AN 202 TEST 2 MARK SCHEME 2020-2021 10 Liectric Current is the rate of flow of electric charges 1 (b) a.c. is characterised by reviolical change in direction of Current while d.c. is characterised by unidirectional flow 1 of current. (i) P. d. across each resistor is BV I = \(\frac{1}{R} = \frac{60}{312} = \frac{2A}{312} \text{ each (2)} (ii) current I through the battery I = 2A + 2A = 4A (2) (ii) Q=It=4×5×60=1,200C (2) (iv) E=IVt= 4x6x5x60 = 7,200JQ (a) At surction e: I+4=6 (1) I=6-4 = 2A 1 I = 2A (1) 6) using Gop 2: bldC5 0 -E+46+6(3)=00 -E+24+18=01 24+18 = E E= 42V (7) using loop 1: afeba -28+2(R)-4(G)+E=0 0 -28 - 24 + 42 + 2R = 0-10+2R=02R =10 R=10/2 K=552 (1)

AN 202 TEST 2 MARK SCHEME 2020-2021 10 Liedric Current is the rate of flow of electric charges 1 (b) a.c. is characterised by reviolical cenange in direction of Current while d.c. is characterised by unidirectional flow 1 of current. (i) P.d. across each resistor is BV I = \(\frac{1}{2} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2} \text{ each (2)} (ii) current I through the battery I = 2A + 2A = 4A (2) (W) Q=It=4×5×00=1,200C (2) iv) E=IVt= 4x6x5x60 = 7,200JQ (a) At surction e: I+4=6 (1) I = 6-4 = 2A D I = 2A 6) using loop 2: bldC5 0 -E+46+6(3)=00 -E+24+18=01

24+18 = ϵ $\epsilon = 42V$ (1) (3) Using Loop 1: afeba (1) $-28 + 2(R) - 4(6) + \epsilon = 0$ (1) -28 - 24 + 42 + 2R = 0

$$-10+2R=0$$
 $2R=10$
 $R=10/2$
 $R=5$ 1

(na)

- Pelistance dissifites electrical energy, realtance does not. my 1x1 the Reactance value defends on frequency of a.c., resistance does not. 2000 Zomtt Complete diagrams with the right Circuit symbols 10V, 100 H3 (a) XL = WL = 2TSL = 2TX (00 × 20 × 10 -3 = 12.6520 (ii) Z = (R2 + X23/2 0 = (52 + 12.62] 1/2 = [25 + 158.76] 1/2 Z = (183.76)/2 Z = 13.622 0 (a) $T = \sqrt{z_0} = \frac{10V}{136\pi} = 0.735A$ VL= IXL 0= 0.735 x 12.6 = 9.31 0

Ton

- Revistance dissipates electrical energy, realtance does not. my ixint Readance value defends on frequency of a.c., resistance does not. Zomtt Complete diagram Circuit symbols 10 V, 100 H3 (a) XL = WL = 275L = 21 × (00 × 20 × 10 -3 = 12.6520 $Z = (R^2 + \chi_c^2)^{1/2} 0$ $= (5^2 + 12.6^2)^{1/2}$ = (25 + 158,763 1/2 2 = (183.76)/2 Z = 13.622 0 $T = \sqrt{z_0} = \frac{10v}{1360} = 0.735A$

VL= IXL0= 0.735 x 12.6 = 9.31 0