وزارة التربية والتعليم
مديرية التربية والتعليم بمحافظة : .....

امتحان تجريبى شهادة إتمام الدراسة الثانوية العامة

المـــادة : الفيزيـاء

التاريخ : / / ٢٠١

زمن الإجابة : ثلاث ساعات

نموذج ثانوية عامة

١

عدد أوراق الإجابة (١٤) ورقة
بخلاف الغلاف
وعلى الطالب مسؤلية المراجعة
والتأكد من ذلك قبل تسليم الكراسة

الأسئلة من ..... إلى	الدرجة	توقيع المقدر	توقيع المراجع

مجموع الدرجات

رقم المراقبة

مجموع الدرجات بالحروف : _____

إمضاءات المراجعين : _____

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١ نموذج ثانوية عامة

اسم الطالب (رباعيًا) / _____

المدرسة : _____ الإدارة : _____

رقم الجلوس : _____ المحافظة : _____

١- _____

٢- _____

توقيع الملاحظين بصحة البيانات ،
ومطابقة عدد أوراق كراسة الإجابة
عند استلامها من الطالب .

تعليمات هامة:

عزيزى الطالب:

1. **اقرأ السؤال بعناية، وفكر فيه جيدًا قبل البدء فى إجابته.**
2. **أجب عن جميع الأسئلة ولا تترك أى سؤال دون إجابة.**
3. **عند إجابتك للأسئلة للمقالية، أجب فيما لايزيد عن المساحة المحددة لكل سؤال.**

مثال :

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4. **عند إجابتك عن أسئلة الاختيار من متعدد إن وجدت:**

ظلل الدائرة ذات الرمز الدال على الإجابة الصحيحة تظليلاً كاملاً لكل سؤال .

مثال : الإجابة الصحيحة (جـ) مثلًا

- في حالة ما إذا أجبت إجابة خطأ، ثم قمت بالشطب وأجبت إجابة صحيحة تحسب الإجابة صحيحة.
- وفي حالة ما إذا أجبت إجابة صحيحة، ثم قمت بالشطب وأجبت إجابة خطأ تحسب الإجابة خطأ.
- في حالة التظليل علي أكثر من رمز، تعتبر الإجابة خطأ.

ملحوظـــة: لا تكـــرر الإجابـــة عـــن الأســـئلة الموضـــوعية (الاختيـــار مـــن متعـــدد) ، فلن تقدر إلا الإجابة الأولي فقط .

5. **عدد أسئلة الكتيب (60) سؤالاً .**
6. **عدد صفحات الكتيب (28) صفحة خلاف الغلاف.**
7. **تأكد من ترقيم الأسئلة تصاعديًا، ومن عدد صفحات كتيبك، فهي مسئوليتك.**
8. **زمن الاختبار(3) ساعات .**
9. **الدرجة الكلية للاختبار (60) درجة .**

Answer the Following Questions:

Questions (1: 5) :Write the scientific concept for each of the following

1. Electric currents generated in a thick metal as an alternating current passes through a coil wrapped around it

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2. It is the magnetic flux density that exerts a force 1N on a wire 1m long carrying a current of 1A normally to that field.

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3. Complex Electric component, which its resistance increases as temperature increase.

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4. The incidence of high energy photon onto a free electron, the photon frequency decreases, changes its momentum, and the electron velocity increases and changes direction.

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5. The induced current must be in a direction such as to oppose the change producing it.

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Questions (6: 8) :Mention when the following equal zero.

6. The inductive reactance of a coil

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7. Magnetic flux density at center of common axis for two circular metallic consists of same loops in one plane where the diameter of the first is double the diameter of the second loop and both carrying a current.

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8. Output of OR gate

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9. The unit of $\sqrt{\frac{L}{C}}$ is a unit of electric resistance.

Where L: self-inductance R: resistance C: capacitance

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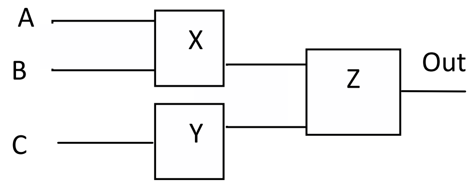
Questions (10: 13) :problem.

10. From the following figure try to fill the truth table

A	B	C	Out
0	0	…	**1**
1	0	1	**0**
1	…	1	**0**
1	1	1	**1**



11. The type of X gate

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12. The type of Y gate

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13. The type of Z gate

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Questions (14: 18) :Write the scientific idea for each of the following

14. Electric dynamo

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15. Cathof ray tube

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16. Induction furnace

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17. Galvanometer

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18. Hotwaire ammeter

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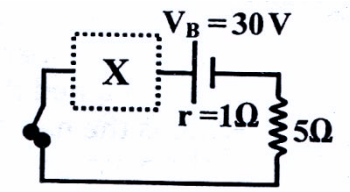
Questions (19: 21) :Answer the following questions:

If you have four resistors R_1= 8Ω, R_2= 12 Ω, R_3= 5 Ω, R_4=4 Ω.



19. Explain how you connect these resistors together to obtain an equivalent resistance = 4 Ω and Insert the suggested connection for the resistors in X position shown in the figure, then draw the complete circuit in your answer paper

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20. and calculate the intensity of current flowing through the Main circuit

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21. calculate the intensity of current flowing through the resistance 4Ω.

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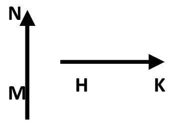
Questions (22: 26) :Choose the correct answer for the following questions:

22. In the figure shown, NM is a long wire carrying current. HK is another wire carrying current. The force on the wire HK acts:



(A) Vertical upwards.

(B) Vertical downward.

(C) Leftwards

(D) Rightwards

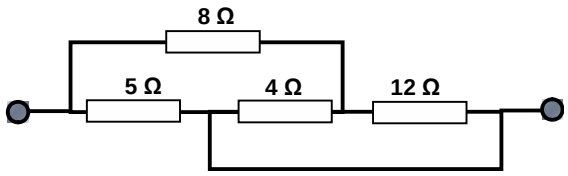
23. the equivalent resistance for the following circuit is ohms equals .....

A 16 Ω.

B 3.4375 Ω.

C 4 Ω

D 16.235 Ω



24. The maximum current equals ..... Times value of the effective current

A Zero.

B $\sqrt{2}$.

C 0.707.

D 0.63.

25. If the resistance of the coil of a galvanometer is R so the shunt resistance which reduces its sensitivity by $\frac{1}{4}$ of its original value is.....

A $\frac{R}{4}$ Ω.

B $\frac{R}{3}$ Ω.

C 4R Ω

D 3R Ω

26. In hydrogen spectrum the ratio between the longest wavelength in Lyman and the longest wavelength in Balmer equal ……

A $\frac{3}{2}$

B $\frac{4}{9}$

C $\frac{1}{93}$

D $\frac{5}{27}$

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Questions (27: 29) :Write the equivalent physical quantity and mention another measuring unit for the following units:

27. $N.A^{-1}.m^{-1}$

Physical quantity: ……

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Another unit: ……

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28. $N.m^3/Web$

Physical quantity: ……

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Another unit: ……

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29. $V.S.C^{-1}$

Physical quantity: ……

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Another unit: ……

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Questions (30: 33) : Problem

Two wires of diameter 2mm and 6 mm respectivly separated by distance 40 mm carrying current 2A and 6A in same direction another wire of length 20π m is coiled in a form of circular coil of diameter 10 mm which is put between the two wires at a distance 4mm from the wire of 2A, find the value and direction of electric current in the circular coil which produced a magnetic field at center of the coil which cancels the magnetic field resulted from the two wires. [π=3.14]

30. The value of magnetic field resulted from the two wires:

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31. The direction of that magnetic field:

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The used rule to determine that direction:

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32. The value of the current in the circular coil:

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33. The direction of the current in the circular coil:

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The used rule to determine that direction:

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Questions (34: 36) : Give reasons for the following questions:

34. It is preferred using digital electronics in the electronic systems than the analog electronics in the electronic equipments

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35. why the He-Ne have been selected as laser source.

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36. It is preferred to use the ultraviolet to incident on the cathode of photoelectric cell.

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Questions (37: 41) : compare between each of the following:

37. Helium and Neon in He-Ne laser (Function)

Point of comparision	Helium	Neon
function	…… …… …… …… ……	…… …… …… …… ……

38. Commutator in dynamo and motor (Function)

Point of comparision	Dynamo's commutator	Motor's commutator
function	…… …… …… …… …… ……	…… …… …… …… …… ……

39. Voltage and current in coil and capacitor (point of whose leading)

Point of comparision	Coil	Capacitor
Voltage and current (leading)	…… …… …… …… …… ……	…… …… …… …… …… ……

40. Diode and resistor (according to direction of current)

Point of comparision	Diode	resistor
Current direction	…… …… …… …… …… ……	…… …… …… …… …… ……

41. Electron and photon. (according to nature)

Point of comparision	Electron	Photon
Nature	....	....

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42. How can we reduce the Penetrating power of X rays

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43. Explain the difference between the Stimulated and spontaneous emission. (way of production).

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Questions (44: 47) : Problem

A dynamo coil starts rotation from perpindicular position where it reaches its maximum induced emf of 200 Volts in 3 milliseconds.

44. The effective value of the voltage.

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45. The mean value of induced emf through ¼ rotation.

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46. The time passed from the beginning of rotation until the emf reaches -100 V.

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47. If the dynamo's terminals are connected to a resistor of resistance 20 ohms calcualte the lost energy through one complete rotation.

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48. Write the mahermatical relation used to calcualte the Impedance of circuit consists of resistor, coil and capacitor connected in series

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49. Mention the condition to get the Maximum current in circuit consists of Resistor, coil and capacirot in series.

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50. What is the average induced emf in a dynamo coil through ¾ rotation if the calculation starts from horizontal position.

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Questions (51: 52) :

The following table represent the relation between energy of photons and its wavelengths:

$E \times 10^{-19}$ Joules	3	6	9	12
$\lambda \times 10^{-7}$ m	6.6	3.3	2.2	1.65

51. Draw a graphical relation between Energy as y-axis and reciprocal of wavelength as x-axis, and from the graph find Planck's constant.

Use graph paper to draw the relation then return and find (h)
Planck's constant =
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52. Given that velocity of light = 3×10^8 m/sec, if these photons falls on a metallic surface of critical frequency **10.6×10^{14} Hz** which of them make electrons emitted from that surface.

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Questions (53: 56) : what is mean by each of the following:

53. The wavelength at which the peak of the curve occurs is inversely proportional to temperature on Kelvin scale

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54. Is the container and activating catalyst for amplification

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55. Equipment used to obtain pure specturm of visisble and invisible light componenets

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56. dark lines appears in the solar spectrum are examples of the absorption spectrum of the elements in the sun, basically helium and hydrogen

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57. raster

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58. Write the mathimatical realtion used to caluclate the wavelength of the linear spectrum of X-rays:

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59. If transistor current gain is 256 find distribution constant:

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60. What happen to the value of the resisance if current passes in it is doubled:

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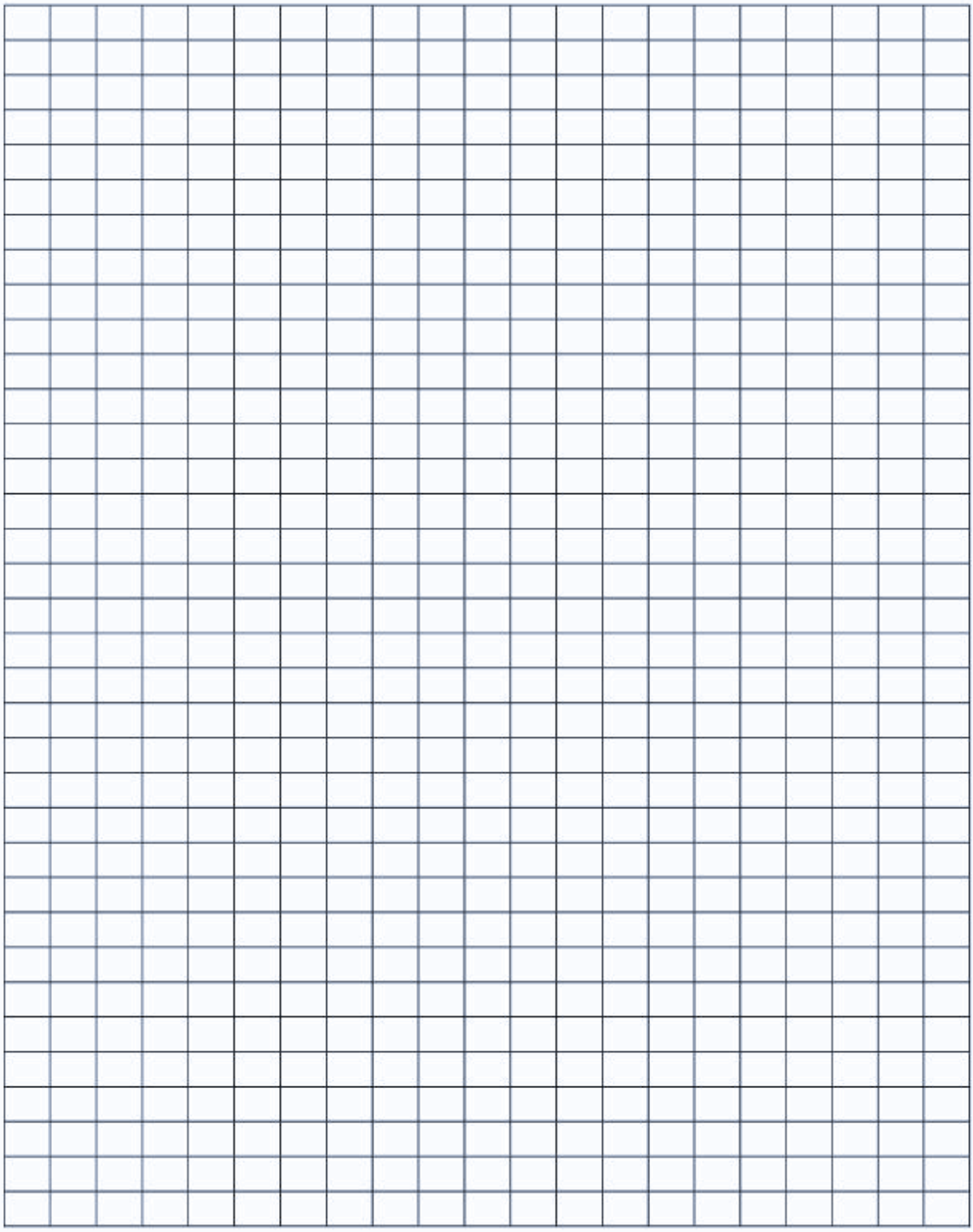
تستخدم للرسم البيانى فقط



مع أطيب التمنيات بالتوفيق،،،