

# IMU CET 2021

## Question Paper

*(Based on Memory Recall)*

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- Qs 1.** The Nagarjuna Sagar project is located on which of the following rivers?
- Qs 2.** How many 6 are there in the following series of number which are preceded by 7 but not immediately followed by 9?
- Qs 3.** In Thar Desert region the shifting sand dunes are locally known as?
- Qs 4.** Find out the missing term A,C,F, \_
- Qs 5.** How many 5 are there in the following sequence which are immediately followed by 3 but not immediately preceded by 7?
- Qs 6.** How many pairs of letters are there in the word BUCKET which has as many letters between them in the word as in the alphabet?
- Qs 7.** In the series 6472914216..... How many pairs of successive numbers have a difference of 2 each?
- Qs 8.** Find out the missing term out of the given options CAT, FOW, IGZ, \_\_?
- Qs 9.** "Autobiography of a Yogi" is a book written by?
- Qs 10.** Which of the followings is not a sea port?
- Qs 11.** Find out the missing term out of the given options Z,A,Q, \_\_?

**Qs 12.** The isthmus — of which of the following rivers?

**Qs 13.** Find out the missing term out of the given options KM5, IP8, GS11, EV14, \_\_\_?

**Qs 14.**

**Qs 15.** Which award is given for excellence in sports?

**Qs 16.** How many pairs of letters are there in the word SEQUENTIAL which has as many letters between them as are in the alphabet?

**Qs 17.** The requirement of water is highest in which one among the following industries?

**Qs 18.** Find out the missing term out of the given options AB, BA, ABC, CBA, ABCD ?

**Qs 19.** Find out the missing term out of the given options ?

**Qs 20.** Jawahar tunnel on Jammu- Srinagar highway passes through?

**Qs 21.** How many 5's are there in the following number sequence which are immediately preceded by 9 but not immediately followed by 4?

**Qs 22.**

**Qs 23.** Find out the missing term out of the given options 2Z5, 7Y7, '14X9, 23W11, 34V13, \_\_\_ ?

**Qs 24.** Count each 7 which is not immediately preceded by 5 but is immediately followed by either 2 or 3. How many such 7's are there?

**Qs 25.** Find out the missing term out of the given options?

In the following questions select the word which matches to the word analogy in the question

**Qs 26.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 27.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 28.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 29.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 30.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 31.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 32.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 33.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 34.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

**Qs 35.** \_\_\_\_\_ is to \_\_\_\_\_ as \_\_\_\_\_ is to \_\_\_\_\_ ?

For the following questions, select the appropriate choice on the basis of the relationship given

**Qs 36. \_\_\_\_\_ is to hot as**

- A) cold is to ice
- B) tea is to coffee
- C) river is to ocean

**Q37. India is to Pakistan as**

- A) America is to Europe
- B) Australia is to England
- C) Russia is to America
- D) M.P is to Gujarat

**Q38. Fish is to as**

- A) Hay is to horse
- B) Crow is to eagle
- C) Peacock is to bees
- D) Crocodile is to alligators

**Qs 39.** Cake is to as

**Q40. Monday is to Wednesday as**

- A) August is to November
- B) Spring is to rains
- C) year is to leap year
- D) night is to day

Fill in the blanks with appropriate prepositions

**Qs 41.** I am acquainted \_\_\_\_\_ the developments of the case.

**Qs 42.** The illness has confined him \_\_\_\_\_ his bedroom.

**Qs 43.** Kolkata is famous \_\_\_\_\_ its sweets

**Qs 44.** He goes to school \_\_\_\_\_ foot

**Qs 45.** She is enamoured \_\_\_\_\_ Ranbir Kapoor.

**For each of the words given below choose the option which is most similar in meaning to it**

**Qs 46.** To smell a rat

**Qs 47.** Status quo

**Qs 48.** Vice versa

**Qs 49.** To bury the hatchet

**Qs 50.** To give the game away

**Fill in the blanks with the correct form of the verb**

**Qs 51.** I have been \_\_\_\_ (try) to make a perfect cake since morning.

**Qs 52.** The Ganga \_\_\_\_ (rise) in the Himalaya and \_\_\_\_ (flow) into the Bay of Bengal.

**Qs 53.** He always \_\_\_\_ (take) his coffee without sugar.

**Qs 54.** He was \_\_\_\_ (bite) by a snake.

**Qs 55.** When he was a bachelor he often \_\_\_\_ (arrive) home late and his father. \_\_\_\_ (be) angry with him.

**Qs 56.** That food didn't \_\_\_\_ my stomach.

**Qs 57.** You should always \_\_\_\_.

**Qs 58.** I \_\_\_\_ my old school reports when I was cleaning my desk.

**Qs 59.** The concert had to be \_\_\_\_ as the singer went down with flu.

**Qs 60.** \_\_\_\_ quietly with your work until the substitute teacher arrives.

**Choose the option that completes the sentence most meaningfully and appropriately.**

**Qs 61.** He was so stubborn and. \_\_\_\_ that parents gave up the hope of his reformation.

**Qs 62.** People were

**Qs 63.** The women in India were kept under \_\_\_\_ until the new laws in free India ensured their \_\_\_\_.

**Choose the antonym of the underlined words**

**Qs 64.**

**Qs 65.**

**Qs 66.**

**Synonym**

**Qs 67.** Pageant

**Qs 68.**

**Qs 69.**

**Choose correct idiom**

**Qs 70.** To hit the nail right on the head

**Qs 71.** Strike while the iron is hot.

**Qs 72.** To put ones hand to plough

**Choose the answer that names the part of the speech of the capitalised word in the following sentences**

**Qs 73.** Farmers had VERY poor crops this year.

**Qs 74.** What language do most speak in BRAZIL.

**Qs 75.** The cashier CLOSED the door.

**Passage Q76,77,78,79,80.**

**Qs 81.** Two poles of equal height are standing opposite to each other on either side of the road which is 30 meters wide. From a point between them on the road the angles of elevation of the tops are  $30^\circ$  and  $60^\circ$  height of each pole is

**Qs 82.** The values of b and c for which the identity  $f(x+1) - f(x) = 8x + 3$  is satisfied where  $f(x) = bx^2 + cx + d$  are

**Qs 83.** What is the eccentricity of the conic  $4x^2 + 9y^2 = 144$

**Qs 84.** A coin is tossed three times. What is the probability of getting head and tail alternatively?

**Qs 85.** The value of  $k$  for which one of the roots of  $x^2 - x + 3k = 0$  is double of one of the roots of  $x^2 - x + k = 0$

**Qs 86.** Equation of a plane perpendicular to the plane  $x - 2y + 5z + 1 = 0$  which passes through the points  $(2, -3, 1)$  and  $(-1, 1, -7)$  is given by

**Qs 87.** The binary representation of the decimal number 45 is

**Qs 88.** Foot of the perpendicular drawn from  $(0, 5)$  to the line  $3x - 4y - 5 = 0$  is

**Qs 89.** What is the area of the parabola  $x^2 = y$  bounded by the line  $y = 1$ ?

**Qs 90.** The decimal representation of the binary number 1011 is

**Qs 91.** Let  $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ , then the number of subsets of  $A$  containing exactly 2 elements is

**Qs 92.** In the equation  $(1 + x)^n$  what is the sum of even binomial coefficients

**Qs 93.** The shadow of a tower standing on a level plane is found to be 50 mtrs longer when the Sun's elevation is  $30^\circ$  than when it is  $60^\circ$ . The height of the tower is

**Qs 94.** What is  $\sin^{-1}(3/5) + \sin^{-1}(4/5)$  equal to

**Qs 95.** Let  $g(x) = x^2 - 4x + 6$ . If  $(f \circ g)(x) = g \circ f(x)$  and  $f(1) = 2$  then what is  $f(x)$  equal to

**Qs 96.** If the magnitude of difference of two unit vectors is  $\sqrt{3}$  then the magnitude of the sum of two vectors is

**Qs 97.** If the sum of  $n$  terms in an AP is  $3n^2 + 5n$  and  $T_m = 164$ , then  $m$  is equal to a

**Qs 98.** What is the general solution of the differential equation  $x^2 dy + y^2 dx = 0$

**Qs 99.** Equation of the curve passing through  $(3, 9)$  which satisfies the differential equation  $dy/dx = x + 1/x^2$  is

**Qs 100.** The mean and variance of 10 observations are 4 and 2 respectively. If every observation is multiplied by 2, the mean and variance of new series will be

**Qs 101.** What is the sum of the squares of the root of the equation  $x^2+2x-143=0$

**Qs 102.** Two independent events A and B have  $P(A)=\frac{1}{3}$  and  $P(B)=\frac{3}{4}$ . What is the probability that exactly one of the two events A or B occurs?

**Qs 103.** If  $\tan\theta + \sin\theta = m$ ,  $\tan\theta - \sin\theta = n$ , then

- A)  $m^2 - n^2 = 4mn$
- B)  $m^2 + n^2 = 4mn$
- C)  $m^2 - n^2 = m^2 + n^2$
- D)  $m^2 - n^2 = 4vmn$

**Qs 104.** The eccentricity of the hyperbola with latus rectum 12 and semi conjugate axis  $2\sqrt{3}$  is

**Qs 105.** A straight line  $x=y+2$  touches the circle  $4(x^2+y^2)=r^2$ . The value of r is

**Qs 106.** What is  $\int (e^x + 1)^{-1} dx$  equal to

**Qs 107.** The value of k for which the lines  $2x+3y+a=0$  and  $5x+ky+a=0$  represent a family of parallel lines is

**Qs 108.** An AP consists of n (odd terms) and its middle term is m, then the sum of AP is

**Qs 109.** How many tangents are parallel to x —axis for the curve  $y = x^2 - 4x + 3$

**Qs 110.** What is the real part of  $(\sin x + i \cos x)^3$

**Qs 111.** What is one of the square roots of  $3+4i$

**Qs 112.** For real numbers x and y define a relation  $R$   $xRy$  if and only if  $x-y+\sqrt{2}$  is an irrational number, then the relation R is

**Qs 113.** If A and B are symmetric matrixes of the same order then  $(ABA)'$  is

**Qs 114.** If the curve  $vx + vy = 1$  then what is the value of  $dy/dx$  at  $(1/4, 1/4)$

**Qs 115.** The points  $(1,3,4)$ ,  $(-1,6,10)$ ,  $(-7,4,7)$  and  $(-5,1,1)$  are vertices of a

**Qs 116.** In how many ways 4 boys and 3 girls can be seated in a row so that they are alternate

**Qs 117.** Four dices (6 faces) are rolled. the number of possible outcomes in which at least one dice shows 2 is

**Qs 118.** What is the area bounded by the lines  $x=0$   $y=0$  and  $x+y+2=0$

**Qs 119.** What is  $\int_0^2 x e^x dx$  equal to

**Qs 120.** If A is any matrix then the product of AA is defined only when A is matrix of order mn where

**Qs 121.** What is  $\sin^{-1}(\sin 3\pi/5)$  equal to

**Qs 122.** The determinant of an odd order skew symmetric matrix is always

**Qs 123.** The minimum value of the function  $f(x)=|x-4|$  exists at x is equal to

**Qs 124.** How many terms are there in the expansion of  $(1 + 2x + x^2)^{18}$

**Qs 125.** Which one of the following is an example of a non-empty set

**Qs 126.** If  $f: \mathbb{R} \rightarrow \mathbb{R}$  be defined as  $f(x) = \sin |x|$ , then which one of the following is correct

- A). f is not differentiable only at  $x=0$
- B) f is differentiable only at  $x=0$
- C) f is differentiable everywhere except at  $x=0$
- D) f is not differentiable at many points

**Qs 128.** What is the value of the integral  $\int_{-1}^1 |x| dx$  ?

**Qs 129.** For the equation  $ax^2 + by^2 + 2bxy + 2gx + 2fy + c = 0$  where a is not equal to b, to represent a circle the condition to be

**Qs 130.** If two rows of a determinant are identical then what is the value of determinant?

**Qs 131.** A toy is thrown vertically upwards and then falls back on the ground. Its potential energy is maximum at

**Qs 132.** In a Carnot engine when heat is taken by a perfect gas from the source, then the temperature of the source

**Qs 133.** An isobar is produced in

- A)deuteron emission
- B) proton emission
- C)
- D)

**Qs 134.** Motion of a particle described in the x direction by  $x = \sin \omega t$  and in the y direction by  $y = \cos \omega t$  the particle is moving on

**Qs 135.** A secondary cell of 2.5V and internal resistance of 0.05  $\Omega$  is being charged with a current of 10A. The potential difference between the two terminals of the secondary cell will be

**Qs 136.** The resistance of certain length of wire having a diameter of 6mm is 5  $\Omega$ . The wire is drawn such that the diameter becomes 3 mm. the new resistance will be

**Qs 137.** The heat generated when a condenser of 100 $\mu$ F capacity is charged to 220 V and discharged through a 2  $\Omega$  resistance

**Qs 138.** A particle performing uniform circular motion has angular momentum L. if its angular frequency is doubled and its kinetic energy halved, then the new angular momentum is

**Qs 139.** A hollow sphere of copper is charged with +ve charge. The electric field inside the sphere will be

**Qs 140.** If the frequency of a note emitted by a source changes by 20 % as it approaches an observer. As it recedes away from him, the speed of the source is nearly

**Qs 141.** At constant temperature on increasing pressure of a gas by 5%, its volume will increase

**Qs 142.** A sound wave has frequency of 2KHz and a wavelength of 35cm. If an observer is 1.4km away from the source then after what time interval the observer can hear the sound?

**Qs 143.** A body attached to a spring balance weighs 10 kg on the earth. The body attached to the same spring balance is taken to a planet where gravity is half that of the earth. The spring balance will read

**Qs 144.** The source and sink temperature of a Carnot engine are 400K and 300K. Its efficiency is

**Qs 145.** The speed of electron in the ground state of the hydrogen atom is

**Qs 146.** Luminosity of as rigel star in Orion constellation is 17000 times that of our Sun. If the surface temperature of the Sun is 6000K, then the surface temperature of the star is what

**Qs 147.** A refracting telescope consists of

**Qs 148.** 1g of water at 100° Celsius is converted to steam at the same temperature. The amount of heat required is nearest to a value of

**Qs 149.** Two soap bubbles have radius in the ratio 2:1. What is the ratio of excess pressure inside them

**Qs 150.** A water producing agent changes the angle of contact from

**Qs 151.** If the height of a simple pendulum is being increased by 4 folds, then time period of oscillation will be

**Qs 152.** When you walk on a wooden carpet and bring your finger near the metallic handle of the door, an electric shock is produced. This is because

**Qs 153.** The work done on an object does not depend on its

**Qs 154.** When a gas filled in a closed vessel is heated through 1°C its pressure increases by 0.4%, then the initial temperature of the gas was

**Qs 155.** Molecular weight of heavy water used as a moderator in nuclear reactor is

**Qs 156.** The power output of a machine that lifts 600kg through a height of 20m in 1min is

**Qs 157.** The ratio of fundamental frequency of an open and closed organ pipe of the same length is

**Qs 158.** Two pure inductors each of self-inductance  $L$  are connected in parallel but are well separated from each other, then the total inductance is

**Qs 159.** A jet aircraft is flying due to south at  $300\text{ m/s}$  at a place where the vertical component of the earth's magnetic field is  $80\text{ }\mu\text{T}$ . The potential difference between the wing flaps if they are  $25\text{ m}$  apart is

**Qs 160.** Four hot metallic articles which are coloured as blue, red, black and white but have same temperature and then they are allowed to cool. Which will have the fastest cooling rate?

**Qs 161.** An elastic spring has a force constant  $k$  is cut into three equal parts. The force constant of each part is

**Qs 162.** The value of retarding potential needed to stop the photoelectrons ejected from a metal surface of work function  $1.2\text{ eV}$  with light of energy  $2\text{ eV}$  is

**Qs 163.** The internal energy  $U$  is unique function of any state because it

**Qs 164.** Two bodies A and B are moving with equal velocities. The mass of B is double that of A. In this context which one of the following statements is correct about their momentums

**Qs 165.** Pressure of a gas increases due to increase of its temperature because at higher temperatures

**Qs 166.** A body has a mass of  $50\text{ kg}$ . Its velocity is brought down from  $20\text{ m/s}$  to  $5\text{ m/s}$  by a resisting force in  $5\text{ s}$ . The magnitude of resisting force is

**Qs 167.**  $1\text{ gm}$  of ice at  $0^\circ\text{C}$  is mixed with  $1\text{ gm}$  of steam at  $100^\circ\text{C}$ . After thermal equilibrium the temperature in degree Celsius of the mixture is

**Qs 168.** According to Bohr's atomic model, the electron revolves around the nucleus in

**Qs 169.** A wheel of mass  $10\text{ kg}$  has a moment of inertia of  $160\text{ kgm}^2$  about its own axis, the radius of gyration will be

**Qs 170.** For a perfectly elastic collision the coefficient of restitution is

**Qs 171.** Two similarly charged bodies are kept  $5\text{ cm}$  apart in air. If the second body is shifted away from the first by another  $5\text{ cm}$ , their force of repulsion will be

**Qs 172.** A force applied on a body is represented as  $F = 6i - 8j + 10k$  and accelerates at  $1\text{m/s}$ . The mass of the body is

**Qs 173.** Four rods of length  $l$  and radius  $r$  of the same material are kept at the same temperature. Which of the rods conduct most heat?

**Qs 174.** The viscous force of a small sphere of radius  $r$  moving in a fluid is directly proportional to

**Qs 175.** Imagine a current carrying wire with the direction of current downward or into the page. The direction of the magnetic field lines is

**Qs 176.** The height at which acceleration due to gravity decreases by 36% of its value on the surface of the earth (radius of earth is  $R$ )

**Qs 177. Density of water is**

- A) max at  $0^\circ\text{C}$
- B) min at  $0^\circ\text{C}$
- C) max at  $4^\circ\text{C}$
- D) min at  $4^\circ\text{C}$

**Qs 178.** The apparent frequency noted by a moving listener away from the stationary source is 10% less than the real frequency. If the velocity of sound is  $330\text{ m/s}$ , then the velocity of the listener is

**Qs 179.** The process by which a heavy nucleus splits into lighter nucleus is known as

**Qs 180.** The mirror used for the head light of a car is

**Qs 181.** The best and poorest conductors of heat are respectively

**Qs 182.** The temperature at which a solid melts to become a liquid at the atmospheric pressure is called its melting point. The melting point of a solid is an indication of

**Qs 183.** In haemoglobin the iron is in oxidation state of

**Qs 184.** In Bosch Process hydrogen is collected from

**Qs 185.** behaviour of hydrogen is due to

**Qs 186.** 1gm of combines with 1gm of hydrogen and 20g of calcium, therefore when calcium combines with hydrogen it must combine in the ratio 20:1. This statement complies to the law of

**Qs 187. Which of the following statements is correct**

A) covalent bonds are directional

B) ionic bonds are directional

**Qs 188.** What is the number of moles of  $H_2(g)$  requires to separate one mole of benzene

**Qs 189.** Acidity of  $BF_3$  can be explained on the basis of which of the following concepts

**Qs 190.** Which of the following does not wet the walls of the glass vessel in which it is kept?

**Qs 191.** Which of the following acids is a mineral acid?

**Qs 192.** Two atoms are said to be isotopes if

**Qs 193.** Which of the following has different number of molecules? :

A) 3gm of hydrogen

B) 48gm of oxygen

C) 42gm of nitrogen

D) gm of carbon

**Qs 194.** Conversion of glucose into ethanol is called

**Qs 195.** Oxidation number of sulphur in perdisulphuric acid is

**Qs 196.** The principal of cleaning by soap is

**Qs 197. Which of the following is not a chemical change?**

A) ripening of fruits

B) freezing of water

C) curding of milk

D) digestion of food.

**Qs 198.** Equal masses of oxygen, hydrogen and methane are kept under identical conditions. The ratio of the volumes of gases will be

**Qs 199. A neutronic species that has 16 electrons and a net charge of 2 has :**

- A) The same no of electrons as a neutral argon atom
- B) More protons than electrons
- C) Two unpaired electrons

**Qs 200. A student by chance mixed acetone with This mixture of acetone and alcohol can be separated**

- A) filtration
- B) separating funnel
- C) fractional distillation

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