



**Igniters**  
FOR TOMORROW

Test Booklet Code

Q

**IFT**

This Booklet contains 8 Pages

Do not open this test Booklet until you are asked to do so.

Class : X Moving

Max Marks : 240

Subject : Physics, Chemistry, Mathematics, Biology & General Aptitude

Time : 2 Hrs

Name of the Candidate (in Captials) : \_\_\_\_\_

Roll Number In figures : \_\_\_\_\_

In Words : \_\_\_\_\_

Centre of Examination (in Captials) : \_\_\_\_\_

Candidate's Signature : \_\_\_\_\_

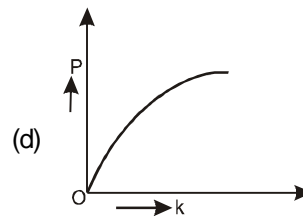
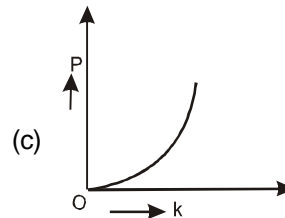
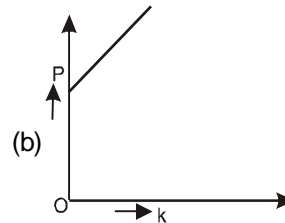
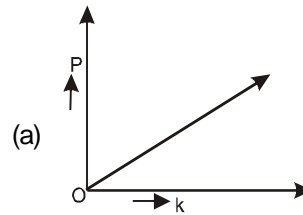
Invigilators's Signature : \_\_\_\_\_

Centre Superintendent

**PHYSICS**

- Q 1. The value of G depends on  
 (a) the mass of the interacting bodies  
 (b) the space where the particles are kept  
 (c) the time at which the force is considered  
 (d) none of these.
- Q 2. In vaccum all free falling bodies  
 (a) have the same speed  
 (b) have the same velocity  
 (c) have the same force  
 (d) have the same acceleration.
- Q 3. The weight of an object  
 (a) is the quantity of the matter it contains  
 (b) refers to its inertia  
 (c) is same as its mass but is expressed in different units  
 (d) is the force with which it is attracted towards the earth.
- Q 4. The apparent weight of a body, weighting M kg wt, during free fall is  
 (a) less than M kg wt  
 (b) more than Mkg wt  
 (c) equal to M kg wt  
 (d) zero
- Q 5. While orbiting around the earth in a spaceship, an astronaut experiences  
 (a) more weight (b) lesser weight  
 (c) weightlessness (d) nothing at all
- Q 6. If the symbols have their usual meanings then  $\frac{gR^2}{M}$  represents  
 (a) G (b)  $G^2$   
 (c)  $\frac{1}{G}$  (d)  $\frac{1}{G^2}$
- Q 7. Any solid will sink in water if its relative density is  
 (a) less than unity (b) equal to unity  
 (c) greater than unity (d) infinite
- Q 8. It is difficult to walk bare feet on a sandy ground as the sand  
 (a) flies off (b) yields under our weight  
 (c) balances our weight (d) reduces our weight

- Q 9. The upward force acting on the body immersed in a fluid is called  
 (a) hydrostatic pressure  
 (b) buoyant force  
 (c) true weight  
 (d) net force
- Q 10. When the momentum of a body increases by 100%, its K.E. increases by  
 (a) 20% (b) 40%  
 (c) 100% (d) 300%
- Q 11. Which of the following graphs best represents the graphical relation between momentum (P) and kinetic energy (k) for a body in motion?



- Q 12. If the mass of a pendulum is doubled, the time period  
 (a) becomes double (b) becomes half  
 (c) becomes 4 times (d) remains the same

**(Space For Rough Work)**

**CHEMISTRY**

- Q.13 Which has maximum number of molecules?  
 (a) 7 gm N<sub>2</sub> (b) 2 gm H<sub>2</sub>  
 (c) 16 gm NO<sub>2</sub> (d) 16 gm O<sub>2</sub>
- Q.14 Isotopes of an element have  
 (a) the same physical properties  
 (b) different chemical properties  
 (c) different number of neutrons  
 (d) different atomic numbers.
- Q.15 Number of valence electrons in Cl<sup>-</sup> ion are:  
 (a) 16 (b) 8  
 (c) 17 (d) 18
- Q.16 Which of the following will show "Tyndall effect"?  
 (a) Salt solution  
 (b) Milk  
 (c) Copper sulphate solution  
 (d) Starch solution.
- Q.17 Study the chemical reaction given and identify the value of x (mass of CO<sub>2</sub> formed in g):  

$$\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \longrightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g})$$

$$16 \text{ g} \quad 64 \text{ g} \quad \quad \quad 'x' \text{ g} \quad 36 \text{ g}$$
 (a) 28 g (b) 32 g  
 (c) 44 g (d) 40 g
- Q.18 In the reaction  $\text{A} + \text{B} \longrightarrow \text{C} + \text{D}$ , according to law of conservation of mass, mass of  
 (a) A = C (b) A + C = B + D  
 (c) A + B = C + D (d) B = D
- Q.19 Which of the following statement is correct about the atom of an element?  
 (a) an atom can have only protons and neutrons but no electrons  
 (b) an atom can have only electrons and neutrons but no protons  
 (c) an atom can have only electron and proton but no neutron  
 (d) an atom must always have a proton, neutron and electron
- Q.20 The isotopes of an element contain:  
 (a) same number of neutrons but different number of protons  
 (b) same number of protons as well as same number of neutrons  
 (c) different number of protons as well as different number of neutrons  
 (d) different number of neutrons but same number of protons
- Q.21 Which of the following correctly represents 360 g of water?  
 (i) 2 moles of H<sub>2</sub>O  
 (ii) 20 moles of water  
 (iii)  $6.022 \times 10^{23}$  molecules of water  
 (iv)  $1.2044 \times 10^{25}$  molecules of water  
 (a) (i) (b) (i) and (iv)  
 (c) (ii) and (iii) (d) (ii) and (iv)
- Q.22 The material which is added to water during purification process at the water works so as to disinfect it is:  
 (a) potassium permanganate  
 (b) betadine  
 (c) chlorine  
 (d) potash alum
- Q.23 The best way to recover sugar from an aqueous sugar solution is :  
 (a) evaporation to dryness  
 (b) distillation  
 (c) filtration  
 (d) crystallisation.
- Q.24 Which of the following represent the suitable conditions for the liquification of gases ?  
 (a) low temperature, low pressure  
 (b) high temperature, low pressure  
 (c) low temperature, high pressure  
 (d) high temperature, high pressure.

**BIOLOGY**

- Q.25 Which of these is a defining character of plants?  
 (a) autotrophic nature  
 (b) eukaryotic cell structure  
 (c) cellulosic cell wall  
 (d) aerobic respiration
- Q.26 Plant classification as proposed by Carolus Linnaeus was artificial because it was based on  
 (a) only a few morphological characters  
 (b) all the possible characters  
 (c) anatomical characters which are adaptive in nature  
 (d) physiological and morphological characters
- Q.27 Plants which possess seeds but not fruits are  
 (a) bryophytes (b) pteridophytes  
 (c) gymnosperms (d) angiosperms
- Q.28 Which of the following are examples of Arthropoda?  
 (a) Silver fish, star fish, prawn

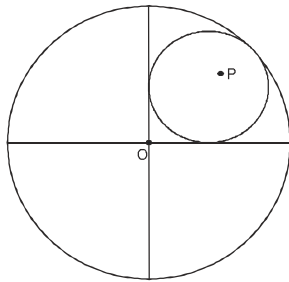
**(Space For Rough Work)**

- (b) Clam worm, apple snail, honey bee  
(c) Sea star, tongue worm, scorpion  
(d) Cockroach, scorpion, prawn
- Q.29 Which of the following characters is absent in all chordates except mammals?  
(a) Sternum (b) Coelom  
(c) Mammary (d) Dorsal nerve cord
- Q.30 Which of the following phases of the cell cycle is not a part of interphase?  
(a) S (b) G<sub>1</sub>  
(c) G<sub>0</sub> (d) M
- Q.31 A cell, which is very active in the synthesis and secretion of proteins, would be expected to have  
(a) equal amount of RER and SER  
(b) more SER than RER  
(c) more RER than SER  
(d) more Golgi bodies and no ER
- Q.32 In chloroplasts, chlorophyll is present in the  
(a) outer membrane  
(b) inner membrane  
(c) thylakoids  
(d) stroma
- Q.33 Different cells have different sizes. Arrange the following cells in an ascending order of their size and select the correct option  
(i) Mycoplasma (ii) Ostrich eggs  
(iii) Human RBCs (iv) Bacteria  
(a) (i) → (iv) → (iii) → (ii)  
(b) (i) → (iii) → (iv) → (ii)  
(c) (ii) → (i) → (iii) → (iv)  
(d) (iii) → (ii) → (i) → (iv)
- Q.34 The stain used to visualise mitochondria is  
(a) fast green (b) safranin  
(c) acetocarmine (d) janus green
- Q.35 A common characteristic feature of plant sieve tube cells and most of mammalian erythrocytes is  
(a) absence of mitochondria  
(b) presence of cell wall  
(c) presence of haemoglobin  
(d) absence of nucleus
- Q.36 plastids differ from mitochondria on the basis of which of the following features?  
(a) Presence of two layers of membrane  
(b) Presence of ribosome  
(c) Presence of thylakoids  
(d) Presence of DNA
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- MATHEMATICS**
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- Q.37 If  $2^x = 3^y = 72^z$ , then  $z =$   
(a)  $\frac{xy}{3x+2y}$  (b)  $\frac{xy}{8x+9y}$   
(c)  $\frac{xy}{2x+3y}$  (d)  $\frac{xy}{9x+8y}$
- Q.38 BEST is a rhombus in which  $\angle T = 120^\circ$  and  $TE = 6$  cm. The perimeter of the rhombus is (in cm).  
(a) 24 (b) 12  
(c) 18 (d) 30
- Q.39 Find the remainder, when  $x^3 - 27$  is divided by  $x - 3$ .  
(a) 24 (b) 9  
(c) 3 (d) 0
- Q.40 If  $9x^2 - 54x + k$  is a perfect square, then find the value of  $k$ .  
(a) 81 (b) 25  
(c) 9 (d) 27
- Q.41 ABCD is a rectangle with O as any point in its interior. If  $\text{ar}(\triangle AOD) = 3 \text{ cm}^2$  and  $\text{ar}(\triangle BOC) = 6 \text{ cm}^2$ , then area of rectangle ABCD is  
(a)  $9 \text{ cm}^2$  (b)  $12 \text{ cm}^2$   
(c)  $15 \text{ cm}^2$  (d)  $18 \text{ cm}^2$
- Q.42 If  $\frac{5 - \sqrt{3}}{2 + \sqrt{3}} = x + y\sqrt{3}$ , then  
(a)  $x = 13, y = -7$  (b)  $x = -13, y = 7$   
(c)  $x = -13, y = -7$  (d)  $x = 13, y = 7$
- Q.43 If the heights of two cones are in the ratio of 1:4 and the radii of their bases are in the ratio 4:1, then the ratio of their volumes is  
(a) 1:2 (b) 2:3  
(c) 3:4 (d) 4:1

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**GENERAL APTITUDE**

Q.44 In the figure, O is the centre of the bigger circle and P is the centre of the smaller circle. The radius of the smaller circle if the radius of bigger circle is 1 unit is



- (a)  $\sqrt{2} - 1$                       (b)  $\sqrt{2} + 1$   
 (c)  $\frac{1}{4}$                                 (d)  $2\sqrt{2} - 1$

Q.45 If the coordinates of the points A, B, C, D are (6, 3), (-3, 5), (4, -2), (a, -3a) respectively and if (area of  $\Delta ABC$ ) : (area of  $\Delta DBC$ ) = 2:1 then the value of a is

- (a)  $\frac{11}{8}$                                       (b)  $-\frac{11}{8}$   
 (c) 1                                        (d)  $\frac{5}{8}$

Q.46 The units digit  $(257)^{406}$  is

- (a) 7                                        (b) 9  
 (c) 3                                        (d) 1

Q.47 Two circles touch internally, The sum of their areas is  $116\pi$  square cm and distance between their centres is 6 cm. The radii of the circles are

- (a) 10 cm and 4 cm                      (b) 8 cm and 6 cm  
 (c) 9 cm and 5 cm                      (d) none of these

Q.48 The radius of the smallest possible sphere in which we can put a cube of side a units is 9 cm. The length of each side of the cube is

- (a) 9 cm                                      (b) 4.5 cm  
 (c)  $2\sqrt{3}$  cm                              (d)  $6\sqrt{3}$  cm

Direction (Questions 1 to 2): In each of the following question five (or four) numbers are given. Out of these four (or three) are alike in some way but rest one is different. Choose the one which is different from the other.

- Q.49 (a) 275                                      (b) 451  
 (c) 297                                      (d) 254  
 (e) 143

- Q.50 (a) 232                                      (b) 431  
 (c) 612                                      (d) 813

- Q.51 9 : 80 :: 7 : ?  
 (a) 48                                        (b) 50  
 (c) 78                                        (d) 82

- Q.52 12 : 169 :: ? : ?  
 (a) 7 : 50                                      (b) 11 : 144  
 (c) 15 : 240                                  (d) 5 : 49

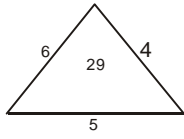
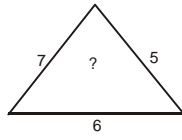
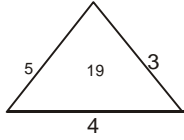
- Q.53 If B = 2, H = 8 and CAB = 6, then what is the number value of RACE?  
 (a) 31                                        (b) 30  
 (c) 28                                        (d) 27  
 (e) 29

- Q.54 In a certain code, ROAD is written as URDG. How is SWAN written in that code?  
 (a) VXDQ                                      (b) VZDQ  
 (c) UXDQ                                      (d) VZCO  
 (e) None of these

- Q.55 Four persons stationed at the four corners of a square pieces as shown in the diagram. P starts crossing the field diagonally. After walking half the distance, he turns right, walks some distance and turns left. Which direction is P facing now?  
 (a) North-east                                  (b) North-west  
 (c) North                                        (d) South-east  
 (e) South-west

- Q.56 Find the missing character.

**(Space For Rough Work)**



- (a) 25  
(c) 41

- (b) 37  
(d) 47

Q.57 17,19,22,27,34,45,.....

- (a) 58  
(c) 56

- (b) 57  
(d) 59

Q.58 1,2,6,15,31,.....

- (a) 47  
(c) 55  
(

- (b) 52  
(d) 56

Q.59 A car driver knows four different routes from Delhi to Amritsar. From Amritsar to Pathankot, he knows three different routes and from Pathankot to Jammu he knows two different routes. How many routes does he know from Delhi to Jammu?

- (a) 4  
(c) 12

- (b) 8  
(d) 24

Q.60. In a chess tournament each of six players will play every other player exactly once. How many matches will be played during the tournament

- (a) 36  
(c) 15

- (b) 30  
(d) 12

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Test Booklet Code

**IFT**

This Booklet contains 8 Pages

**Do not open this test Booklet until you are asked to do so.*****Important Instructions :***

1. The Answer Sheet is inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully with **blue/black** ball point pen only.
2. The test is of 2 hours duration and Test Booklet contains **60** questions. Each question carries **4** marks. For each correct response, the candidate will get **4** marks. For each incorrect response, **one mark** will be deducted from the total score. The maximum marks are **240**.
3. Use **Blue/Black Ball Point Pen only** for writing particulars on this page/marking responses.
4. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
5. **On completion of the test, the candidate must handover the Answer Sheet & Test Booklet to the invigilator before leaving the Room/Hall.**
6. The CODE for this Booklet is **Q**. Make sure that the CODE printed on the Answer Sheet is the same as that on this Booklet. In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer Sheet.
7. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your roll no. anywhere else except in the specified space in the Test Booklet/ Answer Sheet.
8. Use of white fluid for correction is **NOT** permissible on the Answer Sheet.
9. Each candidate must show on demand his/her Admission Card to the Invigilator.
10. No candidate, without special permission of the Superintendent or Invigilator, would leave his/her seat.
11. The candidates should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and sign the Attendance Sheet twice. Cases where a candidate has not signed the Attendance Sheet second time will be deemed not to have handed over Answer Sheet and dealt with as an unfair means case.
12. Use of Electronic/Manual Calculator is prohibited.
13. The candidates are governed by all Rules and Regulations of the Board with regard to their conduct in the Examination Hall. All cases of unfair means will be dealt with as per Rules and Regulations of the Board.
14. No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.
15. The candidates will write the correct Test Booklet Code as given in the Test Booklet/Answer Sheet in the Attendance Sheet.