju	North	150/200
Bimla	South	250
Charu	East	100
Dimple	West	200/150

42. c The statement indicates that Anju's school is located closer to the colony than Dimple's school. Therefore, Anju's school is 150 units away from the colony.

43. a If Anju's school is 200 units away from the colony, it indicates that the distance of Dimple's school from the colony is 150 units. As Dimple's school is located in West, the school in West is 150 units away from the colony.

44. a The given information can be tabulated as shown below in two possible cases.

Sanjay	Harish	Gautam
Yellow	Blue	Green
Laddu	Peda	Gulabjamun

Or

Sanjay	Harish	Gautam
Yellow	Green	Blue
Gulabjamun	Laddu	Peda

45. c The author is concerned with assigning a definite period to the renaissance. He says that the debate over this dating has become so intense that the validity of the term is now in doubt. Option (c) furthers this idea that probably the desired dating is not possible anymore.

46. b The paragraph talks about how and why some characteristics are considered desirable and preferable by women. Option (a) talks about when aggression (a characteristic) is not considered desirable and does not match with the theme and tone of the paragraph. The word 'obverse' means opposite. Option (b) continues the narrative by elaborating on the significance of behavioural traits like strength and aggression in males and states that the opposite of these desirable characteristics looks less appealing. Hence, option (b) is the correct option. The sentence given in option (c) may come after (b). The paragraph does not express any dilemma which leads to the negation of option (d).

47. c Option (a) mentions "that treatment" but no reference to treatment is made in the passage. Moreover, "it" is not the correct pronoun. So option (a) is negated. Option (c) is the best option as the last line gives us a reason for the writings be filled with aphorisms. Option (b) is incorrect as it introduces an altogether fresh perspective which cannot be linked to the paragraph.

48. a Either Ram or Mohan is the lier as they make contradictory claims about the car owned by Roy. Hence, Raja and Roy always speak the truth. The only possible arrangement is given below.

Raja	Ram	Mohan	Roy
Santro	Matiz	Optra	Palio

For questions 49 to 51:
Jasneet, Vikram, Puneet, Vikrant and Saurabh must have worked for 1, 2, 2, 3 and 4 days respectively.

49. a The table given below can be formed from the given information.

Monday	Vikrant	Saurabh
Tuesday	Vikram	Jasneet
Wednesday	Vikrant	Saurabh
Thursday	Vikram/Puneet	Saurabh
Friday	Vikrant	Puneet
Saturday	Puneet/Vikram	Saurabh

Hence, Vikram works with Jasneet.

50. d The tables given below can be formed from the given information.

Monday	Vikrant	Saurabh
Tuesday	Vikram	Saurabh
Wednesday	Vikrant	Vikram
Thursday	Puneet/Jasneet	Saurabh
Friday	Vikrant	Puneet
Saturday	Jasneet/Puneet	Saurabh

Monday	Vikrant	Saurabh
Tuesday	Jasneet	Saurabh
Wednesday	Vikrant	Vikram
Thursday	Puneet/Vikram	Saurabh
Friday	Vikrant	Puneet
Saturday	Vikram/Puneet	Saurabh

It can be seen that the two guards who work on Thursday cannot be uniquely determined.

51. b It can be seen from the tables made for the previous questions that Vikram and Jasneet cannot work together on Thursday.

52. a AAAA
'Appraise' means to form a judgment or to evaluate while 'apprise' means to inform. Here the word we want is apprise so (A). 'Childlike' is an adjective used for adults which means having the good qualities, such as innocence, associated with a child <she speaks with a childlike directness> while 'childish' means silly and immature. Since the tone of the sentence is positive, 'childlike' (A) is apt. 'Deprecate' means express disapproval of something while 'depreciate' means to fall or lower in value. Here the word we want is self deprecating, hence (A) is correct. 'Hew' means chop or cut (something, especially wood or coal) with an axe, pick, or other tool. 'Hue' means color or shade; character or aspect. It can also mean an aspect of a thing/person. Hence, (A) is correct.

53. c BABB
'Imminent' means about to occur whereas 'immanent' means inherent. Here the word we want is immanent or inherent. Hence, (B) is correct. 'Sympathize' means to feel sympathy or compassion for someone while 'empathy' means to understand and share the feelings of others. Here the word we want is empathize. Hence (A) is correct. 'Spitting image' means someone who looks very much like someone else — usually singular example: She is the spitting image of her mother. Hence, (B) is correct. 'Exhausting' means tiring whereas 'exhaustive' means thorough or complete. Hence, (B) is correct.

54. c One of the meanings of abiding is to 'remain or continue in a state'. It is not used to describe a relationship. 'Failure' means lack of success which indicates that an attempt was made to accomplish something. The sentence does not indicate this; it only discusses the inability of a child suffering from ADHD. 'Determination' does not fit into this sentence as a disorder/condition is being discussed and the word alters the meaning of the sentence. 'Immutable' means unchangeable. Again, though this is a synonym for stable, it cannot be used to describe the relationship between the parent and child in this sentence. 'Stable' means to be firmly established. 'Weak' goes against the meaning of the sentence and 'attempt' makes the sentence grammatically disjoint. The correct answer is option (c).

55. a 'Subject' means to be made to undergo. An 'injunction' is an order so 'violate' works well in the next blank. It is idiomatically incorrect to say that an individual was held to an injunction. 'Obligate' means to give word that something will be done. 'Desecrate' means to violate but it would not be used for an Advertising Act. The correct answer is option (a).

56. a Statement B states "…they were soon to become the centre of worldwide attention…" and statement E gives a reason for this worldwide attention. Hence BE is a mandatory pair. Also DA is a mandatory pair. The "event" mentioned in A refers back to the "Great Exhibition of 1851" mentioned in D.

57. b AE is a mandatory pair. A talks about "antiquarian quaintness" while E gives an example of the same. Also BD is a mandatory pair. D answers the question ("Why bother?") raised in B.

For questions 58 to 60:
Let Lathe, Drill, Boring, Milling and Welding machines be represented by L, D, B, M and W respectively. Table-I shows the processing times of different machines. Table-II shows the possible combinations of machines and their total time.

Table - I

Machine	Processing Time
L	40 min
D	30 min
M	25 min
W	20 min
B	15 min

Table - II

Possible Combination	Total Time
DMW	75 min
DMB	70 min
LMW	85 min
LMB	80 min
MWB	60 min

58. b Product B has the highest manufacturing time among the four. As per the table, the combination of machines used for B is either LMW or LMB. So the manufacturing time of B is either 85 min or 80 min.

59. c As the processing time of Lathe machine has increased, the new total time for different combinations is tabulated below.

Possible Combination	Total Time
DMW	75 min
DMB	70 min
LMW	90 min
LMB	85 min
MWB	60 min

The order of the manufacturing times of the four products is either B > C > A > D or B > A > C > D. As product A requires Boring machine, its manufacturing time is either 70 min or 85 min.

60. d As per the conditions, the possible combinations are LDM, LMB, DMB and LDB. Therefore, product B will have the combination LDM and the manufacturing time will be 40 + 30 + 25 = 95 min.