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## Q.1) Consider the following statements with respect to 'Maglev'

- 1. It is a transport method that uses magnetic levitation to move vehicles without touching the ground
- 2. A Maglev train travels along a guideway using magnets to create both lift and propulsion which reduces friction by a great extent, allowing very high speeds

# Which of the following statements is/are correct?

- a) Only 1
- b) Only 2
- c) 1 and 2
- d) None of the above

# Q.1) Solution (c)

Maglev is a transport method that uses magnetic levitation to move vehicles without touching the ground.

A maglev train floats above the tracks on a "cushion" of magnetic field.

A vehicle can travel along a guideway using magnets to create both lift and propulsion, thereby reducing friction by a great extent and allowing high speeds.

Magnets on the track push and lift the train up in the air by about 1 inch to 6 inches.

These "track" magnets are controlled by computers which keep shifting forward the magnetic force of the "track" magnets so that the vehicle is pulled forward.

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# Q.2) Consider the following statements with respect to 'Indian Leather Development Programme'

- 1. It is under Ministry of Skill Development and Entrepreneurship
- It will provide support to Artisans for formation of SHGs, product development, capacity building, providing centralized common facilities centres and marketing linkages

## Which of the following statements is/are correct?

a) Only 1

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- b) Only 2
- c) Both 1 and 2
- d) None of the above

# Q.2) Solution (b)

ILDP is under the Department of Industrial Policy and Promotion, Ministry of Commerce and Industry.

The 'Indian Leather Development Programme' (ILDP) a central sector scheme, is under implementation with an approved outlay of Rs. 990.36 crore, during 12th Plan period with the following six sub-schemes:

- Integrated Development of Leather Sector (IDLS)
- Human Resource Development (HRD)
- Mega Leather Cluster scheme
- Support to Artisan scheme For formation of Self-help groups (SHGs), product development, capacity building, providing centralized common facilities centers and marketing linkages.
- Leather Technology, Innovation & Environmental Issues
- Establishment of Institutional Facilities

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# Q.3) Consider the following statements with respect to 'Croatia'

- 1. It is a land-locked country
- 2. It shares borders with Hungary, Slovenia and Serbia
- 3. It was a part of Yugoslavia

## Which of the following statements is/are correct?

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) All of the above

## Q.3) Solution (b)

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Croatia is located in Central and Southeast Europe, bordering Hungary to the northeast, Serbia to the east, Bosnia and Herzegovina to the southeast, Montenegro to the southeast, the Adriatic Sea to the southwest and Slovenia to the northwest.

The SFR Yugoslavia was a conglomeration of eight federated entities, roughly divided along ethnic lines, including six republics—Slovenia, Croatia, Bosnia and Herzegovina, the Republic of Macedonia, Montenegro and Serbia—and two autonomous provinces within Serbia, Vojvodina and Kosovo.

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#### Q.4) The Chariman of Financial Stability and Development Council (FSDC) is:

- a) Prime Minister
- b) Cabinet Secretary
- c) Finance Minister
- d) Governor of RBI

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# Q.4) Solution (c)

The Chairman of the FSDC is the Finance Minister of India and its members include the heads of the financial sector regulatory authorities (i.e, SEBI, IRDA, RBI, PFRDA and FMC), Finance Secretary and/or Secretary, Department of Economic Affairs (Ministry of Finance), Secretary, (Department of Financial Services, Ministry of Finance) and the Chief Economic Adviser.

# Q.5) Identify the 'element'-

- BARC has recently developed a simple, user friendly, quick and cost effective kit for onsite determination of this 'element' and to check its water-contamination capacity.
- 2. The element is widely used in various industries like leather, steel, chrome plating, paint manufacturing, wood preservation etc.
- 3. One of its types is toxic and the World Health Organization has classified it as carcinogenic and has mentioned that it can cause stomach ulcers and cancers, and severe damage to kidneys and liver.

# Choose the correct 'element' being discussed about:

- a) Cadmium
- b) Iron
- c) Chromium
- d) Beryllium

#### Q.5) Solution (c)

#### Chromium-

- Chromium is widely used in various industries like leather, steel, chrome plating, paint manufacturing, wood preservation etc.
- Untreated effluents from these industries cause widespread contamination of water as been reported in several parts of the country.
- Chromium in the environment primarily exists as Trivalent Chromium Cr (III) and Hexavalent Chromium Cr(VI). The later is toxic and the World Health Organization has classified it as carcinogenic that also causes stomach ulcers, and cancers and severe damage to kidneys and liver.
- As per Indian standard IS10500 for drinking water, the maximum permissible concentration of Cr (VI) in drinking water is 50 microgram per litre. The US

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Environmental Protection Agency (EPA) recommends a still lower permissible concentration of 10 microgram per litre.

# Detection of Cr (VI) -

At such low levels it is not only technically challenging but also expensive and time consuming since it involves collection of water samples from affected areas, transportation to laboratory, storage and finally analysis. The method can be used for limited water samples with errors due to conversion of Cr (III) to Cr(VI) and vice versa during transport and storage.

#### **BARC-**

- BARC has developed a simple, user friendly, quick and cost effective kit for onsite determination of Cr (VI), which meets IS10500 as well as EPA criterion.
- It provides the much needed solution to measure the level of Chromium contamination in drinking water and tap water, lakes, rivers as well as ground water.
- Procedure involves adding a specified amount of specific reagents to the water sample and identifying the developed colour.

#### Colour chart-

- Colour develops within 5 minutes and the distinction can be made with naked eye.
- For ease of comparison a colour chart is provided with the kit.
- Water samples can be immediately categorized as being safe or toxic for drinking from Chromium (VI) point of view.
- Kit provides several advantages including onsite detection and instantaneous results, elimination of use of sophisticated instruments for analysis, low investment on infrastructure for production of the kit, easy availability of raw materials and very good accuracy for the intended purpose.