



PROJECT RAIL

मॉडल प्रश्न पत्र 2023

संकाय:- विज्ञान

विषय : (PHYSICS)

कक्षा : 12th

कक्षा - 12 की बोर्ड परीक्षा 2022-23 हेतु
झारखण्ड अधिविद्य परिषद, राँची
के पाठ्यक्रम पर पूर्णतः आधारित

जिला प्रशासन, कोडरमा

संदेश !



उपायुक्त
आदित्य रंजन

प्यारे इन्टरमीडिएट के परीक्षार्थियों,

परीक्षा में बेहतर प्रदर्शन एवं परीक्षा का भय पूरी तरह से समाप्त करने के लिए जिला प्रशासन ने प्रोजेक्ट **RAIL** और स्वस्थ शैक्षणिक माहौल के लिए प्रोजेक्ट **IMPACT** के माध्यम से तनावमुक्त एवं प्रेरणादायक गतिविधियों से पूरे वर्ष आपके विद्यालय में पठन-पाठन का कार्य पूरा करवाया है।

वार्षिक माध्यमिक परीक्षा 2023 के मददेनजर जैक बोर्ड के पैटर्न पर आधारित कक्षा 10 के लिए जिला प्रशासन, कोडरमा द्वारा विगत दिनों जारी किया गये मॉडल सेट; बोर्ड में सम्मिलित होने वाले परीक्षार्थियों के लिए काफी उत्साहवर्द्धक एवं लाभदायक सिद्ध हो रहे हैं।

हम सभी अवगत है कि इन्टरमीडिएट परीक्षा-2023 दिनांक 14-3-2023 से आयोजित होगी। ऐसे समय में अभ्यर्थी जितने अधिक प्रश्नों का अभ्यास करेंगे उनके लिए उतना ही लाभप्रद होगा। इस निमित्त आयोजित होने वाले इन्टरमीडिएट परीक्षा में अभ्यर्थियों का अपेक्षाओं के अनुरूप बेहतर परिणाम के उद्देश्य से कक्षा 12 हेतु (सभी संकायों के महत्वपूर्ण विषय) जैक बोर्ड के पैटर्न पर आधारित अत्यंत महत्वपूर्ण प्रश्नों के तीन-तीन मॉडल सेट; जिला प्रशासन एवं शिक्षकों के सहयोग से उपलब्ध कराए जा रहे हैं।

आशा है कि इस मॉडल सेट के प्रश्नों पर पूरी ईमानदारी से अभ्यास करेंगे, ताकि आगामी 12वीं कक्षा के वार्षिक इन्टरमीडिएट परीक्षा-2023 में कोडरमा जिला पूर्व वर्ष की भाँति पूरे झारखण्ड में अव्वल स्थान प्राप्त कर सकें।

जिला प्रशासन के सभी सदस्यों एवं सभी शिक्षकों के प्रति आभार व्यक्त करते हुए जिला के सभी इन्टरमीडिएट परीक्षार्थियों के उज्ज्वल भविष्य की कामना करता हूँ।

उपायुक्त,
कोडरमा।

प्रश्न पत्र डाउनलोड करने का लिंक: <https://koderma.nic.in/education/>

<https://youtube.com/@degstrainingcentre2255>

PROJECT RAIL 2.0
MODEL QUESTION PAPER-2023

Model Set -1

XIIth

Objective Type Question

1. Which one of the following is the unit of electric field?
(a) Coulomb (b) Newton (c) Volt (d) N/c or Newton/coulomb
2. If an electric dipole is kept in a uniform electric field, then resultant electric force on it is:
(a) Always Zero (b) Never Zero depend (c) Depend upon capacity of dipole (d) None
3. The work done in rotating an electric dipole in an electric field
(a) $W = ME (1 - \cos\theta)$ (b) $W = ME \tan \theta$ (c) $W = ME \cos \theta$ (d) None
4. 1 Vm^{-1} equation:
(a) 1 N (b) 1 Mm^{-1} (c) 1 NC^{-1} (d) 1 J^{-1}
5. A dipole placed in a uniform electric field it experiences.
(a) a not force (b) a torque (c) both a net force and torque (d) None
6. The relation between electric field E and potential V is:
a) $E = \frac{-dv}{dx}$ b) $E = \frac{dv}{dx}$ c) $E = \frac{xdv}{dx}$ d) None
7. When a dielectric slab is introduced between the plates of a parallel plate capacitor which remains Connected to a battery then charge on the plates relative to earlier charge is:
(a) More (b) less (c) less or may be more (d) same

8. The electric field due to the uniformly charged thin spherical shell is:

(a) Never Zero (b) Zero at all the points inside the shell (c) Maximum (d) None

9. If the distance of a point from a positive charge increase, the value of the potential at the point:

(a) Increase (b) decrease (c) may increase or decrease (d) remains the same

10. Kirchhoff's first and second Laws for electrical circuit are

(a) conservation of energy (b) conservation of charge and energy respectively

(c) conservation of charge (d) None of these.

11. Why is the wheatstone bridge more accurate than other methods of measuring resistance?

(a) It is a null method (b) It is based on Kirchhoff's Law

(c) It has four resistance (d) It does not involve ohm's Law.

12. The length of a conductor is halved. Its resistance will be:

(a) halved (b) doubled (c) unchanged (d) quadrupled

13. EMF is measured in:

(a) Joule (b) Joule / Coulomb (c) Joule-coulombs (d) Joule/ Coulomb /metre

14. Potentiometer measures the potential difference more accurately than a voltmeter because:

(a) It has a wire of high resistance. (b) It has a wire of low resistance.

c) It does not draw current from external circuit d) It draw heavy current from external circuit.

15. Internal resistance of a cell does not depend upon

(a) electrode separation (b) electrode material (c) electrolyte (d) electrolyte area

16. What is the value of angle of dip at the magnetic equator?

- (a) 0° (b) 90° (c) 45° (d) Nearly 30°

17. The parallel conductors carrying current in the same direction will

- a) Attract each other (b) Repel each other (c) Neither attract nor repel (d) None of these

18. According to ampere's circuital law

- (a) $\oint \vec{B} \times d\vec{t} = 0$ (b) $\oint \vec{B} \times d\vec{l} = \mu I$ (c) $\oint \vec{B} \times d\vec{l} = 0$ (d) None of these

19. A charge (q) is moving in a uniform magnetic field (B) Such that velocity (v) is perpendicular to B then the force acting on charge is

- a) zero b) qVB c) qB/v d) None of these

20. The expression for Lorentz force is :

- a) $F = qE$ (b) $F = q(B \times V)$ (c) $F = q\{E + (V \times B)\}$ (d) $F = [qE + (V \times B)]$

21. The magnetic lines of force inside a bar magnet

- (a) do not exist
(b) depends on area of cross section of bar magnet
(c) are from N- pole to S- pole of the magnet
(d) are from S- pole to N-Pole of the magnet

22. The polarity of induced emf is found by

- (a) Biot-savart's law (b) Fleming's right hand rule (c) Lenz's law (d) Ampere's circuit law

23. Which is correct arrangement of electromagnetic waves in increasing order of their frequencies?

- (a) Radio waves, micro waves, Infrared waves, visible light, ultraviolet rays, x-ray, γ - rays.
(b) γ - rays, X- ray, UV ray, visible light, Infrared Waves, microwave Radio
(c) visible light, x-ray, γ -ray, UV rays, Infrared, microwaves, Radio waves. (d) None of these

24. The role of inductance is equivalent to

- (a) Inertia (b) force (c) energy (d) momentum.

25. Which of the following circuit exhibits maximum power dissipation?

- (a) Pure inductive circuit (b) pure capacitive (c) pure resistive circuit (d) None of these

26. De-Broglie equation states the

- (a) dual nature (b) particle nature (c) wave nature (d) none of these

27. polarization of light prove the:

- (a) corpuscular nature of light (b) quantum nature of light (c) Transverse wave nature of light (d) Longitudinal wave nature of light

28. Which of the following is used in optical fibres ?

- (a) reflection (b) diffraction (c) total internal reflection (d) Interference

29. Two lenses having power +6D and -4D are placed in contact. The power of the combination is

- (a) -2D (b) -4D (c) +4D (d) +2D

30. What percentage of radioactive substance is left after 5 half-lives?.

- (a) 3.125% (b) 6.25% (c) 12-33% (d) 31%

31. Which of the following is not a universal gate?

- (a) NOT (b) AND (c) OR (d) NAND

32. What happens to the resistance of semiconductor on heating?

- (a) Increases (b) Decreases (c) Remains the same (d) first increase heating later decrease.

33. In a semiconductor, what is responsible for conduction?

- (a) electrons only (b) holes only
(c) Both electrons and holes (d) Neither electrons nor holes.

34. For television transmission, the frequency employed is normally in the range

(a) 30-30 Hz (b) 30-300 KHz (c) 30-300 MHz (d) 30-300 GHz

35. Which mirror has real focus?

(a) Concave (b) convex (c) plane (d) all of the above.

Model Set -1 (Physics) XII (subjective)

Section-A(1x5=5)

Ans. Any five question

1. What is quantisation of charge?
2. What is Coulomb's law.?
3. What is equipotential surface.?
4. What is Lenz's Law?
5. What is inductive reactance (XL)?
6. Write two uses of microwaves?
7. What is transducer?

Section-B (3x5=15)

Ans. any five question

8. Difference between p-type and n-type semiconductor.
9. The work function of **cesium** metal is 2.14 eV. When light of frequency 6×10^{14} Hz is incident on metal surface, photo emission of electrons Occurs. What is the maximum kinetic energy of the emitted electrons?
10. Write any three properties of electromagnetic waves?
11. What is total internal reflection? Write condition for total internal reflection to take place?
12. The equation of an AC is $I=20\sin 200\pi t$. Find the frequency peak value and R.M.S value of current.
13. What is half wave rectifier?. Explain its working by drawing the circuit diagram and input output wave form it.
14. Give the diagram to obtain an OR- gate from NAND- gate.

Section – C (5x3=15)

Ans. Any three question

15. Find the expression for the fringe width in Young's double slit experience of (YDSE). What is the effect on the fringe width of the whole apparatus is completely immersed in a liquid of refractive index μ ?

16. State Huygen's principle? Using Hugen's priciple establish law of refraction.

17. Drive the lens maker formula for a thin lens.

$$\frac{1}{f} = (\mu - 1) \left\{ \frac{1}{R_1} - \frac{1}{R_2} \right\}$$

18. Draw I-V characteristics of P-n Junction diode in forward **biasing** and reverse biasing? Why does the reverse current show a sudden increase at the critical voltage?

19. Describe the construction and formation of image with neat ray diagram for a compound microscope. Find magnifying power of it?

Model Set - 2

Physics

XIIth

Objective

1. when a soap bubble is charged

(a) It Contracts (b) It expands (C) It bursts (d) at neither contracts nor expands

2. In a charged conductor the charge resides in the

(a) inner Surface (b) Centre (C) outer surface d) none of these

3. A capacitor of 20 μf and charged to 500 volts is connected in parallel with another capacitor of 10 μF and charged to 200 volt. The common potential is

(a) 500V (b) 200V (C) 400V (4) 300 V

4. A capacitor of capacitance $1\ \mu\text{F}$ is filled with two dielectric constants 4 and 6. The new capacitance is

(a) $10\ \mu\text{F}$ (b) $5\ \mu\text{F}$ (2) $4\ \mu\text{F}$ (d) $7\ \mu\text{F}$

5. How many electrons constitute a current of 1A?

(a) 6.25×10^{18} (5) 6.25×10^{12} (8) 6.25×10^{11} d) 625

6) The instrument for the accurate measurement of the emf of a cell is

(a) a voltmeter (b) an ammeter (C) a potentiometer (d) a slide wire bridge.

7. A 220V, 1000w bulb is connected across a 110v main supply. The power consumed will be

(a) 1000W (b) 750w (2) 500w (4) 250W

8. Tesla (T) is the unit of

(a) electric flux (b) magnetic flux (C) electric field d) magnetic field.

9. The resistance of an ideal voltmeter is

a) Zero (b) very low (e) very large (d) infinite

10. Unit of magnetic moment is

(a) wb/m (b) amp/m c) amp/m^3 (d) amp-m^2

11. At magnetic poles the angle of dip is

a) 45° (b) 30° (c) zero (1) 90°

12) An ammeter reads upto 1A its internal resistance in 0.81Ω . To increase the range to 10A, the value of the required shunt is

a) 0.03 b) 0.09 c) 0.3 d) 0.9

13) At resonance; in Series LCR circuit, which relation does not hold

(a) $\omega = 1/LC$ (b) $\omega = 1/\sqrt{LC}$ (C) $L\omega = C\omega$ (d) $C\omega = 1/L\omega$

14. A 100 MH Coil Carries a Current of 1A. Energy stored in its magnetic field is
(a) 0.5 J (b) 1 J (C) 0.05 J (4) 0.1 J

15) Energy in a current carrying call is stored in the form of

(a) Electric field b) magnetic field (C) Dielectric strength (d) Heat

16) which of the following e.m wave has the heighest wavelength ?

(a) x-rays (b) U-v-rays (C) Infuired rays (ol) micro waves

17) Frequency at a wave is 6×10^{15} Hz. The wave is

(a) Radio wave (5) microwave (c) X-rays (as None of these.

18) IF the critical angle for total internal reflection from a medium to vacuum is 30° , the velocity of light in the medium is

(a) 3×10^8 m/s (b) 1.5×10^8 m/s (c) 6×10^8 m/s (d) $\sqrt{3} 10^8$ m/s

19 A contare lens of focal lenth 20cm produces an image half the size of the real object. The distance of the real object

A) 10cm (b) 20Cm (C)60CM (D)40cm

20) The image formed by an objective of a compound microscope is

(a) virtual and enlarged (b) virtual and diminished (c) real and diminished (d) real and enlarged

21) which of the following will form a virtual and erect image for all positions of the object ?

(a) concave mirrer (b) Convex loans (C) Concave Lens(d) None

22) Time taken by light. to coss a glass slab of thickney 4mm and refractive index 3is

(a) 4×10^{-11} sec (b) 2×10^{-11} sec (c) 16×10^{-11} sec (d) 8×10^{-10} sec

(23) Light propagates linearly because of its

(a) frequency (b) wavelength (C) velocity (d) were nature

24 Interference is redistribution of

(a) energy (b) charge (c) amplitvele (d) momentum

25) Plank's Constant hap the dimation of

(a) frequency (b) time (c) energy (d) angular momentum

26) The phenomenon of photoelectric effect way explained by

(A) Hertz (b) Einstein (c) Lenard(d) Hakwach

27) which of the following if not committed by a radioactive substance:

(a) electrons (b) electromagnetic radiations (c) α -particles (d) Heutrons

28) How many nextions on an average are releoped per fission

a) 1 (b) 1.5 (c) 2 (d) 2.5

(29) The binding energy per nucleon of a stable nucleus is

(a) 8 eV (b) 8 KeV (c) 8 MeV (d) 8 BeV

(30) Forbidden energy gap of a semiconductor is of the order of

(a) 0.1 eV (b) 1 eV (c) 10 eV (d) 5 eV

(31) What are majority charge carriers in n-type semiconductor:

(a) Holes (b) Electrons (c) Neutrons (d) None

(32) A diode can be used as a/an

(a) Rectifier (b) amplifier (c) oscillator (d) filter

(33) How many NAND gates are required to get a OR-GATE

(a) 5 (b) 2 (c) 3 (d)

(34) What is the minimum number of diodes used in full wave rectification

(a) 1 (b) 2 (c) 3 (d) 4

(35) The first atomic reactor was defined by

(a) Fermi (b) Bohr (c) Dirac (d) Chadwick

MODEL SET – 2 (SUBJECTIVE)

Section A (1x5 = 5)

Ans. any five questions

1. State Gauss's theorem.

2. What do you mean by drift velocity?

3. State Ampere's circuital law.

4. What is an electromagnetic wave?

5. What is interference of light?

6. Define mass defect.

7. Draw the logical symbols of

(a) OR-gate (b) NAND-gate

Section -B (3x5 = 15)

Ans. Any three questions

8. Derive the expression for energy stored in a charged capacitor.

9. What is electrical Resistance? Find equivalent resistance in series Combination.
10. State and explain Faraday's Laws of electromagnetic Induction.
11. Define critical angle and total internal reflection. Derive relation between refractive Index and critical angle.
12. What is photo electric effect? Derive the expression for Einstein's photoelectric equation.
13. Define Half-life of a radioactive substance. Derive the expression for it.
14. What do you mean by logic gate? Write truth table of AND-gate and NOR- gate.

Section -c (5x3=15)

15. Derive the expression for electric potential at a point on
a) Axial line b) equatorial line.
16. What is Wheatstone Bridge? Find the balanced Conditions of a Wheatstone's Bridge.
17. State Biot- Savart's Law. Derive the expression for magnetic field Strength on the axis of a circular loop by Applying that Biot-Sarart's Law.
18. What is transformer? Explain different losses in transformer.
19. Define compound microscope. Derive the expression for magnifying power of a compound microscope.

Model Question paper set- 3

class XII

Time- 1½ Hour

Sub - Physics

F.M = 35

1. Three capacitors each of capacity C are added in series connections. Then the equivalent capacitance will be.
(a) 3C (b) 3/C (c) C/3 (d) $\frac{1}{3C}$
2. If an electric dipole is kept in a uniform electric field. Then resultant electric force on it is -
(a) Always zero (b) Never zero (c) Depend upon capacity of dipole (d) None
3. .The dimensional representation of E_0 will be -
(a) $[MLT^{-4} A^2]$ (b) $[M^{-1} L^{-3} T^4 A^2]$ (c) $[ML^{-2} T^2 A^{-2}]$ (d) None of these

4. The S.I unit of electric dipole moment are-
(a) C (b) Cm^{-1} (c) C-m (d) Nm^{-1}
5. Which of the following is blocked by a Capacitor.
(a) A.C (b) D.C (c) Both A.C & D.C (d) Neither A.C Nor D.C
6. The amount of work required to increase The distance between $-6\ \mu\text{C}$ & $4\ \mu\text{C}$ from 6 cm to 18 cm will be-
(a) 1.8 J (b) 2.4 J (c) $1.8\ \mu\text{J}$ (d) 2.4 mJ
7. An electron initially at rest is accelerated Through a potential difference of one volt. The energy gained by electron is.
a) 1 J (b) $1.6 \times 10^{-19}\text{J}$ (c) 10^{-19}J (d) None
8. The number of electrons that constitute 1A of Current is -
a) 6.25×10^{16} (b) 6.25×10^{17} (c) 6.25×10^{18} (d) 6.25×10^{19}
9. Kirchhoff's first and second laws for electrical circuit are consequences of
(a) conservation of Energy
(b) conservation of Electric Charge & energy respectively
(c) conservation of Electric Charge
(d) Neither Conservation of energy. nor electric charge.
10. Ohm's law is valid when the temperature of Conductor is -
(a) very low (b) Very High (c) Varying (d) constant
11. The Strength of the magnetic Field around an infinite current carrying Conductor.
A) Some everywhere. (B) Inversely proportional to the (c) Directly proportional to the distance (D) None of these. distance
12. Ampere's circuital law states
(a) line integral (b) surface integral (c) volume integral (d) none
13. The dimensional formula of L/R is Similar to that of
(a) Frequency (b) Time (c) Length (d) None of these.
14. Energy dissipated in LCR circuit in
A) L only (b) C only (c) R only (d) All of the above
15. The S.I unit of magnetic flux is.

(a) T (b) Tn^{-2} (c) wb (d) $wb\ m^{-2}$

16. For purely capacitive circuit power factor is.

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

17. which of the following is not a property of Light

(a) It can travel. Through vacuum

(b) It has a finite Speed

(c) It involve transportation of energy

(d) It requires a material medium for its Propagation.

18. Light year is the unit of -

(a) Distance (b) Time (c) Intensity of Light (d) Non of these.

19. The refractive indices of Glass and water with respect to air are $3/2$ and $4/3$ respectively. Refractive Index of Glass w.r.t water in-

(a) $\frac{8}{9}$ (b) $\frac{9}{8}$ (c) $\frac{7}{6}$ (d) 2

20. De-Broglie equation States the.

(a) Dual Nature (b) Particle Nature (c) Wave Nature (d) None of these.

21. Kinetic Energy of emitted Electrons depends upon -

a) Frequency (b) Intensity

(c) Nature of atmosphere surrounding the electrons.

(d) None of these

22. How many elections are contained in $^{238}_{92}\text{U}$ Nucleus -

(a) 92 (b) 146 (c) 238 (d) 0

23. The density of a nucleus by of the order of -

(a) $10^{15}\ \text{kg/m}^3$ (b) $10^{18}\ \text{kg/m}^3$ (c) $10^{17}\ \text{kg/m}^{-3}$ (d) $10^{16}\ \text{kg/m}^3$

24. Bonds in a semiconductor

(a) Trivalent (b) covalent (c) Bivalent (d) monovalent

25. Number of electrons in the valence shell of a semiconductor is.

(a) 1 (b) 2 (c) 3 (d) 4

26. semiconductors of both p-type & n-type are produced by

(a) Ionic Solids (b) covalent solids (c) Metallic Solid (d) Molecular solid

27. with fall of temperature, the forbidden energy gap of a semiconductor
(a) Increased (b) Decreases (c) Remains unchanged
(d) Sometimes increases and sometimes decreases.
28. In a p-type semiconductor, current conduction
(a) Atoms (b) Holes (c) Electrons (d) protons
29. In reverse biasing,
(a) large Amount of current flows
(b) No current flows
(c) potential Barrier across junction increases
(d) Depletion layer Resistance Increases
30. The velocity of electromagnetic wave is-
(a) $3 \times 10^5 \text{ m/s}$ (b) $3 \times 10^6 \text{ m/s}$ (c) $3 \times 10^8 \text{ m/s}$ (d) $3 \times 10^{10} \text{ m/s}$
31. EMF is measured in -
(a) Joule (b) Joule/coulomb (c) Joule-coulomb (d) Joule/coulomb/meter
32. 1 kilowatt hour is commonly known as
(a) Unit (b) 1 Faraday (c) 1 Curie (d) None
33. How many joules are equal to 1kwh
(a) 3.6×10^4 (b) 3.6×10^5 (c) 3.6×10^6 (d) None.
34. If a charge is moved from low to high potential region, the electric potential energy
(a) Decreases (b) Increases
(c) Remain the same (d) May Increase or Decrease
35. choose the vector physical Quantity-
(a) Electric Flux (b) Electric potential
(c) Electric potential Energy (d) Electric Intensity.

2022-2023 Model Question paper set- 3

class XII

Sub - Physics

Time- 1½ Hour

F.M = 35

Subjective

- (a) All Question are compulsory.
- b) Question Number 1 to 7 are short answer type question. Carrying 1 marks each.
- (c) Question number 8 to 14 (section-B) are also short Answer Type Questions. Carrying 3 Marks Each.
- (d) Questions Number 15 to 17 are long answer types, carrying 5 Marks Each.

SECTION-A (2 X 5 = 10)

Ans. any five question

- 1. What are the properties of electric charges?
- 2. Explain the meaning of the Statement of electric charge of a body is quantised?
- 3. What are properties of equipotential Surfaces?
- 4. What is the shape of the wave front when light is diverging from a point to Source?
- 5. State the condition that must be Satisfied for two light sources to be Coherent.
- 6. The force per unit charge is known. as _____
- 7. The property which differentiates two kinds of charge is called _____

Section –B (3X5 = 15)

Ans. any FIVE question

- 8. Define. The term resistivity, conductivity and State Their SI Unit, Draw a graph showing the variation of resistivity with temperature for a typical

Semiconductor.

9. State, the Principle of potentiometer. Draw the circuit diagram used to compare the emf s of two primary cells.
10. Define Capacitance and write its SI unit, show that energy stored in a Parallel plate capacitor is $\frac{1}{2}cv^2$.
11. State and explain Biot-Savart's Law.
12. What is the galvanometer? How it obey's the Law of conservation of energy.
13. State, lenz's law. How it obeys the Law of conservation of energy.
14. What in total Internal Reflection. Explain its two applications.

Section-C (5X3= 15)

Ans. any three question

15. Derive on expression for refractive index of the material of a prism under minimum deviation condition.
16. What to Energy? Distinguish between Conductor, semiconductor and insulator on the basis of energy Band.
How does the resistance of Semiconductor varies with the change of the temperature.
17. Describe with principle the construction and working of a moving coil Galvanometer.
18. Discuss LCR circuit with phaser diagram.
19. Explain Huygen's principal of wavelets and on the basis of the principle, establish (a) reflection of light (b) Refraction of Light.

प्रश्न पत्र डाउनलोड करने का लिंक:

<https://koderma.nic.in/education/>

<https://youtube.com/@degstrainingcentre2255>

!!!!!!!!!!!!!!Best of Luck!!!!!!!!!!!!!!