NIMCET

Question Paper - 2022



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This question paper has been compiled on the basis of question paper shared by students after the exam.

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Mathematics

Qs 1. The 10th and 50th percentiles of the observations 32, 49, 23, 118 respectively are

A) 21, 32
B) 23, 32
C) 23, 33
D) 22, 31

Qs 2. If a < b, then $\int_a^b |x - a| + |x - b| dx$ is equal to

A) $\frac{(a-b)^2}{2}$
B) $\frac{(b-a)^2}{2}$
C) $\frac{(a^3-b^3)}{2}$
D) $(b - a)^2$

Qs 3. The value of cot$(cosec^{-1}\frac{5}{3} + tan^{-1}\frac{2}{3}) = ?$ is

A) 6/17
B) 3/17
C) 4/17
D) 5/17

Qs 4. The eccentricity of an ellipse, with its centre at the origin. ⅓. If one of the directions is x = 9, then the equation of ellipse is :

A) $9x^2 + 8y^2 = 72$
B) $8x^2 + 9y^2 = 72$
C) $8x^2 + 7y^2 = 56$
D) $7x^2 + 8y^2 = 56$

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Qs 5. f(x) = x + |x| is continuous for

A) $x \in (-\infty, \infty)$
B) $x \in (-\infty, \infty) - \{0\}$
C) Only x > 0
D) No value of x

Qs 6. If the foci of the ellipse $\frac{x^2}{25} + \frac{y^2}{b^2} = 1 \; and \; \frac{x^2}{144} + \frac{y^2}{81} = \frac{1}{25}$ **are coincide:**

A) 25
B) 16
C) 64
D) 49

Qs 7. If $a_1, a_2, \ldots\ldots a_n$ **are in Arithmetic progression with common difference, d, then the sum (sin d)(cosec** a_1**.cosec** a_2 **+ cosec** a_2**. Cosec** a_3 **+ ..... cosec** a_{n-1}**.cosec** a_n**)**

A) $cot\, a_1 - cot\, a_n$
B) $sin\, a_1 - sin\, a_n$
C) $cosec\, a_1 - cosec\, a_n$
D) $a_1 - a_n$

Qs 8. Coordinate of focus of the parabola $4y^2 + 12x - 20y + 67 = 0$ **is**

A) (-5/4, 17/2)
B) (-17/2, 5/4)
C) (-17/4, 5/2)
D) (-5/2, 17/4)

Qs 9. The first three moments of a distribution about 2 are 1, 16, -40 respectively. Then mean and variance of the distribution are

A) (2, 16)
B) (2, 15)
C) (3, 15)

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D) (1, 16)

Qs 10. There are two sets A and B with |A| = m and |B| = n. If |P(A) - P(B)| = 112, then choose the wrong option (where |A| denotes the cardinality of A and P(A) denotes the power set of (A)

A) M + n = 11
B) 2n -m = 1
C) 2m - n = 1
D) 3n - m = 5

Qs 11. If $(\frac{x}{a})^2 + (\frac{y}{b})^2 = 1, (a > b)\ and\ x^2 - y^2 = c^2$ **cut at right angles, then**

A) $a^2 + b^2 = 2c^2$
B) $b^2 - a^2 = 2c^2$
C) $a^2 - b^2 = 2c^2$
D) $a^2 - b^2 = c^2$

Qs 12. A particle is at rest at the origin. It moves along the x-axis with an acceleration $x - x^2$**, where x is the distance of the particle at time t, the particle next comes to rest after it has covered a distance**

A) 1
B) ½
C) 3/2
D) 2

Qs 13. If 0 < P(A) < 1 and 0 < P(B) < 1 and $P(A \cap B) = P(A).P(B)$**, then**

A) P(B|A) = P(B) - P(A)
B) $P(A^c - B^c) = P(A^c) - P(B^c)$
C) $P(A \cup B)c = P(A^c)P(B^c)$
D) P(A|B) = P(A) -P(B)

Qs 14. Which term of the series $\frac{\sqrt{5}}{3}, \frac{\sqrt{5}}{4}, \frac{1}{\sqrt{5}}, \ldots\ldots\ldots\ is\ \frac{\sqrt{5}}{13}$?

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A) 12
B) 11
C) 10
D) 9

Qs 15. Inverse of the function $f(x) = \frac{10^x - 10^{-x}}{10^x + 10^{-x}}$ is

A) $log_{10}(2 - x)$
B) $\frac{1}{2}log_{10}(\frac{1+x}{1-x})$
C) $\frac{1}{2}log_{10}(2x - 1)$
D) $\frac{1}{4}log_{10}(\frac{2x}{2-x})$

Qs 16. The solution of the equation $4cos^2 x + 6sin^2 x = 5$ are

A) $x = n\pi \pm \frac{\pi}{4}$
B) $x = n\pi \pm \frac{\pi}{3}$
C) $x = n\pi \pm \frac{\pi}{2}$
D) $x = n\pi \pm \frac{2\pi}{3}$

Qs 17. Let $\bar{a} = 2\hat{i} + 2\hat{j} + \hat{k}$ and $\bar{b}$ be another vector such that $\bar{a}.\bar{b} = 14$ and $\bar{a} * \bar{b} = 3\hat{i} + \hat{j} - 8\hat{k}$ the vector =

A) $5\hat{i} + \hat{j} + 2\hat{k}$
B) $5\hat{i} - \hat{j} - 2\hat{k}$
C) $5\hat{i} + \hat{j} - 2\hat{k}$
D) $3\hat{i} + \hat{j} + 4\hat{k}$

Qs 18. If α, β are the root $x^2 - x - 1 = 0$ and $A_n = \alpha^n + \beta^n$, then Arithmetic mean of A_{n-1}?

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A) $2A_n - 1$

B) $(1/2)A_{n+1}$

C) $2A_n - 2$

D) None

Qs 19. If $\begin{vmatrix} 1 & 1 & 1 \\ 1 & 2+x & 1 \\ 1 & 1 & 2+y \end{vmatrix}$ **for x≠** $0,\ y \neq 0$**, then D is**

A) Divisible by x and y

B) Divisible by x but not by y

C) Divisible by (1+x) and (1+y)

D) Divisible by (1+x) but not (1+y)

Qs 20. The value of $\int \frac{(x^3-1)dx}{x^3\sqrt{2x^4-2x^2+1}}$ **is**

A) $\sqrt[2]{2 - \frac{2}{x^2} + \frac{1}{x^4}} + c$

B) $\sqrt[2]{2 + \frac{2}{x^2} + \frac{1}{x^4}} + c$

C) $\frac{1}{2}\sqrt{2 - \frac{2}{x^2} + \frac{1}{x^4}} + c$

D) None of the above

Qs 21. A straight line through the point (4, 5) is such that its intercept between the axes is bisected at A, then its equation is

A) 3x - 4y = 20

B) 3x - 4y + 7= 0

C) 5x - 4y = 40

D) 5x + 4y = 40

Qs 22. If $\bar{a} = \lambda\hat{i} + \hat{j} - 2\hat{k},\ \bar{b} = \hat{i} + \lambda\hat{j} - 2\hat{k},\ \bar{c} = \hat{i} + \hat{j} + \hat{k}$ *and* $[\bar{a}.\bar{b}.\bar{c}] = 7$**, then the values of** λ **are**

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A) 2, -6
B) 6, -2
C) 4, -2
D) -4, 2

Qs 23. Area of the parallelogram formed by the lines y = 4x + 1, x + y = 0 and x + y = 1 is

A) ⅕
B) ⅖
C) 5
D) 10

Qs 24. The function f(x) = $log(x + \sqrt{x^2 + 1})$ **is**

A) An even function
B) An odd function
C) A periodic function
D) Neither an even nor an odd function

Qs 25. Ina Harmonic progression, pth term is q and qth term is p, the pqth term is

A) 0
B) 1
C) Pq
D) pq(p+q)

Qs 26. If the angle of elevation of the top of a hill from each of the vertices A, B and C of a horizontal triangle is α**, then the height of the hill is**

A) $\frac{1}{2} b \tan \alpha \sec B$
B) $\frac{1}{2} b \tan \alpha \operatorname{cosec} B$
C) $\frac{1}{2} c \tan \alpha \sin C$
D) $\frac{1}{2} a \tan \alpha \operatorname{cosec} A$

Qs 27. If $\operatorname{cosec} \theta - \cot \theta = 2$**, then the value of** $\operatorname{cosec} \theta$ **is**

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A) 5/3
B) ⅗
C) ⅘
D) 5/4

Qs 28. A survey is done among a population of 200 people who like either tea or coffee. It is found that 60% of the population like tea and 72% of the population like coffee. Let x be the number of people who like both tea & coffee. Let $m \leq x \leq n$, then choose the correct option

A) n - m = 56
B) n - m = 28
C) n - m = 32
D) n - m = 92

Qs 29. If the roots of the quadratic equation $x^2 + px + q = 0$ are $tan\,30^o$ and $tan\,15^o$ respectively, then the value of 2 + p - q is

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

Qs 30. There are two circles in xy-plane whose equation are $x^2 + y^2 - 2y = 0$ and $x^2 + y^2 - 2y - 3 = 0$. A point (x, y) is chosen at random inside the larger circle. Then the probability that the point has been taken from smaller circle is

A) ⅓
B) ⅔
C) ½
D) ¼

Qs 31. If the volume of a parallelepiped whose adjacent edges re a = $2\hat{i} + 3\hat{j} + 4k,\ b = I + \alpha j + 2k,\ c = I + 2j + \alpha k$ is $15,$ $then$ α is equal to

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A) 1
B) 5/2
C) 9/2
D) 0

Qs 32. In a triangle ABC, If the tangent of half the difference of two angles is equal to one third of the tangent of half the sum of the angles, then the ratio of the opposite to the angle is

A) 2:1
B) 1:2
C) 3:1
D) 1:1

Qs 33. If $a_1, a_2, \ldots\ldots a_n$ **are any real numbers and n is any positive integer, then**

A) $n\sum_{i=1}^{n} a_1^2 < (\sum_{i=1}^{n} a_1)^2$
B) $n\sum_{i=1}^{n} a_1^2 \geq (\sum_{i=1}^{n} a_1)^2$
C) $n\sum_{i=1}^{n} a_1^2 \leq (\sum_{i=1}^{n} a_1)^2$
D) None of the above

Qs 34. Suppose that the temperature at a point (x, y) on a metal plate is T(x , y) = $4x^2 - 4xy + y^2$. **At ant, walking on the plate, transverse a circle of radius 5 centred at the origin. What is the highest temperature encountered by the ant?**

A) 125
B) 120
C) 0
D) 25

Qs 35. Solution of the equation $tan^{-1}\sqrt{x^2 + x} + sin^{-1}\sqrt{x^2 + x + 1} = \frac{\pi}{2}$ **are**

A) 0, 1

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B) 1, -1
C) 0, -1
D) 0, -2

Qs 36. The function f(x) = $\{(1 + 2x)^{1/x}, x \neq o|$ **is**

A) Differentiable at x = 0
B) Continuous at x = 0
C) Discontinuous at x = 0
D) Not differentiable at x = 0

Qs 37. The value of $3^{3-log_2 5}$ **is**

A) 5/27
B) 27/5
C) 9/5
D) 5/9

Qs 38. A four digit number is formed using the digits 1,2,3,4,5 without repetition. The probability that it is divisible by 3 is

A) ⅓
B) ¼
C) ⅕
D) ⅙

Qs 39. If $cos^{-1}\frac{x}{2} + cos^{-1}\frac{y}{3} = \phi\ then\ 9x^2 - 12xycos\phi + 4y^2$ **is**

A) $-36\ sin^2\phi$
B) $36\ sin^2\phi$
C) $36\ cos^2\phi$
D) 36

Qs 40. Angle of elevation of the top of the tower form three points (collinear). A, B and C on the road leading to the foot of the tower are 30 degree 45 degree and 60 degree respectively the ratio of AB and BC is

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A) $\sqrt{3}:\ 1$

B) $\sqrt{3}:\ 2$

C) 1 : 2

D) $2 : \sqrt{3}$

Qs 41. For $a \in R$ (the set of all real numbers) $a \neq -1$ $\lim_{n \to \infty} \frac{(1^n+2^n+.....n^n)}{(n+1)^{n-1[(na+1)+(na+2)+.....(na+n)]}} = \frac{1}{60}$. Then one of the value of a is

A) 5

B) 8

C) -15/2

D) -17/2

Qs 42. Let a, b,c be distinct non - negative numbers if the vectors ai + aj +ck, I + k and Ci + cj + bk lie in the plane then c is

A) The Arithmetic Mean of a and b

B) The Geometric mean a and b

C) The Harmonic mean a and b

D) Equal to zero

Qs 43. The mean of 25 observation was found to be 38, it was later discovered that 23 and 38 where misread as 25 and 36 then the mean is

A) 32

B) 36

C) 3 8

D) 42

Qs 44. The correct expression for $cos^{-1}(-x)$ is

A) $\frac{\pi}{2} - cos^{-1}x$

B) $\pi - cos^{-1}x$

C) $\pi + cos^{-1}x$

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D) $\frac{\pi}{2} + cos^{-1}x$

Qs 45. The domain of the function f(x) = $\frac{cos^{-1}x}{[x]}$ is

A) [-1, 0)∪{1}
B) [-1, 1]
C) [-1, 1)
D) None of the above

Qs 46. If $(\bar{a} * \bar{b}) * \bar{c} = \bar{a} * (\bar{b} * \bar{c})$, then

A) $\bar{a}$ and $\bar{b}$ are collinear
B) $\bar{a}$ and $\bar{b}$ are perpendicular
C) $\bar{a}$ and $\bar{c}$ are collinear
D) $\bar{a}$ and $\bar{c}$ are perpendicular

Qs 47. Let a be the distance between the lines - 2x + y = 2 and 2x - y = 2 and b be the distance between the lines 4x - 3y = 5 and 6y - 8x = 1, then

A) 40 b = $11\sqrt{5}a$
B) $40\sqrt{2}a = 1b$
C) $11\sqrt{2}b = 40\,a$
D) $11\sqrt{2}b$= 40 b

Qs 48. If $x^m y^n = (x + y)^{m+n}$, then dy/dx is

A) (x+y)/xy
B) Xy
C) x/y
D) y/x

Qs 49. The area enclosed within the curve |x| + |y| = 2 is

A) 16 sq. unit
B) 24 sq. unit

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C) 32 sq. unit

D) 8 sq. unit

Qs 50. Which of the following is NOT TRUE?

A) $\lim_{x \to 0} \frac{x}{e^x} = 0$

B) $\lim_{x \to 0} \frac{x}{xe^{nx}} = 0$

C) $\lim_{x \to 0} \frac{\sin x}{1+2x} = 0$

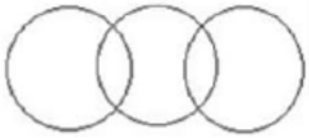
D) $\lim_{x \to 0} \frac{\cos x}{1+2x} = 0$

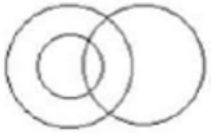
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Analytical Ability & logical Reasoning

Qs 1. Which of the following diagrams correctly represent lions, elephants and animals?

A) 

B) 

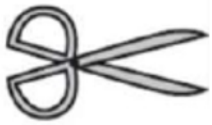
C) 

D) 

Qs 2. 

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A) 

B) 

C) 

D) 

Qs 3. Deepak, Rahul, Manoj and Vinod are brothers. Who is the heaviest?
I. Rahul is heavier than Deepak and Vinod but lighter than Manoj
II. Deepak is lighter than Rahul and Manoj but heavier than Vinod

A) Either I or II is sufficient
B) Statement II alone is sufficient, but statement I alone is not sufficient
C) Statement I alone is sufficient but statement II alone is not sufficient
D) Data in both the statements together are not sufficient

Qs 4. Select the related word from the given alternatives.
MELT : LIQUID :: FREEZE : ?

A) CONDENSE
B) SOLID
C) PUSH
D) ICE

Qs 5. Today is Wednesday. What would be the day after 61 days?

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A) Saturday
B) Sunday
C) Tuesday
D) Monday

Qs 6. Which of the following is the odd one from the given alternatives?

A) Diving
B) Driving
C) Sailing
D) Swimming

Qs 7. Fill in the blanks : JAK, KBL, LCM, MDN, ...

A) MEN
B) PEQ
C) OEP
D) NEO

Qs 8. U,V,W,X and T are sitting on a bench. T is sitting next to U. V is sitting next to W. W is not sitting with X who is on the left end of the bench. V is in the second position from the right. T is to the right of U and X. T and V are sitting together. In which position T is sitting?

A) Between X and W
B) Between U and W
C) Between V and X
D) Between U and V

Qs 9. Find the synonym that is most nearly similar in meaning to the word: DEBACLE

A) Corker
B) Dandy
C) Opulence
D) Catastrophe

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Qs 10. Looking at the portrait of a man, Manu said, " Her mother is the wife of my father's son and I have no brother and sister "Whose portrait was Manu looking at"?

A) His daughter
B) His nephew
C) His father
D) His son

Qs 11. If in a certain language, KOLKATA is coded as LPMLPUB, how is MUMBAI coded in that code

A) NVNCBJ
B) NUNBCH
C) OVNBBH
D) NVNBCJ

Qs 12. Identify the fifth number in the series : 122,144,166,188,...?

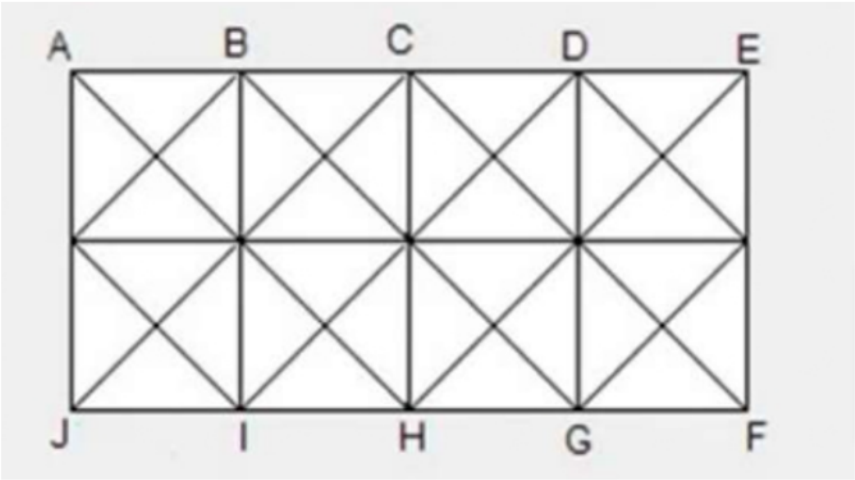
A) 310
B) 234
C) 210
D) 345

Qs 13. Select the pair of words, which are related in the same way as the capitalized words are related to each other.
Frugal : Extravagant

A) Teacher : Philanthropist
B) Criticise : Advocate
C) Hermit : Philosopher
D) Predecessor : Precursor

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Qs 14.



A) 36
B) 18
C) 20
D) 24

Qs 15. DNN, FQQ, HTT, ..., LZZ

A) JXX
B) JVV
C) JWW
D) IWW

Qs 16. Select the pair of words, which are related in the same way as the capitalized words are related to each other.
BUTTERFLY : FREEDOM

A) Frog : Water
B) Chicken : Rooster
C) Self - reliant : buoyant
D) Horse : Speed

Qs 17. Identify the sixth number in the series: 6, 11, 21, 36, 56, ?

A) 81
B) 82
C) 52

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D) 21

Qs 18. Choose the word opposite in meaning to the given word:
MITIGATE

A) Tranquilize
B) Alleviate
C) Intensity
D) Abate

Qs 19. Fill in the blanks: HEC, JGE, LIG, NKI, ...

A) ONM
B) HGF
C) PMK
D) KMP

Qs 20. Comprehension:
In each question below are given two statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts.
Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.
Sub question no. 20
Statements : No women teacher can play. Some women teachers are athletes.
Conclusion : I. Male athletes can play.
II. Some athletes can play.

A) Neither I nor II follows
B) Only conclusion I follows
C) Either I or II follows
D) Only conclusion II follows

Qs 21. Comprehension:
In each question below are given two statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts.

Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.
Sub question no. 21
Statements : All mangoes are golden in colour. No golden coloured things are cheap.
Conclusion : I. All mangoes are cheap.
II. Golden - coloured mangoes are not cheap.

A) Neither I nor II follows
B) Only conclusion I follows
C) Either I or II follows
D) Only conclusion II follows

Qs 22. Comprehension:
In each question below are given two statements followed by two conclusions numbered I and II. You have to take the given statements to be true even if they seem to be at variance from commonly known facts.
Read the conclusion and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.
Sub question no. 22
Statements : All young scientists are open - minded. No open - minded men are superstitious.
Conclusions : I. No scientist is superstitious.
II. No young people are superstitious

A) Neither I nor II follows
B) Only conclusion I follows
C) Either I or II follows
D) Only conclusion II follows

Qs 23. Find out the wrong number in the following series.
30, -5, -45, -90, -145, -195, -255

A) -195
B) -5
C) -145
D) -255

Qs 24. Find out the wrong number in the following series.

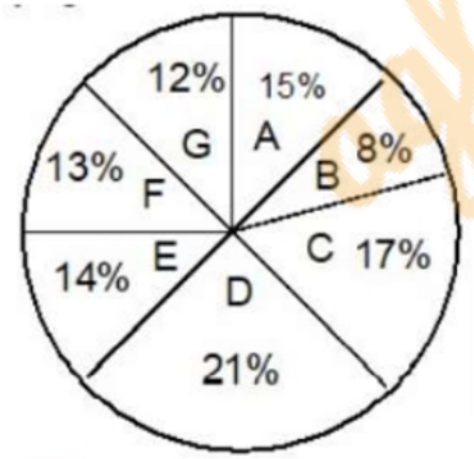
2,5,10,17,26,38,50,65

A) 50
B) 26
C) 38
D) 65

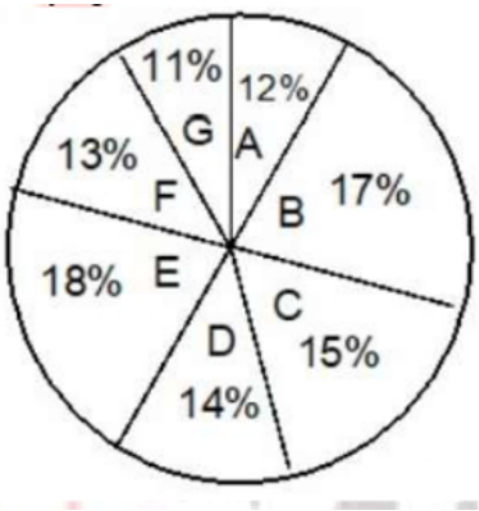
Qs 25. Six books are labeled A, B, C, D, E and F and are placed side by side. Books B, C, E and F have green covers while others have yellow covers. Books A,B and D are new while the rest are old volumes. Books A, B and C are law reports while the rest are medical extracts. Which two books are old medical extracts and have green covers?

A) B and C
B) C and E
C) C and F
D) E and F

Comprehension:
The following questions are based on the pie chart below. Percentage - wise distribution of students studying in Arts and Commerce in seven different institutions- A, B, C, D, E, F and G.
Total number of students studying Arts = 3800



Total number of students studying Commerce = 4200



Qs 26. What is the total number of students studying Arts in institutes A and G together?

A) 1026
B) 1226
C) 1206
D) 1126

Qs 27. How many students from institutes B study Arts and Commerce?

A) 1018
B) 1180
C) 1108
D) 1208

Qs 28. The ratio of the number of students studying Arts to that studying Commerce in institute E is

A) 19 : 27
B) 19 : 28
C) 19 : 16
D) 27 : 14

Qs 29. Statement : Many shops in the local market have extended their shops and occupied most part of the footpath in front of their shops.
Course of Action:

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I. **The civic authority should immediately activate a task force to clear all the footpaths encroached by the shop owners.**
II. **The civic authority should charge hefty penalties to the shop owners for occupying the footpath.**
III. **The civic authority should set up a monitoring system so that encroachments do not recur in future.**

A) None follows.
B) All follows
C) I and II follows
D) II and III follows

Qs 30. Statement : There is a significant increase in the number of patients affected by some disease in a city.
Course of action :

I. **Municipal corporation of the city should take immediate action.**
II. **This problem should be raised in UNESCO.**
III. **Hospitals in the city should be equipped properly for the treatment of the patients.**

A) All follow
B) Only III follows
C) I and II follow
D) I and III follow

Direction (31 - 35): Read the following information carefully and answer the questions:
Five Dramas A, B, C, D and E have to be stead in 6 hours where 1 hour needs to be given per drama.

1. **A break of 1 hour to be taken in the third or fourth hour.**
2. **Drama shows cannot start with A and cannot end in C.**
3. **D has to follow B immediately with no break in between.**
4. **A cannot be done immediately after D.**
5. **A has to precede E immediately with no break in between.**

Qs 31. Which hour is a break hour ?

A) 2nd

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B) 3rd
C) 4th
D) 5th

Qs 32. Which is the drama to be staged first?

A) A
B) B
C) None of these
D) D

Qs 33. Which is the drama staged immediately after the break?

A) A
B) None of these
C) D
D) B

Qs 34. Which drama is staged immediately after D?

A) None of these
B) E
C) B
D) C

Qs 35. Which drama is staged immediately after E?

A) A
B) E
C) None of these
D) C

Qs 36. At what time, in minutes, between 3 o'clock and 4 o'clock, will both the needles coincide with each other?

A) 5(1/11)
B) 12(4/11)
C) 13(4/11)

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D) 16(4/11)

Qs 37. A person's present age is two-fifths of the age of his mother. After 8 years, he will be one - half the age of his mother. What is the present age of the mother?

A) 30
B) 40
C) 60
D) 50

Qs 38. Running at the same constant rate, 6 identical machines can produce a total of 270 bottles per minute. At this rate, how many bottles could 10 such machines produce in 4 minutes?

A) 648
B) 235
C) 123
D) 305

Qs 39. The greatest number which on dividing 1657 and 2037 leaves remainders 6 and 5 respectively is

A) 127
B) 235
C) 123
D) 305

Qs 40. 1. A is the brother of B.
2. C is the father of A.
3. D is the brother of E.
4. E is the daughter of B.
then , the uncle of D is?

A) B
B) A
C) E
D) C

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Computer Awareness

Qs 1. Which of the following is equivalent of the Boolean expression:
(X + Y).(X + $\overline{Y}$**).** $(\overline{X}$**+ Y)**

A) XY
B) $X\overline{Y}$
C) $\overline{X}Y$
D) $\overline{XY}$

Qs 2. "Floating point representation" is used to represent

A) Whole numbers
B) Integers
C) Real numbers
D) Boolean values

Qs 3. If a processor clock is rated as 2500 million cycles per second, then its clock period is

A) $2.50 * 10^{-10}$sec
B) $4.00 * 10^{-10}$sec
C) $1.00 * 10^{-10}$sec
D) None of the above

Qs 4. FFFF how many bit storage is need

A) 16k
B) 32k
C) 64k

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D) d > $n log_{10} 2$

Qs 5. Suppose the largest n bit number requires "d" digits in decimal representation. Which of the following relations between "n" and "d" is approximately correct.

A) $d = 2^n$
B) $n = 2^d$
C) $d < n \log_{10} 2$
D) $d > n \log_{10} 2$

Qs 6. If a signal through a gate is inhibited by sending a low into one of the inputs, and the output is HIGH, the gate is a(n):

A) OR
B) NOR
C) AND
D) NAND

QS 7. The Boolean expression AB + AB' + A'C + AC is unaffected by the value of the Boolean variable

A) C
B) None of these
C) B
D) A

Qs 8. Write the simplified form of the Boolean expression (A+C)(AD+AD')+AC+C:

A) A+C'
B) A+C
C) A'+C
D) A+D

Qs 9. The minimum number of NAND gates required for implementing the Boolean expression,
AB + $A\overline{B}C$ **+** $A\overline{BC}$ **is**

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

Qs 10. The maximum and minimum value represented in signed 16 bit 2's complement representations are

A) -16384 and 16383
B) 0 and 32767
C) 0 and 65535
D) -32768 and 32767

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English

Qs 1. Select the correct article He is ..... M.A. with PhD and teachers in .... Universally.

A) The, the
B) A,an
C) An, the
D) A, the

Qs 2. Choose the correct alternative:
The country cleared this path and paved it with packed gravel, so they would have a peaceful place to hike and bike.
Which of the following alternatives to the underlined portion would NOT be acceptable?

A) Path, paving
B) Path and then paved
C) Path before paving
D) Path paved

Qs 3. Fill in the blank with the correct option:
Technical writing demands .... Use of language.

A) Figurative
B) Poetic
C) Factual
D) Dramatic

Qs 4. What can you call a person who leads an unconventional style of living?

A) Cyric
B) Altruist

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C) Bohemian
D) Agnostic

Qs 5. Select the correct form of verb/subject verb agreement.
The principal, along with his assistants, ... The meetings.

A) Attend
B) Is attending
C) Attending
D) Are attending

Qs 6. Fill in the blanks with the most appropriate option:
Kedar .... this project for a month and now he is about to join a new project.

A) Guiding
B) Has been guiding
C) Guided
D) Guides

Qs 7. "Bite the bullet" means

A) To analysis your faults
B) To accept something that is difficult or unpleasant
C) To stop a conflict
D) To become mad

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Comprehension:
Read the following passage carefully and answer the questions:
You might think you've experienced VR, and you might have been pretty impressed. Particularly, if you're a gamer, there are some great experiences to be had out there (or rather, in there) today. But over the next few years, in VR, as in all fields of technology, we're going to see things that make what is cutting - edge today look like space invaders and although the games will be amazing. The effect of this transformation will be far broader, touching on our work, education, and social lives. Today's most popular VR applications involve taking total control of a user's sense (sight and hearing, particularly) to create a totally immersive experience that places the user in a fully virtual environment that feels pretty realistic. Climb up something high and look down, and you're likely to get a sense of vertigo. If you see an object

moving quickly towards your head, you'll feel an urge to duck out of the way. Very soon, VR creators will extend this sensory hijacking to our other faculties - for example, touch and smell - to deepen that sense of immersion. At the same time, the devices we use to visit these virtual worlds will become cheaper and lighter, removing the friction that can currently be a barrier. I believe extended reality (XR) - a term that covers virtual reality VR) , augmented reality (AR), and mixed reality (MR) - will be one of the most transformative tech trends of the next five years. It will be enabled and augmented by other tech trends, including super-fast networking, that will let us experience VR as a cloud service just like we currently consume music and movies. And artificial intelligence (AI) will provide us with more personalized virtual worlds to explore, even giving us realistic virtual characters to share our experiences with.

Qs 8. The passage states all the following about VR applications except

A) VR applications creates a virtual environment that feels pretty realistic
B) Future AI will allow us to share our experiences with realistic virtual characters
C) VR applications takes control of the user's senses
D) Vertigo is a major feature of all AI applications

Qs 9. "Duck out of something" means

A) To fall down
B) To meet with an accident
C) To hit something hard
D) To avoid doing something

Qs 10. Select an antonym for the word "augment" from the given below:

A) Curtail
B) Reinforce
C) Inflate
D) Aggrandize

Qs 11. Choose the synonym.
LIBERAL

A) Affectionate
B) Reactionary

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C) Sober
D) Generous

Qs 12. Fill in the blanks with the correct preposition:
Jagdish is waiting for me .... the campus.

A) Out
B) At
C) In
D) On

Qs 13. Choose the correct alternative with the correct choice given below statement:
You are to conform ..... the rules of the institutes.

A) With
B) On
C) Of
D) To

Qs 14. Read the following statements to find if there is any part :
(a) If I were him / (b) I would teach / (c) him a lesson / (d) No error.

A) I would teach
B) Him a lesson
C) If I were him
D) No error

Qs 15. Which of the phrases given below should replace the phrases printed in bold to make the sentences grammatically correct.
He is addicted to smoke.

A) Addicted with smoking
B) Addict of smoking
C) Addicted to smoking
D) Used to smoke

Qs 16. Fill in the blanks:
Neither Peter nor I ..... responsible for this blunder.

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A) Were
B) Am
C) Are
D) Is

Qs 17. Identify the word that is similar in meaning to the underlined word.
Raghu made <u>adulatory</u> remarks about the waiter who served the food.

A) Ironic
B) Complimentary
C) Slanderous
D) Derogatory

Qs 18. Select the one which best expresses the same sentence in indirect/direct speech.
He said, " I am glad to be here this evening".

A) He says he was glad to be here this evening.
B) He asked he is glad to be here this evening.
C) He said that he was glad to be there that evening.
D) He said he was glad to be here this evening.

Qs 19. Choose the antonym:
BOLD

A) Timid
B) Coy
C) Nervous
D) Fearful

Qs 20. Select the word which means the same as the following:
To read something carefully.

A) Perverse
B) Presume
C) Peruse
D) Persiflage

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