

SC10F Practice Exam

Part A - Multiple Choice

Answers

Question	Answer
1	B
2	C
3	B
4	A
5	B
6	C
7	A
8	A
9	C
10	D
11	C
12	D
13	C
14	D
15	B
16	C
17	A or B
18	A
19	B
20	C
21	C
22	C
23	B
24	A
25	B
26	C
27	D
28	A
29	D
30	A
31	D
32	C
33	B
34	C
35	A
36	A
37	B
38	B
39	A
40	\$150

## SC10F Practice Exam

### Part B – Free Response

#### Reproduction

1. Give one advantage and one disadvantage each for sexual reproduction and asexual reproduction.

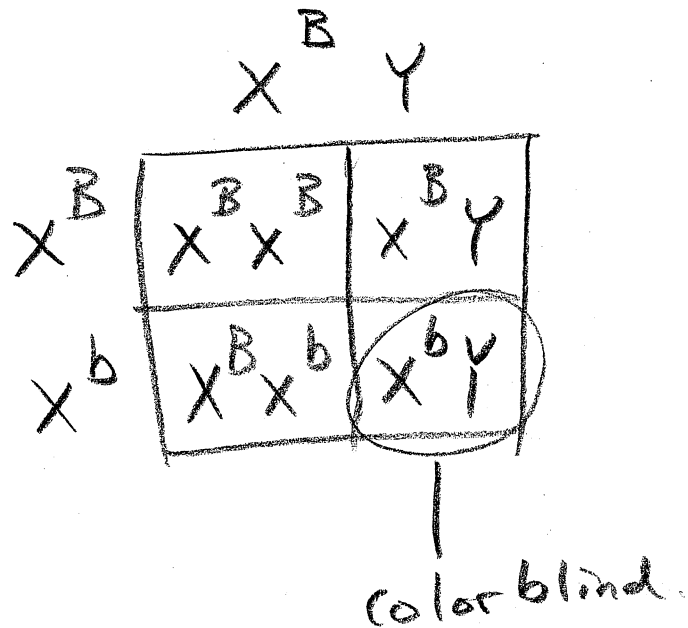
	Advantage	Disadvantage
Asexual Reproduction	answers will vary check your notes.	
Sexual Reproduction		

2. Fill in the blanks with words from the word bank.

The male Sperm cell and the female egg fuse together to produce a Zygote that travels down the fallopian tube to the uterus. It grows as it travels and becomes a blastocyst. The blastocyst embeds in the lining of the uterus forming an embryo. The embryo begins to grow and become more complex. After about eight weeks, it has developed specialized cells and most organs. At this stage it is now referred to as a fetus.

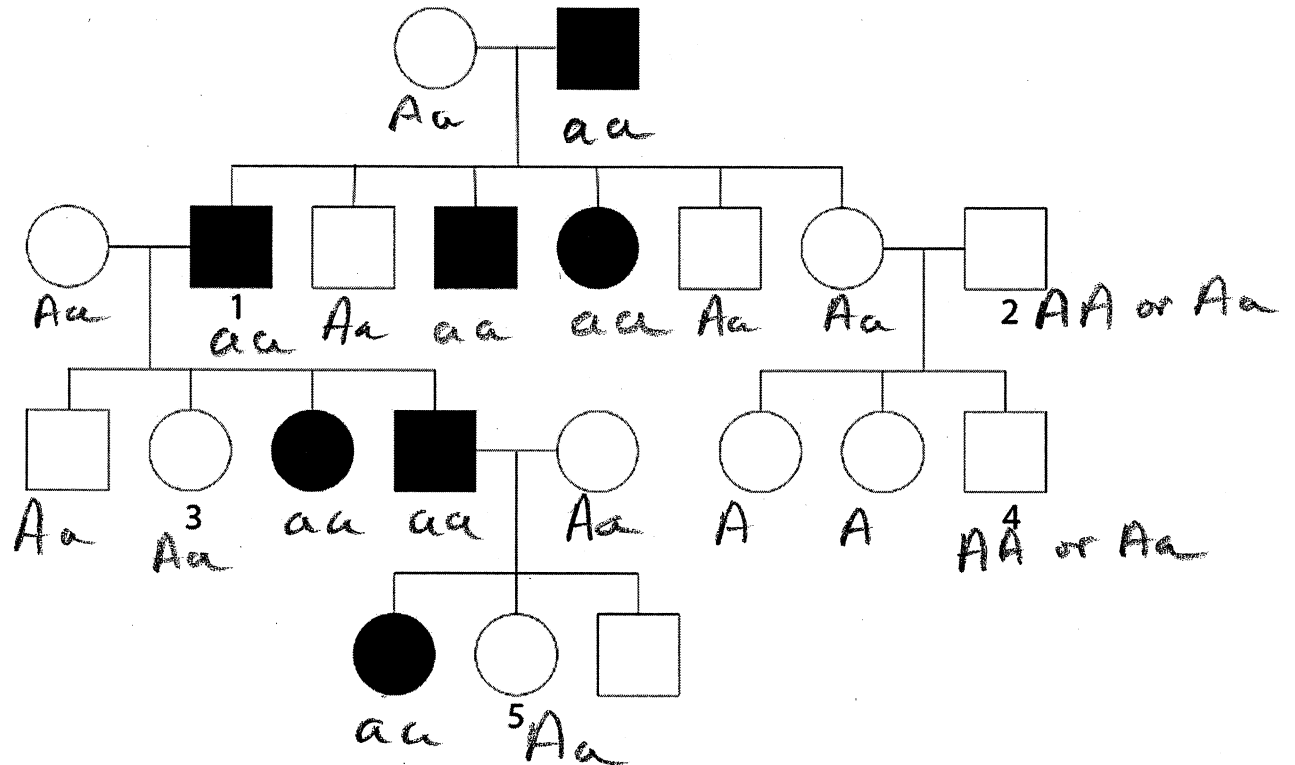
egg	embryo	fetus	sperm	uterus	zygote
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3. Color blindness is a sex-linked recessive trait. Show how two parents who are not color blind can have a child who is color blind.



If the mother is a carrier,  
there is the possibility of a  
color blind son.

4. The following pedigree tracks an autosomal recessive trait.



List the possible genotypes for the 5 labeled people.

- 1 - aa
- 2 - AA or Aa
- 3 - Aa
- 4 - AA or Aa
- 5 - Aa

## Atoms and Elements

5. Explain what is meant by a chemical change and a physical change.

Chemical change	Physical change
When two or more substances join to form new substances with new chemical properties.	A change in the form or appearance of a substance.

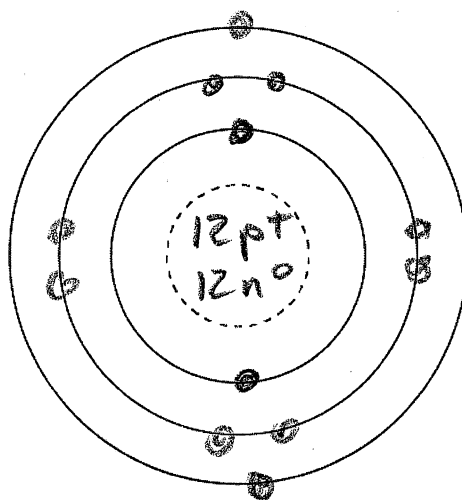
6. Indicate if each of the following is a chemical or physical change.

- (a) burning leaves chemical
- (b) cutting paper physical
- (c) boiling water physical
- (d) dissolving sugar in water physical

7. Answer the following questions about the element iron.

- (a) The chemical symbol for iron is Fe.
- (b) The atomic number of iron is 26.
- (c) The mass number of iron is 56.
- (d) One atom of iron contains 26 protons.

8. Draw a Bohr model diagram for an atom of magnesium.



## Electricity

9. A red conducting ball with a charge of  $-5\text{ C}$  touches a blue conducting ball with a charge of  $+3\text{ C}$ . What is the charge on each ball when they are separated.

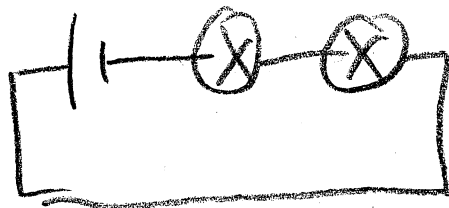
red  $-1\text{ C}$   
blue  $-1\text{ C}$

10.  $5\text{ C}$  of electric charge flows through a resistor which uses  $20\text{ J}$  of energy. What is the potential difference across the resistor?

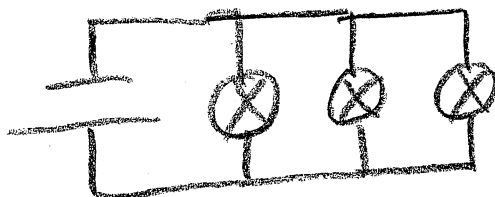
$$V = \frac{E}{Q} = \frac{20\text{ J}}{5\text{ C}} = \underline{4\text{ V}}$$

11. Draw a circuit diagram of an electric circuit with

- (a) 1 battery and 2 light bulbs in series.



- (b) 1 battery and three light bulbs in parallel.



12. How much electrical energy is transformed when a 60 W light bulb is left on for 24 hours?

$$P = \frac{E}{t} \quad E = Pt = 60 (24 \times 60 \times 60) \\ = 5184000 \text{ J} = 5.18 \times 10^6 \text{ J}$$

13. A TV uses 120 W of power.

(a) How much energy in kWh does the TV use if you watch it for 4 hours?

$$\frac{120}{1000} \times 4 = 0.48 \text{ kWh}$$

(b) Electricity costs \$0.10 per kWh. How much would it cost to watch TV 4 hours a day, every day, for the whole year?

$$.48 \times 365 \times .1 = \$17.52$$