



**UTHM**

Universiti Tun Hussein Onn Malaysia

**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESI 2018/2019**

COURSE NAME : OCCUPATIONAL SAFETY AND HEALTH  
COURSE CODE : BNJ 21102/ BNQ 20302  
PROGRAM CODE : BNL/BNH/BNM/BNK/BNG/ BNN  
EXAM DATE : JUNE / JULY 2019  
DURATION : 2 HOURS  
INSTRUCTION : ANSWER **FOUR (4)** QUESTION ONLY

THIS QUESTION PAPER CONSISTS OF **FOURTEEN (14)** PAGES

**TERBUKA**  
**CONFIDENTIAL**

- Q1 (a) Compare the duty of employer, employee, designer and manufacturer. (10 marks)
- (b) Carried out a Safety and Health Program based on the occupational safety and health policy given in **Figure Q1 (b)**. (15 marks)

**AMMAR**  
TEKNIK

**AMMAR TEKNIK SDN BHD**  
(575167 - M)

**OCCUPATIONAL SAFETY & HEALTH POLICY**

AMMAR TEKNIK SDN. BHD. IS COMMITTED TO THE PROTECTION OF ITS RESOURCES, SPECIFICALLY THE EMPLOYEES AND PHYSICAL ASSETS, AGAINST HUMAN DISTRESS AND FINANCIAL LOSS RESULTING FROM ACCIDENTAL OCCURRENCES.

IN FULFILLING THIS COMMITMENT, WHICH IS ESSENTIAL TO AND EQUALLY IMPORTANT AS PRODUCTION AND QUALITY OBJECTIVES, EVERY REASONABLE EFFORT WILL BE MADE AND POSITIVE MEASURES TAKEN TO SECURE THE HEALTH, SAFETY AND WELFARE OF ALL PERSONNEL AND PROTECT THE PUBLIC AND ENVIRONMENT AGAINST FORESEEABLE HAZARDS RESULTING FROM OUR CONSTRUCTION OPERATIONS.

Our Objectives are:-

- ◆ TO DEVOTING A CONTINUOUS EFFORT TO ACCIDENT PREVENTION
- ◆ TO PROVIDING COMPETENT AND EFFECTIVE SUPERVISION OF WORK AND TO ASSIGN CLEARLY TO EACH SUPERVISORS AND SUPERVISED, REGARDLESS OF LEVEL, THEIR RESPONSIBILITY ON OCCUPATIONAL SAFETY AND HEALTH AS A FUNDAMENTAL PART OF THEIR DUTIES.
- ◆ ELIMINATION OF HAZARDS.
- ◆ TRAINING OF SUBORDINATES IN THE PROPER USE OF EQUIPMENT AND SAFE WORKING PRACTICES.
- ◆ SAFETY INSPECTION SYSTEM WILL BE CARRIED OUT BY SAFETY OFFICERS TO DETERMINE COMPLIANCE OF THE ESTABLISHED PROGRAMS AND TO PRODUCE A PROPER SAFETY RECORD
- ◆ ALL MEMBERS OF THE WORKFORCE, INCLUDING MANAGEMENT AT ALL LEVELS HAS THE RESPONSIBILITY TO ENFORCE THROUGHOUT THE COMPANY'S PROJECTS AND OPERATIONS
- ◆ DEVELOPMENT OF SAFETY CONSCIOUSNESS AND THE SECURING OF FULL COOPERATION FOR THE ATTAINMENT OF THESE SAFETY OBJECTIVES.
- ◆ TO PROTECT THE COMPANY ASSETS, PUBLIC AND ENVIRONMENT LOSS.

WE FIRMLY BELIEVE THAT OUR SAFETY POLICY CONTRIBUTES TO QUALITY EFFICIENCY AND THE SUCCESS OF OUR BUSINESS

*[Signature]*  
Project Manager

"Your Trusted Team"

*[Signature]*  
Managing Director  
Date: 01/05/2013

Figure Q1 (b): Health and Safety Policy

**Q2** (a) In a risk assessment process, there has guideline under DOSH Malaysia called HIRARC. Interpret the HIRARC based on :-

- (i) Hazard Identification
- (ii) Risk Assessment
- (iii) Risk Control

(9 marks)

(b) Illustrate the Risk Matrix Table based on HIRARC Guidelines 2008 established by DOSH. Elaborate the information regarding :-

- (i) Matrix 5 x 5
- (ii) Likelihood and severity
- (iii) Risk Estimation
- (iv) Colour

(16 marks)

**Q3** (a) Explain in detail :-

- (i) Physical Injury
- (ii) Economic Argument
- (iii) Humanitarian Argument

(10 marks)

(b) There were numerous major industrial accidents that have contributed significantly to the evolution of occupational safety and health. Lessons learnt from those incidents have initiated more stringent precautionary and preventive measures. Interpret the implications and contributing factors of each tragedy in table **Table Q3 (b)**.

**Table Q3 (b): Major Industrial Accidents**

No.	Tragedy	Implications	Contributing factors
1.	Piper Alpha Tragedy		
2.	Bhopal Tragedy		
3.	Chernobyl Disaster		
4.	Hawks Nest Tragedy		
5.	Bright Sparkles		

(15 marks)



**Q4** (a) List the classification of hazard and given the example each of the hazard. (10 marks)

(b) Evaluate the occupational safety and health issue based on SDS given in appendix based on:-

- (i) PPE
- (ii) ERP
- (iii) Environmental Risk
- (iv) Handling
- (v) Control

(5 marks)

(c) Explain the technique to reduce the occupational disease and occupational poisoning based on the DOSH reported data.

**Table Q4 (c) : Total Number of Investigation Cases of Occupational Diseases and Poisoning from 2005 to 2009**

No.	Types of Diese	2005	2006	2007	2008	2009
1.	Occupational Lung disease (OLD)	51	38	50	56	57
2.	Occupational Skin Disease (OSD)	57	30	192	70	53
3.	Occupational Noise Hearing Loss (NIHL)	190	106	120	169	427

(10 marks)

- Q5** (a) NADOOPOD is a regulation under the OSHA 1994. Summarize the NADOOPOD and its function under the law. (5 marks)
- (b) In your workplace there has an accident which involves fatality case. One of your works doing welding process and suddenly the Argon tank was explode. Analyse the case and fill the report form. (5 marks)
- (c) In other department, the local exhaust ventilation was off because the fan was not function. Chemical content in of the room has spread out to the whole room. One you're your staff has collapse after inhaled a Benzene. Analyse the case and fill the report form. (5 marks)
- (d) Based on the **Q5(b)** and **Q5(c)**, evaluate the incident and how to prevent it in the near future. Evaluate what are the contributing factors that were involved based on :- (10 marks)
- (i) Human Factors
  - (ii) Management
  - (iii) Environment

- END OF QUESTIONS -

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**Sulfuric Acid, 3M**

**SECTION 1 : Identification of the substance/mixture and of the supplier**

**Product name :** Sulfuric Acid, 3M

**Manufacturer/Supplier Trade name:**

**Manufacturer/Supplier Article number:** 525899

**Recommended uses of the product and uses restrictions on use:**

**Manufacturer Details:**

AquaPhoenix Scientific  
9 Barnhart Drive, Hanover, PA 17331

**Supplier Details:**

Fisher Science Education  
15 Jet View Drive, Rochester, NY 14624

**Emergency telephone number:**

Fisher Science Education    Emergency Telephone No.: 800-535-5053

**SECTION 2 : Hazards identification**

**Classification of the substance or mixture:**



**Health hazard**  
Skin corrosion, category 1A  
Serious eye damage, category 1

Corrosive to metals, category 1

skin corr./irrit. 1A

Corrosive to metals. 1

Eye corr. 1

**Signal word :** Danger

**Hazard statements:**

May be corrosive to metals

Causes severe skin burns and eye damage

Causes serious eye damage

**Precautionary statements:**

If medical advice is needed, have product container or label at hand

Keep out of reach of children

Read label before use

Wear protective gloves/protective clothing/eye protection/face protection

Wash ... thoroughly after handling

Do not breathe dust/fume/gas/mist/vapours/spray

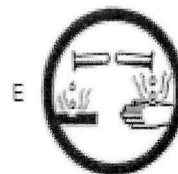
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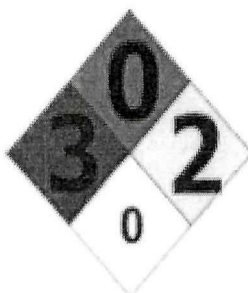
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
 Specific treatment (see ... on this label)  
 Absorb spillage to prevent material damage  
 Store locked up  
 Dispose of contents/container to ...

**Other Non-GHS Classification:**

**WHMIS**



**NFPA/HMIS**



NFPA SCALE (0-4)

Health	3
Flammability	0
Physical Hazard	0
Personal Protection	X

HMIS RATINGS (0-4)

**SECTION 3 : Composition/information on ingredients**

<b>Ingredients:</b>		
CAS 7664-93-9	Sulfuric Acid, ACS	31.004 %
CAS 7732-18-5	Water	68.996 %
Percentages are by weight		

**SECTION 4 : First aid measures**

**Description of first aid measures**

**After inhalation:** Loosen clothing as necessary and position individual in a comfortable position. Move exposed to fresh air. Give artificial respiration if necessary. If breathing is difficult give oxygen. Get medical assistance if cough or other symptoms appear.

**After skin contact:** Rinse/flush exposed skin gently using soap and water for 15-20 minutes. Seek medical advice if discomfort or irritation persists.

**After eye contact:** Protect unexposed eye. Rinse/flush exposed eye(s) gently using water for 15-20 minutes. Remove contact lens(es) if able to do so during rinsing. Seek medical attention if irritation persists or if concerned.

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**SECTION 5 : Firefighting measures****Extinguishing media**

**Suitable extinguishing agents:** Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

**For safety reasons unsuitable extinguishing agents:**

**Special hazards arising from the substance or mixture:**

Thermal decomposition can lead to release of irritating gases and vapors.

**Advice for firefighters:**

**Protective equipment:** Wear protective eyewear, gloves, and clothing. Refer to Section 8. Use NIOSH-approved respiratory protection/breathing apparatus.

**Additional information (precautions):** Avoid inhaling gases, fumes, dust, mist, vapor, and aerosols. Avoid contact with skin, eyes, and clothing.

**SECTION 6 : Accidental release measures****Personal precautions, protective equipment and emergency procedures:**

Ensure adequate ventilation. Ensure that air-handling systems are operational.

**Environmental precautions:**

Should not be released into environment. Prevent from reaching drains, sewer, or waterway.

**Methods and material for containment and cleaning up:**

Wear protective eyewear, gloves, and clothing. Refer to Section 8. Always obey local regulations. Containerize for disposal. Refer to Section 13. If necessary use trained response staff or contractor. Evacuate personnel to safe areas. Keep in suitable closed containers for disposal.

**Reference to other sections:****SECTION 7 : Handling and storage****Precautions for safe handling:**

Avoid contact with skin, eyes, and clothing. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Follow proper disposal methods. Refer to Section 13. Do not eat, drink, smoke, or use personal products when handling chemical substances.

**Conditions for safe storage, including any incompatibilities:**

Store in a cool location. Keep away from food and beverages. Protect from freezing and physical damage. Provide ventilation for containers. Keep container tightly sealed. Store away from incompatible materials.

**SECTION 8 : Exposure controls/personal protection**





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**SECTION 10 : Stability and reactivity**

**Reactivity:**Nonreactive under normal conditions.  
**Chemical stability:**Stable under normal conditions.  
**Possible hazardous reactions:**None under normal processing.  
**Conditions to avoid:**Incompatible materials.  
**Incompatible materials:**Organics, Metals, Chlorates, Alkalines, Carbides, Fulminates, Reducing agents, Nitrates, Acetic acid, Oxidizing agents  
**Hazardous decomposition products:**Oxides of sulfur.

<b>Acute Toxicity:</b>		
<b>Inhalation:</b>	510 mg/m3 2 h	Inhalation LC50 Rat
<b>Oral:</b>	2140 mg/kg	Oral LD50 Rat
<b>Chronic Toxicity:</b> No additional information.		
<b>Corrosion Irritation:</b> No additional information.		
<b>Sensitization:</b>	No additional information.	
<b>Single Target Organ (STOT):</b>	No additional information.	
<b>Numerical Measures:</b>	No additional information.	
<b>Carcinogenicity:</b>	No additional information.	
<b>Mutagenicity:</b>	No additional information.	
<b>Reproductive Toxicity:</b>	No additional information.	

**SECTION 12 : Ecological information**

**Ecotoxicity**  
**Freshwater Fish:** 96 Hr LC50 Brachydanio rerio: >500 mg/L [static]  
**Fish:** LC50 - Gambusia affinis (Mosquito fish) - 42 mg/l - 96 h  
**Invertebrates:** EC50 - Daphnia magna (Water flea) - 29 mg/l - 24 h  
**Persistence and degradability:**  
**Bioaccumulative potential:**  
**Mobility in soil:**  
**Other adverse effects:**

**SECTION 13 : Disposal considerations**

**Waste disposal recommendations:**  
 Contact a licensed professional waste disposal service to dispose of this material. Dispose of empty containers as unused product. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11). Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification.

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**SECTION 14 : Transport information****UN-Number**

1830

**UN proper shipping name**

Sulfuric Acid Solution

**Transport hazard class(es)****Class:**

8 Corrosive substances

**Packing group:II****Environmental hazard:****Transport in bulk:****Special precautions for user:****SECTION 15 : Regulatory information****United States (USA)****SARA Section 311/312 (Specific toxic chemical listings):**

Acute, Chronic

**SARA Section 313 (Specific toxic chemical listings):**

7664-93-9 Sulfuric Acid

**RCRA (hazardous waste code):**

None of the ingredients is listed

**TSCA (Toxic Substances Control Act):**

All ingredients are listed.

**CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):**

7664-93-9 Sulfuric Acid 1000 lbs

**Proposition 65 (California):****Chemicals known to cause cancer:**

None of the ingredients is listed

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed

**Chemicals known to cause developmental toxicity:**

None of the ingredients is listed

**Canada****Canadian Domestic Substances List (DSL):**

All ingredients are listed.

**Canadian NPRI Ingredient Disclosure list (limit 0.1%):**

None of the ingredients is listed

**Canadian NPRI Ingredient Disclosure list (limit 1%):**

None of the ingredients is listed

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**SECTION 16 : Other information**

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. Note: The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

**GHS Full Text Phrases:****Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods

PNEC: Predicted No-Effect Concentration (REACH)

CFR: Code of Federal Regulations (USA)

SARA: Superfund Amendments and Reauthorization Act (USA)

RCRA: Resource Conservation and Recovery Act (USA)

TSCA: Toxic Substances Control Act (USA)

NPRI: National Pollutant Release Inventory (Canada)

DOT: US Department of Transportation

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

DNEL: Derived No-Effect Level (REACH)

**Effective date** : 02.15.2015**Last updated** : 03.19.2015

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**JKKP 6 - PEMBERITAHUAN MENGENAI KEMALANGAN/KEJADIAN BERBAHAYA**  
**PERATURAN-PERATURAN KESELAMATAN DAN KESEHATAN PEKERJAAN (PEMBERITAHUAN MENGENAI KEMALANGAN, KEJADIAN BERBAHAYA, KERACUNAN PEKERJAAN DAN PENYAKIT PEKERJAAN) 2004**

**Bahagian A - Maklumat Pemberitahu**

Pemberitahu - Peraturan B (1) & (2) Majikan

Nama

Jawatan

Nama & Alamat Organisasi

No. ROC

No. Pent. JKKP

Orang yang boleh dihubungi (jika lain dari atas)

No. Telefon

Kod Klasifikasi Industri (Jadual 3)

**Bahagian B - Orang yang terlibat**

(Jika lebih dari seorang, sila gunakan borang tambahan bagi setiap orang terlibat)

Nama

Tarikh Lahir

No. K/P atau No. Paspor

Warganegara

Jantina	<input type="checkbox"/>	L	<input type="checkbox"/>	P
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Pekerjaan

Nama & Alamat Organisasi

Tempat Kejadian

Tarikh dan Masa Kejadian

Tarikh Mula Lapar kepada JKKP

**Bahagian C - Huraian kemalangan atau kejadian berbahaya**

Sila huraikan apa yang berlaku sebelum, semasa dan selepas kejadian.



Tanda Tangan Pemberitahu

Tarikh

**Penafian**

Mengisi borang ini tidak menjadikan pengakuan ke atas sebarang liabiliti oleh orang yang mengisi borang.

**TERBUKA**

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JKKP 7

REPORT FOR OCCUPATIONAL POISONING / OCCUPATIONAL DISEASE OCCUPATIONAL SAFETY AND HEALTH
(NOTIFICATION OF ACCIDENT, DANGEROUS OCCURRENCE, OCCUPATIONAL POISONING AND OCCUPATIONAL DISEASE) REGULATION 2004

Part A1

Notifier - Regulation 7(1) Employer
(If more than one person please use separate form)

Name
Designation
Name & Address of Organisation
Contact Number
R.O.C. No. JKPP Reg. No.
Industrial Classification Code (Table 3)
Contact person (if different from above)

Part A2

Notifier - Regulation 7(2) Registered Medical Practitioner

Name
Designation
Address of Clinic / Hospital
Contact Number

Part B - Affected Person

Name
Date of Birth
NIRC/Passport No
Nationality Gender Male Female
Occupation
Name & Address of Organisation
Location of incident

Part C - Occupational Poisoning / Disease

Diagnosis / Provisional Diagnosis
Date of Diagnosis
Name and Address of Attending Doctor

Part D

Description of work that led to occupational poisoning/disease (Please describe any work done by the affected person which might have led to them getting the disease is thought to have been caused by exposure to an agent at work, e.g. a specific chemical - please state what that agent is)

[Large empty box for description of work]

[Signature line]

Signature of Notifier

[Date line]

Date

Disclaimer

Completing this form does not constitute to an admission of liability of any kind by the person making the report or by any other person(s)