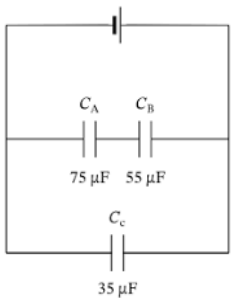
Ministry of Education and Technical Education
Applied Technology Schools Unit
International Applied Technology Schools

International Applied Technology Schools	Final-Year Exam 2023-2024	Subject: Physics
Grade: Two (Wheelers)		Time: Two Hours

التخصصات الصناعية

Part one, Choose the correct answer

1	**If the charges q_1 and q_2 are of the ……. sign then the force mutually …… and the force on each charge points away from the other charge.**
A	same, repulsive
B	same, attractive
C	opposite, repulsive
D	opposite, attractive
2	**……. Is the rate of electrical energy consumed in the electric conductor**
A	ohm's law
B	Electric power
C	Potential Difference
D	The electric resistance
3	**Materials in which charges can move about freely**
A	Insulators
B	All Substances
C	Semi-conductors
D	Conductors
4	**A force of …….. is acting on the charge 5 μ C at any point. And get an electric field intensity at that point 50 X 10^5 N/C.**
A	250 N
B	250 X10^6 N
C	25 N
D	25 X10^6 N
5	**A stationary positive charge has electric field lines pointing …. while a stationary negative charge has electric field lines pointing ……. .**
A	outwards, inwards
B	inwards, outwards
C	outwards, outwards
D	inwards, inwards
6	**If capacitors are connected in parallel, the voltage across each capacitor …….**
A	$V_t = V_1 + V_2 + V_3$

B	$V = \frac{C1V + C2V + C3V}{Q}$
C	$V_t = V_1 = V_2 = V_3$
D	$V = \frac{C1V + C2V + C3V}{Q}$
7	**The equivalent capacitance of the three-capacitor network shown in the opposite Figure ……. µ C.** 
A	56.34
B	0.036
C	165
D	66.73
8	**R =**
A	$R = \frac{\rho l}{A}$
B	$R = \rho \frac{A}{L}$
C	$R = \frac{L}{A\delta}$
D	R= $A\delta l$
9	**The tool which we use to measure Potential Difference …..**
A	Ammeter
B	Ohmmeter
C	Voltmeter
D	Hydrometer
10	**The measurement unit for Electric power (P_w) ……**
A	Joule
B	Newton
C	Watt
D	J/ kg
11	**A circuit has a voltage of 8 volts and a current of 4 amperes. The resistance in the circuit…**
A	8 ohms
B	12 ohms

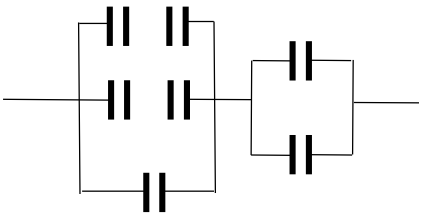
C	2 ohms
D	4 ohms
12	**Which of the following is an example of electrostatics …….**
A	paint cars
B	Rub the balloon with your hair
C	Rub a cupper bar with your hair
D	Electric motor that used in the fan
13	**Like charges ….. each other**
A	repel
B	attract
C	both of them
D	none
14	**We can remove pollution from smoke-chimneys using …….**
A	Gravity
B	Dynamic electricity
C	Static electricity
D	Electric resistance
15	**The amount of charge flowing through a conductor….**
A	The electric resistance (R)
B	The electric current intensity (I)
C	Electric current
D	Potential difference
16	**Ceramics are good example for ….**
A	Insulators
B	All Substances
C	Semi-conductors
D	Conductors
17	**The number of total charges when 3 A passes through a wire on 5 s (e=1.6 ×10^{-19}C).**
A	9.375 x 10^{-19}
B	9.375 x 10^{19}
C	2.4 x 10^{-18}
D	2.4 x 10^{18}
18	**The flow of positive charges from the positive to the negative terminal of a cell in a circuit……..**
A	Electron current intensity

B	Traditional Current
C	Conventional Current
D	Electrostatic
19	**An electrical element which has a resistance of 55 Ω is connected across a ……. V power supply. When the current drawn from the power supply 5 A.**
A	60
B	11
C	165
D	275
20	**The measurement unit of K (the proportionality constant in Coulomb's law)**
A	$N.m^2/c^2$
B	$N/m^2.c^2$
C	$N.m^2.c^2$
D	$N.m/c$
21	**Silicon is considered as …...**
A	Insulators
B	All Substances
C	Semi-conductors
D	Conductors
22	**To get high equivalent capacitance from 3 capacitors we connect capacitors**
A	Series
B	Parallel
C	Both of them
D	None of these
23	**Static electricity produced by …….**
A	Gravitational force
B	Centripetal force
C	Rubbing force
D	Tension force
24	**The electric resistance of conductor that carries current of 1 A when potential difference between its two ends is 1 V……**
A	Ampere
B	Volt
C	Ohm
D	Joule

Part Two

Answer the following questions

1- In the opposite figure a network of seven capacitors, each one of capacitance (3C), Find the equivalent capacitance of the network.



2- Two positive charges that are both 30×10^6 μ C push each other apart with a force of 6 N. Calculate:
   A. The distance between the two charges.
   B. The electric field of any of those charges at distance 10 meters.

3- What are the dangers of static electricity? (3 Examples at least)

Good Luck