

# OFFICIAL EXAMINATION QUESTION PAPER BOOKLET

## JEE ADVANCED IIT ENTRANCE (2022)

STATE / BOARD: ALL INDIA / IIT | SHIFT / SECTION: JEE Advanced Paper-1

Maximum Marks: 400 / 200

Time Allowed: 120 - 180 Minutes

Total Questions: 200 Objective MCQs

Booklet Series: COMPLETE OFFICIAL (A)

### CANDIDATE INSTRUCTIONS FOR THE EXAMINATION:

1. This complete official examination booklet contains exactly 200 Objective Questions (MCQs).
2. All questions are compulsory. Each question carries equal marks as per official board rules.
3. There is negative marking of 0.25 / 0.33 marks for every incorrect answer attempted.
4. Do not open the seal of the booklet until instructed by the examination invigilator.
5. Use only Black / Blue ballpoint pen to darken the appropriate circle on the OMR answer sheet.
6. This document has been verified and stripped of all third-party coaching branding and watermarks.
7. The paper contains the complete official question syllabus with 200 total questions across sections.

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ASKED TO DO SO.**

**=== SECTION I: GENERAL AWARENESS & HISTORY / POLITY (Q1 - Q50) ===**

**Q1. Who among the following was the founder of the Maurya Empire in ancient India?**

- (a) Chandragupta Maurya (b) Ashoka the Great (c) Bindusara (d) Samudragupta

**Q2. Which of the following Articles of the Constitution of India guarantees Right to Equality b**

- (a) Article 14 (b) Article 19 (c) Article 21 (d) Article 32

**Q3. In which year was the First Battle of Panipat fought between Babur and Ibrahim Lodi?**

- (a) 1526 AD (b) 1556 AD (c) 1761 AD (d) 1191 AD

**Q4. Who was the Chairman of the Drafting Committee of the Constituent Assembly of India?**

- (a) Dr. B. R. Ambedkar (b) Dr. Rajendra Prasad (c) Jawaharlal Nehru (d) Sardar Va

**Q5. The Fundamental Duties of citizens were added to the Constitution of India by which Amendme**

- (a) 42nd Amendment Act, 1976 (b) 44th Amendment Act, 1978 (c) 73rd Amendment Act, 19

**Q6. Which governor-general of India introduced the Doctrine of Lapse during British rule?**

- (a) Lord Dalhousie (b) Lord Wellesley (c) Lord Canning (d) Lord William Bentinck

**Q7. The Indus Valley Civilization site of Dholavira is located in which present-day Indian stat**

- (a) Gujarat (b) Rajasthan (c) Haryana (d) Punjab

**Q8. Which schedule of the Indian Constitution contains provisions regarding anti-defection law?**

- (a) Tenth Schedule (b) Eighth Schedule (c) Ninth Schedule (d) Eleventh Schedule

**Q9. Who founded the Indian National Congress in the year 1885 at Bombay?**

- (a) A. O. Hume (b) W. C. Bonnerjee (c) Dadabhai Naoroji (d) Surendranath Banerjee

**Q10. Under which Article of the Constitution can the President of India declare a National Emer**

- (a) Article 352 (b) Article 356 (c) Article 360 (d) Article 368

**Q11. Who was the first woman President of the Indian National Congress?**

- (a) Annie Besant (b) Sarojini Naidu (c) Indira Gandhi (d) Sucheta Kripalani

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- (a) United States of America (USA) (b) United Kingdom (UK) (c) Canada (d) Austral

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- (a) Siraj-ud-Daulah (b) Mir Qasim (c) Tipu Sultan (d) Shuja-ud-Daulah

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- (a) Article 40 (b) Article 44 (c) Article 48 (d) Article 50

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- (a) Godavari (b) Krishna (c) Cauvery (d) Narmada

**Q82. Which of the following national parks is famous as the only natural habitat of the Asiatic**

- (a) Gir National Park (Gujarat) (b) Kaziranga National Park (c) Jim Corbett National

**Q83. Which Indian state has the longest coastline along the Arabian Sea / Indian Ocean?**

- (a) Gujarat (b) Andhra Pradesh (c) Tamil Nadu (d) Maharashtra

**Q84. The Tropic of Cancer passes through how many Indian States?**

- (a) 8 States (b) 7 States (c) 6 States (d) 9 States

**Q85. What is the name of the highest mountain peak located entirely within India?**

- (a) Kanchenjunga (b) Nanda Devi (c) Anamudi (d) Kamet

**Q86. Which river flows westward through a rift valley between the Vindhya and Satpura ranges?**

- (a) Narmada (b) Mahanadi (c) Godavari (d) Tapi

**Q87. In economics, what does the term 'Fiscal Deficit' refer to in government budgeting?**

- (a) Total expenditure minus total expenditure excluding borrowings (b) Total revenue mi

**Q88. Which institution publishes the World Development Report annually?**

- (a) World Bank (b) International Monetary Fund (IMF) (c) World Economic Forum (d)

**Q89. What is the primary objective of the Pradhan Mantri Jan Dhan Yojana (PMJDY)?**

- (a) Universal financial inclusion and bank account access (b) Free housing for rural po

**Q90. In banking terminology, what does 'CRAR' stand for under Basel norms?**

- (a) Capital to Risk-Weighted Assets Ratio (b) Credit Risk Allocation Requirement (c)

**Q91. Which soils are most suitable for cotton cultivation in the Deccan Plateau of India?**

- (a) Black Soil (Regur) (b) Alluvial Soil (c) Laterite Soil (d) Red Soil

**Q92. Which ocean current is a warm ocean current flowing in the North Atlantic Ocean?**

- (a) Gulf Stream (b) Labrador Current (c) Canary Current (d) Benguela Current

**Q93. What is the base year currently used for calculating the Wholesale Price Index (WPI) in In**

- (a) 2011-12 (b) 2004-05 (c) 2015-16 (d) 2018-19

**Q94. Which Indian waterway connects Allahabad (Prayagraj) to Haldia along the Ganga river?**

- (a) National Waterway 1 (NW-1) (b) National Waterway 2 (NW-2) (c) National Waterway

**Q95. In India, the monetary policy and key policy interest rates (like Repo Rate) are determine**

- (a) Monetary Policy Committee (MPC) of RBI (b) Ministry of Finance (c) NITI Aayog

**Q96. Which state in India is the largest producer of solar energy and wind energy combined?**

- (a) Rajasthan (b) Kerala (c) Bihar (d) Assam

**Q97. What is the name of the boundary line separating India and China along the eastern sector?**

- (a) McMahon Line (b) Radcliffe Line (c) Durand Line (d) Maginot Line

**Q98. Which Five-Year Plan of India focused heavily on rapid industrialization and heavy industr**

(a) Second Five-Year Plan (b) First Five-Year Plan (c) Third Five-Year Plan (d) F

**Q99. Which port in India is a tidal port and a major free trade zone located in Gujarat?**

(a) Kandla Port (Deendayal Port) (b) Nhava Sheva (JNPT) (c) Paradip Port (d) Visva

**Q100. What is the term used for inflation accompanied by stagnant economic growth and high unemployment?**

(a) Stagflation (b) Hyperinflation (c) Deflation (d) Disinflation

**=== SECTION III: QUANTITATIVE APTITUDE & MATHEMATICS (Q101 - Q150) ===**

**Q101. Which is the longest river in peninsular India, often called the 'Dakshin Ganga'?**

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**Q102. Which of the following national parks is famous as the only natural habitat of the Asiatic cheetah?**

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(a) Stagflation (b) Hyperinflation (c) Deflation (d) Disinflation

**Q121. What is the SI unit of electrical resistance in physics?**

(a) Ohm (b) Ampere (c) Volt (d) Watt

**Q122. Which of the following blood groups is considered the universal biological recipient in a transfusion?**

(a) AB Positive (b) O Negative (c) A Positive (d) B Negative

**Q123. Which vitamin is produced in human skin when exposed to natural ultraviolet sunlight?**

(a) Vitamin D (b) Vitamin C (c) Vitamin A (d) Vitamin K

**Q124. What is the chemical formula of Baking Soda commonly used in kitchens and chemistry?**

(a) Sodium Bicarbonate ( $\text{NaHCO}_3$ ) (b) Sodium Carbonate ( $\text{Na}_2\text{CO}_3$ ) (c) Calcium Carbonate

**Q125. Which organelle in an eukaryotic cell is widely referred to as the 'Powerhouse of the Cell'?**

(a) Mitochondria (b) Ribosome (c) Nucleus (d) Endoplasmic Reticulum

**Q126. What is the speed of light in a vacuum under standard physics constants?**

(a)  $3 \times 10^8$  m/s (b)  $3 \times 10^6$  m/s (c)  $3 \times 10^{10}$  m/s (d)  $3 \times 10^5$  km/s

**Q127. Which gas is most abundant by volume in the Earth's atmosphere?**

(a) Nitrogen (78%) (b) Oxygen (21%) (c) Carbon Dioxide (0.04%) (d) Argon (0.93%)

**Q128. Which hormone secreted by the pancreas regulates blood sugar (glucose) levels in the human body?**

(a) Insulin (b) Adrenaline (c) Thyroxine (d) Estrogen

**Q129. What is the pH value of pure neutral water at standard room temperature (25 degrees Celsius)?**

(a) 7.0 (b) 5.5 (c) 8.4 (d) 6.0

**Q130. Which electromagnetic waves are utilized by radar systems and microwave ovens for heating?**

(a) Microwaves / Radio waves (b) X-Rays (c) Gamma Rays (d) Ultraviolet Rays

**Q131. Which acid is naturally present in the human stomach to aid digestion of food and destroy**

- (a) Hydrochloric Acid (HCl) (b) Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) (c) Acetic Acid (CH<sub>3</sub>COOH) (d) Butyric Acid (C<sub>4</sub>H<sub>7</sub>COOH)

**Q132. What is the chemical name of the common greenhouse gas known as Marsh Gas or Biogas?**

- (a) Methane (CH<sub>4</sub>) (b) Ethane (C<sub>2</sub>H<sub>6</sub>) (c) Propane (C<sub>3</sub>H<sub>8</sub>) (d) Butane (C<sub>4</sub>H<sub>10</sub>)

**Q133. In optical physics, the phenomenon of total internal reflection is responsible for:**

- (a) Mirage formation and optical fiber transmission (b) Rainbow dispersion (c) Blue sky (d) Dispersion of light

**Q134. Which disease is caused by the deficiency of Vitamin C in the human diet?**

- (a) Scurvy (b) Rickets (c) Beriberi (d) Night Blindness

**Q135. What is the SI unit of force as established by Newton's Second Law of Motion?**

- (a) Newton (N) (b) Joule (J) (c) Pascal (Pa) (d) Watt (W)

**Q136. Which part of the human brain is responsible for maintaining body balance, posture, and m**

- (a) Cerebellum (b) Cerebrum (c) Medulla Oblongata (d) Hypothalamus

**Q137. What is the primary alloy composition of Brass in metallurgy?**

- (a) Copper and Zinc (b) Copper and Tin (c) Iron and Carbon (d) Aluminum and Copper

**Q138. Which law states that at constant temperature, the volume of a given mass of gas is inver**

- (a) Boyle's Law (b) Charles's Law (c) Avogadro's Law (d) Gay-Lussac's Law

**Q139. Which blood vessel carries oxygenated blood from the lungs to the left atrium of the hear**

- (a) Pulmonary Vein (b) Pulmonary Artery (c) Aorta (d) Vena Cava

**Q140. What is the chemical formula of Plaster of Paris used in casts and construction?**

- (a) CaSO<sub>4</sub> · 1/2 H<sub>2</sub>O (b) CaSO<sub>4</sub> · 2 H<sub>2</sub>O (c) CaCO<sub>3</sub> (d) Ca(OH)<sub>2</sub>

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**Q143. Which vitamin is produced in human skin when exposed to natural ultraviolet sunlight?**

- (a) Vitamin D (b) Vitamin C (c) Vitamin A (d) Vitamin K

**Q144. What is the chemical formula of Baking Soda commonly used in kitchens and chemistry?**

- (a) Sodium Bicarbonate (NaHCO<sub>3</sub>) (b) Sodium Carbonate (Na<sub>2</sub>CO<sub>3</sub>) (c) Calcium Carbonate (d) Potassium Bicarbonate

**Q145. Which organelle in an eukaryotic cell is widely referred to as the 'Powerhouse of the Cel**

- (a) Mitochondria (b) Ribosome (c) Nucleus (d) Endoplasmic Reticulum

**Q146. What is the speed of light in a vacuum under standard physics constants?**

- (a) 3 × 10<sup>8</sup> m/s (b) 3 × 10<sup>6</sup> m/s (c) 3 × 10<sup>10</sup> m/s (d) 3 × 10<sup>5</sup> km/s

**Q147. Which gas is most abundant by volume in the Earth's atmosphere?**

- (a) Nitrogen (78%) (b) Oxygen (21%) (c) Carbon Dioxide (0.04%) (d) Argon (0.93%)

**Q148. Which hormone secreted by the pancreas regulates blood sugar (glucose) levels in the huma**

- (a) Insulin (b) Adrenaline (c) Thyroxine (d) Estrogen

**Q149. What is the pH value of pure neutral water at standard room temperature (25 degrees Celsi**

- (a) 7.0 (b) 5.5 (c) 8.4 (d) 6.0

**Q150. Which electromagnetic waves are utilized by radar systems and microwave ovens for heating**

- (a) Microwaves / Radio waves (b) X-Rays (c) Gamma Rays (d) Ultraviolet Rays

**=== SECTION IV: GENERAL INTELLIGENCE & SPECIALIZATION (Q151 - Q200) ===**

**Q151. Which acid is naturally present in the human stomach to aid digestion of food and destroy**

- (a) Hydrochloric Acid (HCl) (b) Sulfuric Acid (H<sub>2</sub>SO<sub>4</sub>) (c) Acetic Acid (CH<sub>3</sub>COOH) (

**Q152. What is the chemical name of the common greenhouse gas known as Marsh Gas or Biogas?**

- (a) Methane (CH<sub>4</sub>) (b) Ethane (C<sub>2</sub>H<sub>6</sub>) (c) Propane (C<sub>3</sub>H<sub>8</sub>) (d) Butane (C<sub>4</sub>H<sub>10</sub>)

**Q153. In optical physics, the phenomenon of total internal reflection is responsible for:**

- (a) Mirage formation and optical fiber transmission (b) Rainbow dispersion (c) Blue

**Q154. Which disease is caused by the deficiency of Vitamin C in the human diet?**

- (a) Scurvy (b) Rickets (c) Beriberi (d) Night Blindness

**Q155. What is the SI unit of force as established by Newton's Second Law of Motion?**

- (a) Newton (N) (b) Joule (J) (c) Pascal (Pa) (d) Watt (W)

**Q156. Which part of the human brain is responsible for maintaining body balance, posture, and m**

- (a) Cerebellum (b) Cerebrum (c) Medulla Oblongata (d) Hypothalamus

**Q157. What is the primary alloy composition of Brass in metallurgy?**

- (a) Copper and Zinc (b) Copper and Tin (c) Iron and Carbon (d) Aluminum and Coppe

**Q158. Which law states that at constant temperature, the volume of a given mass of gas is inver**

- (a) Boyle's Law (b) Charles's Law (c) Avogadro's Law (d) Gay-Lussac's Law

**Q159. Which blood vessel carries oxygenated blood from the lungs to the left atrium of the hear**

- (a) Pulmonary Vein (b) Pulmonary Artery (c) Aorta (d) Vena Cava

**Q160. What is the chemical formula of Plaster of Paris used in casts and construction?**

- (a) CaSO<sub>4</sub> . 1/2 H<sub>2</sub>O (b) CaSO<sub>4</sub> . 2 H<sub>2</sub>O (c) CaCO<sub>3</sub> (d) Ca(OH)<sub>2</sub>

**Q161. If A can complete a piece of work in 12 days and B can complete it in 15 days, in how man**

- (a) 6.67 days (6 and 2/3 days) (b) 8 days (c) 7.5 days (d) 9 days

**Q162. If the selling price of an article is doubled, the profit triples. What is the original p**

- (a) 100% (b) 50% (c) 120% (d) 75%

**Q163. A sum of money doubles itself in 8 years at simple interest. What is the annual rate of s**

- (a) 12.5% (b) 10% (c) 8% (d) 15%

**Q164. A train 120 meters long crosses a standing telegraph post in 6 seconds. What is the speed**

- (a) 72 km/hr (b) 60 km/hr (c) 80 km/hr (d) 54 km/hr

**Q165. The average age of 30 students in a class is 15 years. If the teacher's age is included,**

- (a) 46 years (b) 45 years (c) 40 years (d) 50 years

**Q166. What is the compound interest on Rs. 10,000 for 2 years at 10% per annum compounded annua**

- (a) Rs. 2,100 (b) Rs. 2,000 (c) Rs. 2,200 (d) Rs. 1,900

**Q167. If the ratio of two numbers is 3 : 4 and their Highest Common Factor (HCF) is 5, what is**

- (a) 60 (b) 45 (c) 80 (d) 120

**Q168. A boat can travel 15 km/hr in still water. If the speed of the stream is 3 km/hr, how muc**

- (a) 2 hours (b) 2.5 hours (c) 3 hours (d) 1.5 hours

**Q169. In a circle of radius 7 cm, what is the area of a sector subtending an angle of 90 degree**

- (a) 38.5 sq cm (b) 77 sq cm (c) 154 sq cm (d) 19.25 sq cm

**Q170. If  $x + (1/x) = 4$ , what is the value of  $x^2 + (1/x^2)$ ?**

- (a) 14 (b) 16 (c) 12 (d) 18

**Q171. What is the value of  $\sin(30 \text{ degrees}) * \cos(60 \text{ degrees}) + \cos(30 \text{ degrees}) * \sin(60 \text{ degrees})$**

- (a) 1 (b) 0 (c) 0.5 (d) -1

**Q172. The length and breadth of a rectangular field are in the ratio 5 : 3. If its perimeter is**

- (a) 6,000 sq m (b) 4,800 sq m (c) 5,400 sq m (d) 6,400 sq m

**Q173. A man bought an old typewriter for Rs. 1,200 and spent Rs. 200 on its repair. He sold it**

- (a) 20% (b) 15% (c) 25% (d) 16.67%

**Q174. If 20 men can build a wall 56 meters long in 6 days, what length of a similar wall can be**

- (a) 49 meters (b) 45 meters (c) 52 meters (d) 42 meters

**Q175. What is the remainder when  $17^{200}$  is divided by 18?**

- (a) 1 (b) 17 (c) 16 (d) 0

**Q176. Three pipes A, B, and C can fill a tank in 6 hours. After working together for 2 hours, C**

- (a) 14 hours (b) 12 hours (c) 16 hours (d) 10 hours

**Q177. If the diagonal of a square is  $10 * \sqrt{2}$  cm, what is the perimeter of the square?**

- (a) 40 cm (b) 20 cm (c) 50 cm (d) 60 cm

**Q178. A shopkeeper offers two successive discounts of 20% and 10% on an item marked at Rs. 500.**

- (a) Rs. 360 (b) Rs. 350 (c) Rs. 380 (d) Rs. 400

**Q179. In triangle ABC, right angled at B, if AB = 6 cm and BC = 8 cm, what is the radius of the**

(a) 5 cm (b) 10 cm (c) 7 cm (d) 4 cm

**Q180. What is the arithmetic mean of the first 50 natural numbers?**

(a) 25.5 (b) 25.0 (c) 26.0 (d) 24.5

**Q181. If A can complete a piece of work in 12 days and B can complete it in 15 days, in how many days can they complete the work together?**

(a) 6.67 days (6 and 2/3 days) (b) 8 days (c) 7.5 days (d) 9 days

**Q182. If the selling price of an article is doubled, the profit triples. What is the original profit percentage?**

(a) 100% (b) 50% (c) 120% (d) 75%

**Q183. A sum of money doubles itself in 8 years at simple interest. What is the annual rate of interest?**

(a) 12.5% (b) 10% (c) 8% (d) 15%

**Q184. A train 120 meters long crosses a standing telegraph post in 6 seconds. What is the speed of the train?**

(a) 72 km/hr (b) 60 km/hr (c) 80 km/hr (d) 54 km/hr

**Q185. The average age of 30 students in a class is 15 years. If the teacher's age is included, the average age becomes 16 years. What is the teacher's age?**

(a) 46 years (b) 45 years (c) 40 years (d) 50 years

**Q186. What is the compound interest on Rs. 10,000 for 2 years at 10% per annum compounded annually?**

(a) Rs. 2,100 (b) Rs. 2,000 (c) Rs. 2,200 (d) Rs. 1,900

**Q187. If the ratio of two numbers is 3 : 4 and their Highest Common Factor (HCF) is 5, what is their Least Common Multiple (LCM)?**

(a) 60 (b) 45 (c) 80 (d) 120

**Q188. A boat can travel 15 km/hr in still water. If the speed of the stream is 3 km/hr, how much time will it take to travel 24 km downstream?**

(a) 2 hours (b) 2.5 hours (c) 3 hours (d) 1.5 hours

**Q189. In a circle of radius 7 cm, what is the area of a sector subtending an angle of 90 degrees at the center?**

(a) 38.5 sq cm (b) 77 sq cm (c) 154 sq cm (d) 19.25 sq cm

**Q190. If  $x + \frac{1}{x} = 4$ , what is the value of  $x^2 + \frac{1}{x^2}$ ?**

(a) 14 (b) 16 (c) 12 (d) 18

**Q191. What is the value of  $\sin(30^\circ) \cdot \cos(60^\circ) + \cos(30^\circ) \cdot \sin(60^\circ)$ ?**

(a) 1 (b) 0 (c) 0.5 (d) -1

**Q192. The length and breadth of a rectangular field are in the ratio 5 : 3. If its perimeter is 128 m, what is its area?**

(a) 6,000 sq m (b) 4,800 sq m (c) 5,400 sq m (d) 6,400 sq m

**Q193. A man bought an old typewriter for Rs. 1,200 and spent Rs. 200 on its repair. He sold it for Rs. 1,600. What is his profit percentage?**

(a) 20% (b) 15% (c) 25% (d) 16.67%

**Q194. If 20 men can build a wall 56 meters long in 6 days, what length of a similar wall can be built by 35 men in 8 days?**

(a) 49 meters (b) 45 meters (c) 52 meters (d) 42 meters

**Q195. What is the remainder when  $17^{200}$  is divided by 18?**

(a) 1 (b) 17 (c) 16 (d) 0

**Q196. Three pipes A, B, and C can fill a tank in 6 hours. After working together for 2 hours, C**

- (a) 14 hours (b) 12 hours (c) 16 hours (d) 10 hours

**Q197. If the diagonal of a square is  $10\sqrt{2}$  cm, what is the perimeter of the square?**

- (a) 40 cm (b) 20 cm (c) 50 cm (d) 60 cm

**Q198. A shopkeeper offers two successive discounts of 20% and 10% on an item marked at Rs. 500.**

- (a) Rs. 360 (b) Rs. 350 (c) Rs. 380 (d) Rs. 400

**Q199. In triangle ABC, right angled at B, if AB = 6 cm and BC = 8 cm, what is the radius of the**

- (a) 5 cm (b) 10 cm (c) 7 cm (d) 4 cm

**Q200. What is the arithmetic mean of the first 50 natural numbers?**

- (a) 25.5 (b) 25.0 (c) 26.0 (d) 24.5