Question Paper Booklet

SET Code : B   Maximum Marks : 100

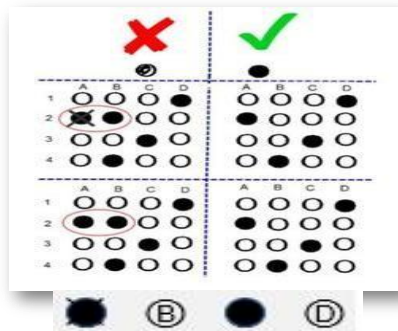Dated   : 15th May 2022   Time : 2 Hours

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General Instructions

- **DO NOT OPEN THE BOOKLET UNLESS ASKED TO DO SO. IF FOUND DISOBEYING, YOUR CANDIDATURE WILL BE CANCELLED.**
- **CALCULATORS, MOBILE PHONE OR ANY ELECRONIC DEVICE IS NOT PERMITTED INSIDE THE EXAMINATION HALL.** If caught possessing any of the aforementioned item, your candidature will be disqualified.
- Immediately after commencement of the examination, check for imprinted, torn or missing pages. If any discrepancy is found, please bring it to the notice of the invigilator and ask for replacement.
- Enter your correct roll number and Set Code on the OMR Answer sheet.
- Do not write anything in the booklet. You could be disqualified if found disobeying.
- The Test Booklet contains 100 questions, each carrying **One** mark. THERE IS NO NEGATIVE MARKING SYSTEM. There are four choices to every question. Please select the correct response and record it in the answer sheet provided.'
- ROUGH SHEETS will be provided separately.

- BEFORE BEGINNING YOUR EXAMINATION, FILL YOUR PARTICULARS CLEARLY IN BLOCK LETTERS.
- RECORD THE TEST BOOKLET SET CODE CLEARLY IN THE DESIGNATED SPACE.
- USE BALL POINT PEN ONLY (BLACK)
- Make sure that your answer sheet is signed by the invigilator on duty.
- Observe the following diagram for the correct method of recording the answer in the OMR sheet:-

- Make sure that you record one response for each question only, multiple responses will not be considered.
- DO NOT PUT ANY STRAY MARKES IN THE ANSWER SHEET.
- AFTER COMPLETION OF THE EXAMINATION, PLEASE HANDOVER THE ANSWER SHEET AND QUESTION PAPER TO THE INVIGILATOR.

Answer the following questions (Marks : 30)

Q No 1. If r.sin θ =1 & r.cos θ = $\sqrt{3}$, then find value of ($\sqrt{3}$ tan θ +1)=?

     (a) 2

     (b) 1

     (c) 0

     (d) None of these

Q No 2. If sin θ = $\dfrac{c}{d}$, then cos θ is equal to ?

     (a) $\dfrac{d}{\sqrt{d^2-c^2}}$

     (b) $\dfrac{d}{c}$

     (c) $\dfrac{\sqrt{d^2-c2}}{d}$

     (d) $\dfrac{c}{\sqrt{d^2-c^2}}$

Q No 3. If cos θ = $\dfrac{2}{3}$, then value 2 tan^2 θ + 2 sec^2 θ- 9 =?

     (a) 2

     (b) -2

     (c) 1

     (d) 3

Q No 4 If sin A = $\dfrac{4}{5}$, then the value of $\dfrac{1-\sin A}{1+\cos A}$

     (a) $\dfrac{1}{8}$

     (b) $\dfrac{1}{2}$

     (c) 2

     (d) $\dfrac{3}{5}$

Q No 5. $\cot^2 30^0 + \csc 30^0 + 3 \tan^2 30^0$ is equal to:-

(a)   3

(b)   1

(c)   0

(e)   6

Q No 6   Find the co-ordinates of point which divides the join of (-1,7) & (4, -3) in ratio
2:3:-

(a)   (2,6)

(b)   (3,4)

(c)   (4,6)

(d)   (1,3)

Q No 7.   Calculate median for following data 2,8,7,5,3?

(a)   8

(b)   7

(c)   5

(d)   3

Q No 8.   If x+y =7, 3x+ y-13 =0, then what is $4x^2+y^2+4xy$ equals to:-

(a)   75

(b)   85

(c)   91

(d)   100

Q No 9.   The sum of two positive number x & y is 2.5 times their difference. If product
of numbers is 84, then what is the sum of those two numbers?

(a)   26

(b)   24

(c)   22

(d)   20

Q No 10.   A number consists of two digits, whose sum is 7. If the digits are reversed, the number is increased by 27. The product of digits of number is:-

(a)   6

(b)   8

(c)   10

(d)   12

Q No 11.   The difference of roots of equation $2x^2 - 11x + 5 = 0$.

(a)   4.5

(b)   4

(c)   3.5

(d)   3

Q No 12.   Angle of elevation of the sun when the length of the shadow of tree is $\sqrt{3}$ times the height of the tree is?

(a) 30^0

(b) 45^0

(c) 60^0

(d) 90^0

Q No 13   If x_1, x_2, x_3 ----- x_n are 'n' observations such that

$$\sum_{i=1}^{n} (x_i + 5) = 200 \text{ and } \sum_{i=1}^{n} (x_i + 9) = 400, \text{ then find value of } n =$$

(a)   30
(b)   50
(c)   70
(d)   90

Q No 14.   The arithmetic mean of 1,2,3, -------- n is :-

(a) $\frac{(n+1)}{2}$

(b) $\frac{n + 2}{2}$

(c) $\frac{n - 1}{2}$

(d)   None of these

Q No 15. The mean of scores x_1, x_2 ----- x_n is 'P'. What is mean of scores of $5x_1$, $5x_2$ ------ $5x_n$?

(a) $\dfrac{P}{2}$

(b) P

(c) 5P

(d) P+5

Q No 16. If the diagonals of two squares are in ratio of 2:5 , their area will be in the ratio of:-

(a) $\sqrt{2} : \sqrt{5}$

(b) 2:5

(c) 4:25

(d) 4:5

Q No 17. The perimeter of five squares are 24cm, 32cm, 40cm, 76cm & 80cm respectively. Find perimeter of another square, whose area equal to sum of areas of given five squares

(a) 31cm
(b) 62cm
(c) 124cm
(d) 961cm

Q No 18. From four corners of square sheet of side 4cm, four pieces, each in the shape of arc of a circle with radius 2cm, arc cut out. Find area of remaining portion.

(a) $(8 - \pi)cm^2$

(b) $(16 - 4\pi)cm^2$

(c) $(16 - 8\pi)cm^2$

(d) $(4 - 2\pi)cm^2$

Q No 19. The area of greatest circle, which can be inscribed in a square whose perimeter is 120 cm is:-

(a) $\dfrac{22}{7} (15)^2$

(b) $\dfrac{22}{7}\left(\dfrac{15}{2}\right)^2$

(c) $\dfrac{22}{7}\left(\dfrac{5}{2}\right)^2$

(d) $\dfrac{22}{7}\left(\dfrac{7}{2}\right)^2$

Q No 20.   The sum of 1ˢᵗ & 3ʳᵈ term of an arithmetic progression is 12 & the product of 1ˢᵗ and 2ⁿᵈ term is 24, then 1ˢᵗ term is equal to:-

(a)   1
(b)   8
(c)   4
(d)   6

Q No 21.   The number of terms in the series 101 + 99 + 97 + -----------+47 is:-

(a)   25
(b)   28
(c)   30
(d)   20

Q No 22.   Which of the following can not be probability of an event?

(a)   1.5

(b) $\dfrac{3}{5}$

(c)   25%

(d)   0.3

Q No 23.   If 3 different coins tossed together, then the probability of getting two heads is:-

(a) $\dfrac{1}{8}$

(b) $\dfrac{3}{8}$

(c) $\dfrac{5}{8}$

(d)   None of these

Q No 24.   A die is thrown once, the probability of getting prime number:-:-

(a) $\dfrac{1}{3}$

(b) $\dfrac{1}{4}$

(c) $\dfrac{2}{3}$

(d) $\dfrac{1}{2}$

Q No 25.   On single roll of a die, the probability of getting number less than 7 is:-

(a)   1

(b)   0

(c) $\frac{2}{3}$

(d) $\frac{3}{2}$

Q No 26.   The distance between the points:-

(a cos θ+b sin θ,0) & (0,a sin θ - b cos θ) is

(a) a^2+b^2

(b) $a^2 - b^2$

(c) $\sqrt{a^2 + b^2}$

(d) $\sqrt{a^2 - b^2}$

Q No 27.   Find the value of 'b' if distance between the points (2,b) & (-4,3) is 10.

(a)   6

(b)   -10

(c)   5

(d)   11

Q No 28.   The perimeter of square circumscribing a circle of radius 'r' is equal to --------
------ cm.

(a)   8r

(b)   4r

(c)   2r

(d) $\frac{r}{2}$

Q No 29.   Areas of 2 circles are equal. Is it necessary that their circumferences are
equal:-

(a)   True
(b)   False
(c)   Can't say
(d)   Insufficient data

SET B

Q No 30.   All ---triangles are similar :-

(a)   Right angled triangle
(b)   Equilateral triangle
(c)   Scalene triangle
(d)   None of these

Answer the following questions   **(Marks : 20)**

Q No 31.   Who among the following was the 2nd Prime Minister of India?

(a)   Indira Gandhi
(b)   Lal Bahadur Shastri
(c)   Pandit Jawaharlal Nehru
(d)   Dr Rajendra Prasad

Q No 32.   What is the name of Military Operation launched in 1984 to take out Terrorist from the Golden Temple in Amritsar (Punjab)?

(a)   Operation Blue Star
(b)   Operation Black Thunder
(c)   Operation Vijay
(d)   Operation Polo

Q No 33.   The construction of building of Kutub Minar started during the reign of ?

(a)   Shah Jahan
(b)   Akbar
(c)   Kutubuddin Aibak
(d)   Iltutmish

Q No 34.   In which Battle the ruler of Mysore state Tipu Sultan died fighting the British Army?
(a)   Battle of Srirangapatna
(b)   Battle of Plassy
(c)   Battle of Buxar
(d)   Battle of Tarrain

Q No 35.   During the revolt of 1857 who shot an English Officer as a reaction to unjust nature of British Officers?

(a)   Tatya Tope
(b)   Mangal Pandey
(c)   Bhagat Singh
(d)   Sukhdev

Q No 36.   Which among the following Political leader brought to India Philosophy of Satyagrah?

    (a)   Lokmanya Tilak
    (b)   Mahatma Gandhiji
    (c)   Gopal Krishna Gokhale
    (d)   B.R. Ambedkar

Q No 37.   Who among the following was responsible for the Jalianwalla Baug Massacre?

    (a)   Robert Clive
    (b)   General Dyer
    (c)   General Anderson
    (d)   Lord Canning

Q No 38.   Which place was chosen by Gandhiji to start Salt Satyagrah during Civil Disobedience movement?

    (a)   Kolkatta
    (b)   Dandi (Gujrat)
    (c)   Bombay
    (d)   Odisa

Q No 39.   Indian standard time (IST) is ---- hours ahead of Greenwich Mean Time:-

    (a)   6 hours ahead
    (b)   5 hours and 30 minutes ahead
    (c)   7 hours ahead
    (d)   8 hours ahead

Q No 40.   The trade that takes between the different regions of the same country is called as …?
    (a)   International trade.
    (b)   Domestic trade
    (c)   Wholesale trade
    (d)   Retail trade

Q No 41.   As per Census 2011 which Indian state has highest density of Population?

    (a)   Maharashtra
    (b)   Bihar
    (c)   Uttar-Pradesh
    (d)   Tamilnadu

Q No 42.   Which among the following is not a Coastal state of India?

    (a)   Maharashtra
    (b)   Kerala
    (c)   Tamilnadu
    (d)   Madhya Pradesh

Q No 43.   Which among the following river is called as Dakshin Ganga?

(a)   River Krishna
(b)   River Godavari
(c)   River Narmada
(d)   River Mahanadi

Q No 44.   Which among the following state do not come under '7- sisters' category.

(a)   Assam
(b)   Arunachal Pradesh
(c)   Nagaland
(d)   Uttarakhand

Q No 45.   Which among the following is not a Himalayan state/UT?

(a)   UT of Jammu and Kashmir
(b)   Uttarakhand
(c)   Sikkim
(d)   Jharkhand

Q No 46.   The size of the Earthquake is measured by the device?

(a)   Richter scale
(b)   Barometer
(c)   Thermometer
(d)   Mercalli scale

Q No 47.   On which day constitution of India came into force?

(a)   26th Jan 1950
(b)   26th Jan 1952
(c)   15th Aug 1947
(d)   15th Aug 1950

Q No 48.   Which conducts elections for the state government and central government?

(a)   Finance commission.
(b)   Election commission of India
(c)   State election commission
(d)   Human rights commission

Q No 49.   What is the name of first women Prime Minister of India?

(a)   Annie Besant
(b)   Savitribai Phule
(c)   Pratibhatai Patil
(d)   Indira Gandhi

Q No 50.   Who is the Current Prime Minister of India?

(a)   Ramnath Covind
(b)   M Vainkaiya Naidu
(c)   Narendra Modi
(d)   Amit Shah

Answer the following questions   **(Marks : 06)**

Q No 51.   India's first 'Amrit Sarovar' has been established in Rampur of which state?

(a)   Haryana
(b)   Uttar Pradesh
(c)   Kerala
(d)   Telangana

Q No 52.   Which Indian state is the first to set up a Gene Bank Project?

(a)   Kerala
(b)   Maharashtra
(c)   West Bengal
(d)   Telangana

Q No 53.   Who has won the 2022 World Snooker Championship held at the Crucible Theatre in Sheffield, England?

(a)   Pankaj Advani
(b)   Ronnie O'Sullivan
(c)   Aditya Mehta
(d)   Mark Selby

Q No 54.   Which country has scheduled to host Asian Games 2022?

(a)   South Korea
(b)   India
(c)   Japan
(d)   China

Q No 55.   Which airline has become the first to use the indigenous navigation system GAGAN?

(a)   SpiceJet
(b)   Air India
(c)   IndiGo
(d)   Vistara

Q No 56.   Who has been appointed as the new NITI Aayog Vice-Chairman?

(a)   Nand Mulchandani
(b)   Amartya Sen
(c)   Suman Berry
(d)   Jayati Ghosh

Directions for Q No 57 to Q No 61

Read the following passage carefully and answer the questions given below the passage:- (Marks : 05)

Mindfulness teaches us that it's very important to relate to the reality of death and prepare for the challenge of leaving this life. It may be hard to face up to the truth of impermanence, but to do so can be liberating, and the time to do it is right now! When you meet your physical death, you are not going to die "then", but "now". Likewise, to prepare yourself for death, you need to do it here and now. Mindfulness is a powerful method for connecting with that simple ground.

Q No 57. 'To relate to" means:-

(a) To connect
(b) To contact
(c) To contradict
(d) To communicate

Q No 58. The challenge is:-

(a) To leave this life
(b) To live this life
(c) To prepare for this life
(d) To prepare for the next life

Q No 59. What is liberating?

(a) To face life
(b) To face death
(c) To face the fact of dying
(d) To face impermanence

Q No 60. "Likewise" means:-

(a) Like
(b) Wise
(c) Same
(d) In the same way

Q No 61. "Ground" in this context means:-

(a) Land
(b) Knowledge
(c) Fact
(d) Information

Directions for Q No 62 to Q No 64

Rearrange the sentences so as to form a meaningful sequence:-   **(Marks : 03)**

Q No 62.   P   -   You must not consume coffee especially at night.
            Q   -   Coffee energises and excites the nervous system.
            R   -   Especially coffee has its adverse effects on body.
            S   -   Too much consumption of tea and coffee is bad for your health.

            The proper sequence is:-

            (a)   SRQP
            (b)   PQRS
            (c)   PRQS
            (d)   QSRP

Q No 63.   P   -   First of all, they provide ample oxygen.
            Q   -   Early morning walks are extremely beneficial.
            R   -   Then they give you the joy of fresh mornings.
            S   -   Lastly , they give you an opportunity to talk to yourself.

            The proper sequence is:-

            (a)   PQRS
            (b)   SRQP
            (c)   QPRS
            (d)   RQSP

Q No 64.   P   -   This addiction could be to anything.
            Q   -   Being unable to live without anything is an addiction.
            R   -   It could be an addiction to a substance.
            S   -   Or it could be an addiction to thinking, too.

            The proper sequence is:-

            (a)   QSRP
            (b)   QPRS
            (c)   PRQS
            (d)   PQRS

Directions for Q No 65 to Q No 67

Choose the correct form of the Verb   **(Marks : 03)**

Q No 65.   You _____ to me!

            (a)   lied
            (b)   lay
            (c)   lain
            (d)   laid

Q No 66.   She had finished her report before we _____ there.

    (a)   had reached
    (b)   reached
    (c)   wanted to reach
    (d)   were to reach

Q No 67.   Has any new idea _____ you in these two days?

    (a)   striked
    (b)   striken
    (c)   strikened
    (d)   struck

Directions for Q No 68 to Q No 70

Choose the correct SYNONYM for the given word   **(Marks : 03)**

Q No 68.   <u>Frantic</u>

    (a)   berserk
    (b)   fast
    (c)   presence of mind
    (d)   attack

Q No 69.   <u>Aggressive</u>

    (a)   submissive
    (b)   responsive
    (c)   fronting
    (d)   confrontational

Q No 70.   <u>Prevent</u>

    (a)   nip in the bud
    (b)   bud in the nip
    (c)   sip
    (d)   crop

Directions for Q No 71 to Q No 73

Choose the correct ANTONYM for the given word   **(Marks: 03)**

Q No 71.   <u>Progress</u>

    (a)   digress
    (b)   trace
    (c)   freeze
    (d)   regress

Q No 72.   Childish

(a)   prudent
(b)   prudish
(c)   mature
(d)   grown-up

Q No 73.   Magnanimous

(a)   gravitational
(b)   selfish
(c)   noble
(d)   narrow

Directions for Q No 74 to Q No 76

Fill in the Blanks with a suitable word   **(Marks : 03)**

Q No 74.   He has complete mastery _____ English

(a)   over
(b)   of
(c)   on
(d)   onto

Q No 75.   Her marriage _____ a wealthy family was given as much publicity as possible.

(a)   into
(b)   to
(c)   for
(d)   along with

Q No 76.   Keep me _____ on this!

(a)   a post
(b)   the post
(c)   posted
(d)   posting to

Answer the following questions   **(Marks : 24)**

Q No 77.   Focal length of a plane mirror is:-

(a)   0
(b)   Infinite
(c)   25 cm
(d)   - 25

Q No 78.   A student studies that the speed of light in air is 300000 km/sec and that in glass slab is 197000 km/sec. What causes the difference in speed of light in these two media?

(a)   Difference in density
(b)   Difference in temperature
(c)   Difference in amount of light
(d)   Difference in direction of wind flow

Q No 79.   In which part of the human eye is the image of an object formed?

(a)   Iris
(b)   Pupil
(c)   Retina
(d)   Cornea

Q No 80.   The danger signals installed at the top of tall buildings are red in colour. These can be easily seen from a distance because among all other colours, red light:-

(a)   is scattered the most by smoke or fog
(b)   is scattered the least by smoke or fog
(c)   is absorbed the most by smoke or fog
(d)   moves fastest in air

Q No 81.   A fuse wire repeatedly gets burnt when used with a good heater. It is advised to use a fuse wire of :-

(a)   more length
(b)   Less radius
(c)   less length
(d)   more radius

Q No 82.   The front face of a circular loop of a wire is North-pole, the direction of current in this face of the loop will be:-

(a)   Clockwise
(b)   Anticlockwise
(c)   Towards North
(d)   Towards South

Q No 83.   Appliances that have a metal body are generally connected to the earthing wire. What is the reason to earth these wires?

(a)   To prevent excess of current
(b)   To prevent the leakage of current
(c)   To provide extra current to appliance
(d)   To provide high resistance to the appliance

Q No 84.   When a straight conductor is carrying current:-

(a)   There are circular magnetic field lines around it
(b)   There are magnetic field lines parallel to the conductor
(c)   There are no magnetic field lines.
(d)   None of the above

Q No 85.   The chemical formula of Magnesium Oxide is?

(a) MgO_2
(b) Mg_2O
(c) MgO
(d) $Mg(OH)_2$

Q No 86.   Which of the reactions is used in black and white photography?

(a)   Combination Reaction
(b)   Decomposition Reaction
(c)   Displacement Reaction
(d)   Oxidation Reaction

Q No 87. $Na_2CO_3.10H_2O$ is known as:-

(a)   Baking Soda
(b)   Baking Powder
(c)   Washing Soda
(d)   Bleaching Powder

Q No 88.   Which salt is Acidic in nature?

(a) NH_4Cl
(b) CH_3COONH_4
(c) $NaCl$
(d) Na_2CO_3

Q No 89.   When a non-metal is allowed to react with water:-

(a) CO_2 gas is formed
(b) H_2 gas is formed
(c)   Product formed depends on temperature
(d)   No products are formed

Q No 90.   Aqua regia is a freshly prepared mixture of concentrated HNO_3 and concentrated HCl in the ratio of :-

(a)   1:3 respectively
(b)   2:3 respectively
(c)   3:1 respectively
(d)   3:2 respectively

Q No 91.   What is the other name for group 18th elements?

(a)   Noble gases
(b)   Alkali metals
(c)   Alkali earth metals
(d)   Halogens

Q No 92.   What is the trend of Valency left to right along the periods in the modern periodic table?

(a)   It increases from left to right
(b)   It decreases from right to left
(c)   It increases and then decreases
(d)   It decreases and then increases

Q No 93.   The contraction and expansion movement of the walls of the food pipe is called:-

(a)   Translocation
(b)   Transpiration
(c)   Peristaltic movement
(d)   Digestion

Q No 94.   The respiratory pigment in human beings is :-

(a)   Carotene
(b)   Chlorophyll
(c)   Haemoglobin
(d)   Mitochondria

Q No 95.   Which of the following disease is transmitted sexually?

(a)   Kala Azar
(b)   Jaundice
(c)   Cholera
(d)   Syphilis

Q No 96.   How do spores develop into Rhizopus?:-

(a)   Spores divide and grow into new individual
(b)   Spores combine with other spores and grow
(c)   Spores enlarge in size for the growth of new individual
(d)   Spores land on other organisms and increase with their growth in size.

Q No 97.   Mendel conducted his famous breeding experiment by working on:-

(a)   Drosophila
(b)   Escherichiacoli
(c)   Pisum Sativum
(d)   All of these

Q No 98.   Which of these is a pair of an analogous organ?

(a)   Wings of a pigeon and a bat
(b)   Forelimbs of a frog and a bird
(c)   Forelimbs of a rabbit and a lizard
(d)   Leaves of a pitcher plant and a Venus fly trap

Q No 99.   Miller and Urey performed an experiment to prove the origin of life from organic compounds. The gases they took were:-

(a)   Methane, Ethane, Ammonia, Water Vapour
(b)   Methane, Ethane, Hydrogen, Ammonia
(c)   Ammonia, Water Vapour, Butane, Hydrogen
(d)   Methane, Ammonia, Hydrogen, Water Vapour

Q No 100.   In Amoeba, food is digested in the:-

(a)   Food Vacuole
(b)   Mitochondria
(c)   Pseudopodia
(d)   Chloroplast

_____