

Paper 2, November 2021

Complete Q1 and one of questions 2 or 3

Q1 Compulsory

A caste study relating to infectious substances

A 3 marks

(i) What UN numbers apply to infectious substances that are infectious to humans and to clinical waste unspecified?

UN 3373, UN 2814, UN 3291

(ii) What UN number applies to Category A medical waste coming from a hospital?

UN 3549

Ref: ADR 2.2.62.1.4.1 (a), 2.2.62.1.4.2, 2.2.62.1.11.2, 2.2.62.1.11.1 (a)

B 6 marks

(i) Can clinical waste unspecified by transported as Limited Quantities? Explain your answer.

No, it cannot be transported as limited quantities as “zero” is shown in column 7a of the dangerous goods list meaning Limited Quantities are not permitted

(ii) Can clinical waste unspecified by transported in packaging bearing the packaging marks UN 5H1/Y/S/20/IRL/1234? Explain your answer.

No, Packing instruction P621 does not allow the use of bags and carriage in bulk in BK2 closed containers requires the use of sealed leakproof bags (plastic film bags) not woven plastic bags as represented by the packaging code.

Ref ADR 3.2.1 Table A Columns 1, 8, 10, 4.1.4.1 P621, 6.1.2.7, 7.3.2.6.2 (c)

C A packaging bears the packaging code UN 4C1/CLASS 6.2/14/D/BAM7889900. Explain the meaning of: 3 marks

4C1

Box of natural wood ordinary i.e. without sift proof walls

Class 6.2

Packaging intended for use with Category A infectious substances

Ref ADR 6.1.2.7, 6.3.4.2 (c)

D What marks and labels are required on packages containing clinical waste unspecified?

3 marks

The packages must be marked with the UN number UN 3291

The packages must be labelled with label no 6.2 infectious label

Ref ADR 3.2.1 Table A columns 1, 5, 5.2.1.1, 5.2.2.1.1

E

8 marks

(i) A carrier picks up 250 kg of clinical waste unspecified from a medical centre. Explain why it is not necessary to display orange plates on the vehicle.

UN 3291 is assigned to transport category 2 for which the small load threshold according to 1.1.3.6 is 333 kg. As the vehicle is operating below this threshold, it is exempt from Chapter 5.3 which mandates the use of orange plates in 5.3.2.

(ii) A small courier van picks up a category A specimen from the same medical centre. Explain why the van must display orange plates

Category A human specimens are assigned to UN 2814 to which transport category 0 applies. This does not allow any exemptions from the requirement of ADR and thus the requirement to display 2 blank orange plates apply.

Ref: ADR 3.2.1 Table A columns 1 15, 1.1.3.6.3, 1.1.3.6.2

F When a driver arrives at a large Dublin hospital to pick up a container with 5 tons of clinical waste unspecified the DGSA asks to see their ADR license. 6 marks

(i) State two problems with the license presented below

ADR DRIVER TRAINING CERTIFICATE

**

1. (CERTIFICATE No.)1234
2. (SURNAME)Smith
3. (OTHER NAME(S)) John
4. (DATE OF BIRTH 01/04/1976
5. (NATIONALITY) Irish
6. (DRIVER SIGNATURE) *John Smith*
7. (ISSUING BODY) CILT
8. VALID TO: 14/06/2014

VALID FOR CLASS(ES) OR UN Nos.:

TANKS

OTHER THAN TANKS

9. (Enter Class

or UN Number(s))*

10. (1, 2, 3, 4.1, 4.2, 4.3, 5.1, 5.2,

6.1, 7, 8, 9)

The license expired in 2014

Class 6.2 is not covered by the license

(ii) What is the fixed payment in lieu of prosecution for the driver failing to have a valid license with them?

100 euro

Ref ADR 8.2.2.8.5, CDGRR Schedule 2, Part 3 offence 33

G The vehicle picking up the waste is only equipped with one 2kg extinguisher. Is this acceptable? 4 marks

Yes, S3 associated with UN3291 exempts from the requirement to carry additional fire-fighting equipment other than a 2 kg extinguisher for the cab

Ref ADR 3.2.1 Table A Columns 1, 19, 8.5 S3, 8.1.4.1

H After delivering the category A sample the driver of the courier van notices that a spillage occurred and the bulkhead between the driver and load compartment, which is made of wood, may have been contaminated. What should be done with this bulkhead? 2 marks

It should be removed and burned.

Ref ADR 3.2.1 Table A Columns 1 18, 7.5.11 CV 26

Q2 A company in Antwerp, Belgium wishes to ship Helium refrigerated liquid in a 40,000L ADR fixed tank to a customer in Ireland

A 4 marks

- (i) State the UN number, class and classification code of the substance
UN 1963, Class 2, Classification code 3A
- (ii) Explain the meaning of the classification code
3 = refrigerated liquified gas which is made partially liquid because of the low temperature that it is carried at
A = an asphyxiant gas

Ref ADR 3.2.2 Table B, 3.2.1 Table A columns 1,3a, 3b,2.2.2.1,2, 2.2.2.1.3

B 4 marks

- (i) Can it be carried in an ADR fixed tank?
Yes, it is allowed in a RxBN tank
- (ii) Explain this ADR tank code
R = tank for refrigerated liquified gases
X = the minimum relevant test pressure for the gas according to table 4.3.3.2.5
B = bottom filling/discharge with 3 closures
N = tank fitted with a safety valve that is not hermetically sealed i.e. spring loaded valve

Ref ADR 3.2.1 Table A columns 1 & 12, 4.3.1.1

C 5 marks

- (i) What is the maximum degree of filling allowed?
98% as per TU19
- (ii) The tank is not baffled and has been filled to 70% capacity. Is this allowed?
Yes, UN 1963 is specifically excluded for the general <20, >80% rule

Ref ADR 3.2.1 Table A columns 1 13, 5.3.5 TU 19, 4.3.2.2.4

D 5 marks

- (i) What is the definition of holding time?
Holding time means the time that will elapse from the establishment of the initial filling condition until the pressure has risen due to heat influx to the lowest set pressure of the pressure limiting device(s) of tanks intended for the carriage of refrigerated liquefied gases.
- (ii) What information must be added to the transport documents in relation to holding times?
The end of the holding time must be shown in the format dd/mm/YYYY

Ref [ADR 1.2.1, 5.4.1.2.2\(d\)](#)

E In relation to the tank 6 marks

(i) What is the interval between periodic inspections?

[Initial after 6 years and every 12 years thereafter](#)

(ii) What is the interval between intermediate inspections?

[12 years i.e. 6 years after each periodic inspection](#)

(iii) Under what circumstance may the hydraulic pressure test of a vacuum-insulated tank be replaced by a leakproof test?

[If an approved expert grants their consent and the vacuum is measured](#)

(iv) What is the minimum test pressure for the leakproof test?

[90% of the maximum working pressure](#)

Ref [ADR 6.8.1.2, 6.8.3.4.6, 6.8.4.3.7, 6.8.3.4.9](#)

F What placards and plates must be applied to the tank vehicle? 4 marks

[No 2.2 placards at the rear and sides of the tank.](#)

[As the vehicle is carrying a single substance it is sufficient to display numbered plates at the front and rear of the vehicle displaying the numbers 22 & 1963](#)

Ref [ADR 3.2.1 Table A, Columns 1, 5, 20, 5.3.1.1.1, 5.3.1.4.1, 5.3.2.1.6](#)

G The supplier intends to ship multiple consignments and in assessing the suitability of Dublin port has determined that the Dublin Tunnel is a category C tunnel 3 marks

Will the vehicle be allowed to enter the tunnel?

[No, the tunnel code assigned to the substance is \(C/E\) and thus tanks carrying this substance are not allowed to enter the tunnel](#)

Ref [ADR 3.2.1 Table A columns 1 & 15, 8.6.4](#)

H 4 marks

(i) What type of vehicle is required to carry the substance?

[AT vehicle](#)

(ii) How often must the vehicle be subjected to a technical inspection?

[Annually](#)

(iii) What is the purpose of a battery master switch?

To isolate the battery from the electrical circuits

Ref ADR 3.2.1 Table A Columns 1 & 14, 9.1.2.3, 9.2.2.8.1

Q3 A supply company distributes janitorial cleaning products in IBCs, drums to various customers.

A 6 marks

(i) One of the products is a caustic alkali liquid. What is the class, UN number and classification code?

Class 8

UN 1719

Classification code C5

(ii) They also distribute flammable corrosive aerosols. What is their class, UN number and classification code:

Class 2

UN 1950

Classification code 5FC

Ref ADR 3.2.2 Table B, 3.2.1 Table A Columns 1, 3a, 3b

B 5 marks

(i) One of the caustic alkali liquids is assigned to packing group III and is transported in 31HH2 IBCs. Is this allowed? Explain your answer.

Yes, UN 1719 PG III has the IBC packing instruction IBC03 and this permits the use of 31HH2 IBCs

(ii) They also supply the caustic alkali liquid as packing group II strength liquid. Can the same IBC be used for this material? Explain your answer.

No, IBC instruction IBC02 applies to UN 1719 PG II and does not allow the use of 31HH2 IBCs

Ref ADR 3.2.1 Table A columns 1, 4, 8, 4.1.4.2, IBC02, IBC03

C 6 marks

(i) A customer orders a 1,100 L IBC of the packing group III material. Does the delivery driver need an ADR licence? Justify your answer.

Yes. It is assigned to transport category 3 for which the small load threshold is 1000 L. As it is above this threshold none of the small load exemptions in 1.1.3.6 apply and thus the driver is required to have an ADR driver license

- (ii) Another customer orders 40 x 20L jerricans of the Packing group II strength material. Does the delivery driver need an ADR licence? Justify your answer.

Yes. The packing group II material is assigned to transport category 2 for which the small load threshold is 333 L. The quantity carried is 800L which is above this, and thus small load exemptions do not apply and thus the driver requires an ADR license.

Ref ADR 3.2.1 Table A columns 1, 4, 15, 1.3.6.2, 1.3.6.3

D 6 marks

- (i) What are the standard dimensions of the orange plates that need to be displayed on the transporting vehicle?
Blank orange plates 40 cm base by 30 cm high with a black border 15 mm wide
- (ii) Where on the vehicle must the plates be located?
One at the front and one at the rear of the carrying vehicle
- (iii) What must be done with the plates when the goods have been delivered and there are no longer any dangerous goods on board the vehicle?
They must be removed or covered.
- (iv) If the plates are covered, what requirements apply to the covering in the event of a fire?
They must remain effective after 15 minutes engulfment in a fire

Ref ADR 5.3.2.2.1, 5.3.2.1.1, 5.3.2.1.8

E The goods are transported in a 5 ton vehicle 4 marks

- (i) What is the minimum total capacity of fire extinguishers required to be carried in the vehicle?
8 kg
- (ii) What is the minimum capacity of the fire extinguisher required for the cab?
2 kg
- (iii) What is the minimum capacity of the additional fire extinguisher?
6 kg
- (iv) What marks must be displayed on the fire extinguishers to show that it is still safe to use?
A mark showing the date of the next inspection or of the maximum permissible period of use
- (v) What standard is applicable to the fire extinguishers. You may be brief in your answer.
EN 3 Portable fire extinguishers

Ref ADR 8.1.4.1, 8.1.4.4, 8.1.4.3

F Is a emergency escape mask required when carrying the goods? 3 marks

No, an emergency escape mask is only required for carriage of good bearing danger label nos 2.3 or 6.1

Ref ADR 8.1.5.3

G They also provide a service where they take back the used aerosol cans which will then be sent for disposal packaged in accordance with LP 200 and special provision 327. What precautions are required in the event that liquid may escape for the aerosols? 2 marks

There must be a means of retaining any free liquid that may escape during carriage e.g. by including absorbent material

Ref ADR 3.2.1 Table A Columns 1, 9a, 4.1.4.2 LP200, L2

H Can a vehicle with a closed box body be use to transport the waste aerosols in the large packaging which typically weigh 40 kg? 3 marks

No, as the quantity of aerosols exceeds the small load threshold (20 kg for transport category 1 – aerosols are articles and thus the threshold is based on weight) special provision V14 applies which requires the use of ventilated or open vehicles or containers.

Ref ADR3.2.1 Table A columns 15, 16, 1.1.3.6, 7.2.4 V14