

Max. Marks: 400

Time Allowed: 2 Hours

INSTRUCTIONS

Each Correct Answer Carries 4 Marks;
1 Mark Will Be Deducted For Each Wrong Answer.

- Switch off your mobile phone.
- Write your name; roll number and answer booklet number on your answer sheet.
- There are 100 questions in this admission test and for each question, four possible choices are given.
- Choose the most appropriate answer to the given question by filling the appropriate circle (only ONE circle) on the answer sheet.
- Questions with more than one circles filled, will not be graded.
- **Don't write anything on the booklet. All answers must be given on the answer sheet provided.**
- Anyone found using unfair means will be immediately disqualified from the test
- Use of calculator is not allowed.

MATHS SECTION

Q1) Product of a complex number and its conjugate

- is
- A real number
 - A complex number
 - Either real number or complex number
 - None of the above

Q2) If two sets have no element common, they are called

- Disjoint sets
- Overlapping sets
- Complementary sets
- Equivalent sets

Q3) If $\tan\theta > 0$ and $\cos\theta > 0$ then θ lies in

- 1st quadrant
- 2nd quadrant
- 3rd quadrant
- 4th quadrant

Q4) $\tan 50^\circ =$ _____

- $\sin 40^\circ$
- $\cos 30^\circ$
- $\sec 50^\circ$
- $\cot 40^\circ$

Q5) 1 radian = _____

a. $\frac{180^\circ}{\pi}$

b. $\frac{\pi}{180^\circ}$

c. 180°

d. None of these

Q6) $\tan\left(\frac{3\pi}{2} + \theta\right)$ is equal to

- $\tan\theta$
- $-\tan\theta$
- $-\cot\theta$

d. $\cot\theta$

Q7) The sixth term in the expansion of $(x^2 - \frac{3}{x})^{10}$

a. $-\frac{1540}{8}x^5$

b. $\frac{15309}{8}x^5$

c. $\frac{1540}{8}x^5$

d. None of the above

Q8) A circle passes through $(2,-1)$, $(2,3)$ and $(4,-1)$ then the coordinates of the center are

a. $(1,3)$

b. $(3,1)$

c. $(-3,1)$

d. $(3,-1)$

Q9) $2x + 3y$ and $2x - 3y$ are

a. Parallel lines

b. Perpendicular lines

c. Same lines

d. None of these

Q10) The minimum value of $x^2 + 8x + 17$ is

a. -1

b. 17

c. 0

d. 1

Q11) If $f(x) = 2x + 1$, $K(x) = (x + 4)^{1/2}$ then $f \circ k(x) =$ _____

a. $2(x+5)^{1/2}$

b. $2(x+4)^{1/2} + 1$

c. $2(x+5)^{1/2}$

d. None of a, b, c

Q12) $\frac{\cos^3\theta - \sin^3\theta}{\cos\theta - \sin\theta}$

a. $1 + \sin 2\theta$

b. $1 - \frac{\sin 2\theta}{2}$

c. $1 + \frac{\sin 2\theta}{2}$

d. None of a, b, c

PHYSICS SECTION

- Q1) Mechanics is a branch of physics which deals with
- Forces acting on bodies at rest
 - Earth's gravitational force
 - Forces acting on bodies in motion
 - Both a & c
- Q2) When two surfaces of a thin film are parallel and the light is incident at a certain angle
- Circular fringes are formed
 - Elliptical fringes are formed
 - Hyperbolic fringes are formed
 - Straight fringes are formed
- Q3) One advantage of conventional direction of current is that current flows from
- High potential to low potential
 - Low potential to high potential
 - Negative potential to positive potential
 - None of the above
- Q4) The magnetism of a magnet is concentrated in the
- North pole
 - South pole
 - North and South poles
 - At the middle
- Q5) Electromagnetic waves emitted from antenna are
- Stationary Waves
 - Longitudinal Waves
 - Transverse Waves
 - All of the above
- Q6) The pair production and intrinsic conductivity are low at
- Low temperature
 - High temperature
 - Room temperature
 - None of the above
- Q7) X rays are effected by
- Electric field only
 - Magnetic field only
 - Electric and Magnetic field
 - None of the above

Q8) Mass deficit per nucleon is called

- a. Binding energy of nucleus
- b. Packing fraction
- c. Average energy of nucleus
- d. None of the above

Q9) A book lying on a table is in a state of equilibrium because

- a. Net force acting on the book is zero
- b. Net torque acting on the book is zero
- c. Total momentum of the book is zero
- d. None of the above

Q10) The position vector of a point P is a vector that represents its position with respect

- to
- a. Another vector
 - b. Center of the earth
 - c. Any point in space
 - d. Origin of the coordinate system

Q 11) The Units of angular momentum in SI system are:

- a. Js⁻¹
- b. JS
- c. NS
- d. Ns⁻¹

Q12) Mass is the quantity of ?? In a body.

- a. Energy
- b. Inertia
- c. Weight
- d. Matter

Q13) Angular momentum and moment of inertia are related to each other by the

- relation:
- a. $L = I \times \omega$
 - b. $I = L \omega^{-2}$
 - c. $L = I \times \omega$
 - d. $I = L^{-2} \omega$

Q14) The potential energy of a body is defined as the energy it possesses due to its

- a. Mass
- b. Weight
- c. Velocity
- d. Position

ENGLISH SECTION

Q1) He made his escape by jumping _____ a window and jumping _____ waiting car.

- a. over / into
- b. between / into
- c. out of / between
- d. out of / into

Q2) I saw something about it _____ television.

- a. in
- b. on
- c. at
- d. through

Q3) She took the gun _____ her pocket and shot him _____ the eye.

- a. over / into
- b. between / into
- c. out of / between
- d. up to / out of

Q4) He drove _____ me without stopping and drove off _____ the centre of town.

- a. from / into
- b. past / towards
- c. in / next to
- d. along / up

Q5) Look, that car's _____ fire.

- a. on
- b. with
- c. into
- d. in

Q6) The waiter dropped the tray of food. (Active/Passive voice)

- a. The tray of food was dropped by the waiter
- b. The tray of food was been dropped by the waiter
- c. The tray of food is being dropped by the waiter
- d. The tray of food was being dropped by the waiter