Bihar Judicial Service (Mains) 2011

Elementary General Science · compulsory paper

Time: 3 hours · Full marks: 100

Note: (1) There are five Sections in the question paper. Answer one question from each Section. (2) Marks are indicated against each question.

Section A

1. (a) What for the following devices are used? (1×10=10)
(i) Thermostat
(ii) Vacuum-cleaner
(iii) Telex
(iv) Polygraph
(v) Radar
(vi) Seismograph
(vii) Stethoscope
(viii) Periscope
(ix) Endoscope
(x) Escalator
(b) Differentiate between the following: (2×5=10)
(i) Transformer and Dynamo
(ii) Voltmeter and Potentiometer
(iii) Taximeter and Tokometer
(iv) Ammeter and Galvanometer
(v) Velocity and Acceleration

2. (a) Write scientific explanation of the following: (5×2=10)
(i) In the solution of soap large bubble can be produced
(ii) Bicycle pump becomes hot while pumping air in the tyre
(b) Write short notes on the following: (5×2=10)
(i) Applications of laser
(ii) Applications of photoelectric cells

Section B

3. (a) Explain the difference between the following: (5×2=10)
(i) Solar eclipse and Lunar eclipse
(ii) Rotation and Revolution of earth
(b) Explain, why: (5×2=10)
(i) Human breath is visible in winter but not in summer
(ii) Food is cooked quickly in a pressure cooker

4. (a) Explain the following: (2×5=10)
(i) Plate tectonics
(ii) Asteroid
(iii) Ozonosphere
(iv) Computer virus

(v) Hybrid vehicles

(b) Differentiate between the following: (2×5=10)

(i) RAM and ROM

(ii) Bit and Byte

(iii) Hardware and Software

(iv) Hard disc and Floppy disc

(v) Mouse and Curser key

Section C

5. (a) Briefly explain the following:

(i) Heavy water

(ii) Safety glass

(iii) Biogas

(iv) Plaster of Paris

(v) Gypsum

(b) Give scientific explanation of the following: (2×5=10)

(i) Sometimes milk turns sour

(ii) It is fatal to have coal fire burning in closed room

(iii) A sliced apple on exposure to air turns brown after sometime

(iv) A petrol fire cannot be extinguished by pouring water over it

(v) We feel difficulty in breathing on high mountains

6. (a) Explain the difference between the following: (4×2=8)

(i) Oils and Fats

(ii) Soap and Detergent

(b) Enlist the uses of the following: (2×4=8)

(i) Teflon

(ii) Crown glass

(iii) Platinum

(iv) Tear gas

(c) Write full forms of the following abbreviation: (1×4=4)

(i) RDX

(ii) CNG

(iii) LSD

(iv) MIC

Section D

7. (a) Give brief answer to the following: (2×5=10)

(i) What is Bt brinjal?

(ii) What is groundwater table?

(iii) What is altruistic behaviour?

(iv) What is smog?

(v) What is Jhuming cultivation?

(b) Distinguish between the following: (2×5=10)

(i) Butterfly and Moth

(ii) Poisonous and Non-poisonous snake
(iii) Apes and Man
(iv) Monocots and Dicots
(v) Predation and Parasitism

8. (a) What would be the consequences, if— (5×2=10)
(i) organisms failed to reproduce
(ii) organisms become immortal?
(b) Name the protein present in each of the following: (1×6=6)
(i) Hair
(ii) Human red blood cells
(iii) Milk
(iv) Islets of Langerhans
(v) Saliva
(vi) Wheat
(c) Name the process involved in the following: (1×4=4)
(i) Swelling of raisins in water
(ii) Intake of fluids through cell membrane
(iii) Creation of RBC
(iv) Intake of solids through cell membrane

Section E

9. (a) Explain the following: (2×5=10)
(i) Pheromones
(ii) Demography
(iii) Greenhouse effect
(iv) Biosphere reserve
(v) Biomagnification
(b) Name the cell organelle which acts as the following: (1×4=4)
(i) Powerhouse of cell
(ii) Post-office of cell
(iii) Suicidal bags of cell
(iv) Engine of cell
(c) (1×6=6)
(i) Which virus causes swine flu?
(ii) What is the permissible noise level in residential areas?
(iii) Name the scientist associated with 'origin of species by natural selection'.
(iv) Which branch of science deals with solving the cases of civil and criminal laws?
(v) Name a mammal which flies like birds.
(vi) Which pigment is responsible for green colour of leaves in plants?

10. (a) Name the subject to which these famous scientists are associated? (1×5=5)
(i) Srinivasa Ramanujan
(ii) C.V. Raman
(iii) Birbal Sahni

(iv) Shanti Swarup Bhatnagar
(v) Homi J. Bhabha

(b) (1×5=5)

(i) Name the disease caused by deficiency of vitamin D.
(ii) Name the enzyme which helps in the digestion of fats.
(iii) Name the bacterium that causes Leprosy.
(iv) Name the bacterium that causes tetanus.
(v) Name the vitamin whose deficiency causes night blindness.

(c) Give a scientific explanation of the following: (5×2=10)

(i) Salts dissolve in water
(ii) Oil does not dissolve in water