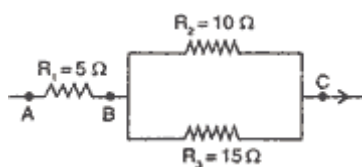


## SCIENCE—2003—Delhi

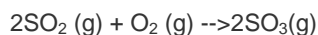
### SECTION - A

- Q. 1. Name the largest component of biogas. 1
- Q. 2. Name the metal used for making the body of an aircraft. 1
- Q. 3. Name the factors which affect the rate of reaction. 1
- Q. 4. Name the two components of baking powder. 1
- Q. 5. If the magnification of a body of size 1m is 2, what is the size of the image? 1
- Q. 6. Write four characteristics used for selecting a suitable fuel. 2
- Or
- What is a solar cell? Name two materials mostly used for making solar cells. 2
- Q. 7. What is nuclear fusion? Give an example for it. 2
- Q. 8. For producing electricity, the energy from flowing water is preferred to energy obtained by burning coke. State two reasons for it. 2
- Q. 9. State the rule to determine the direction of magnetic field produced around a current carrying conductor. 2
- Q. 10. How is neoprene obtained? Why is it considered superior to natural rubber? 2
- Q. 11. Three resistors are connected as shown in the figure. Through a resistor 5 ohm a current of one ampere is flowing: 3



- (a) what is the p.d. across AB and across AC?
- (b) what is the current through the other two resistors?
- (c) what is the total resistance?
- Q. 12. An organic compound X is an essential constituent of wine and beer. X is responsible for the intoxication caused by these drinks. Oxidation of X yields an organic acid Y which is present in vinegar. Name the compounds X and Y and write their structural formulae. 3
- Or
- State two reasons for counting sulphur amongst the non-metals. Which properties of sulphur make it possible to bring it from a deep mine to the surface of the earth by the Frasch process and to purify it by the sublimation of liquid sulphur? 3
- Q. 13. List four essential conditions for life to originate and flourish on a planet. Why do we not expect existence of life on the planet Mars? 3

**Q. 14.** For the reaction



at equilibrium at 1000 K, the molar concentrations of  $\text{SO}_2$ ,  $\text{O}_2$ ,  $\text{SO}_3$  are 1.44, 1.98 and 0.41 respectively. Calculate the equilibrium constant for this reaction. **3**

**Q. 15.** What is meant by quenching, annealing and tempering of steel? **3**

**Q. 16.** Draw a ray diagram of a microscope **3**

**Q. 17.** Differentiate between soap and detergent. **3**

**Q. 18.** Draw a labelled diagram of solar cooker. What purposes are served by the blackened surface, glass cover plate and the mirror in a solar cooker? What would happen if the plain glass mirror of a solar cooker is replaced by a concave glass mirror? **5**

**Q. 19.** Why are stars not the permanent objects of the universe? Give various stages in the life of a star. **5**

Or

What will happen when:

- (a) ethanoic acid reacts with sodium carbonate?
- (b) propanone reacts with hydrogen cyanide?
- (c) ethanol is heated with alkaline potassium permanganate?
- (d) methanal reacts with hydrogen cyanide?
- (e) ethanal reacts with Fehling's reagent? **5**

**Q. 20.** Describe Haber process for the manufacture of ammonia. Give the role of promoter in this process. Draw a flow diagram of this process. **5**

Or

Give the effect of heat on sulphur. Explain with the help of diagrams. **5**

## **SECTION - B**

**Q. 21.** What is glycolysis? **1**

**Q. 22.** Define translocation. **1**

**Q. 23.** What is dialysis? **1**

**Q. 24.** How electrostatic precipitators help in controlling particulate emissions? **2**

**Q. 25.** Differentiate between menarche and menopause. **2**

**Q. 26.** What is eutrophication? Mention its harmful effects. **3**

**Q. 27.** Show in tabular form the different blood transfusions that should occur among the various blood groups in human beings. **3**

**Q. 28.** What is genetic engineering? Give the full form of GMO. **3**

Or

Differentiate between autosomes and sex chromosomes.

**Q. 29.** Define reflex action with suitable examples. **3**

**Q. 30.** Explain the human digestive system with the help of a diagram. **5**

Or

Describe Darwin's theory of Evolution. **5**