

Name:

Enrolment No:



**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, December 2020**

**Course Name : HSE Challenges Petroleum Exploration**

**Semester : III**

**Programme Name : M. Tech. PE**

**Time : 03 Hrs**

**Course Code : HSFS 8012**

**Max. Marks : 100**

**Nos. of page(s) : 4**

**Instructions: Please attempt all questions from Section “A”, Section “B” and Section “C”**

**SECTION A : 30 Marks**

**1. Each Question will carry 5 Marks**

**2. Instruction: Complete the statement / Select the correct answer**

SN	Questions		
Q.1.	<p><b>Fill in the Blanks :</b></p> <p>i) ----- provide 100 % respiratory protection system.</p> <p>ii) The emergency situation arising in any section of one particular plant/area which is minor in nature and can be controlled within the affected section itself with the help of in-house shift staff is known as level ----- emergencies situation.</p> <p>iii) The training received by the new employees and contractors is called the .....training,</p> <p>iv) A ..... safety audit is of short duration (typically 2-3 hours) conducted by a two-men team using checklists to ensure the compliance of a particular procedure at a time.</p> <p>v) The provisions of Factories Act 1948 contained in different chapters on health, safety and welfare are administered by-----.</p>	5	CO1
Q.2.	<p><b>Write T &amp; F for the following</b></p> <p>i) Addition, deletion, alteration and relocation of equipment, piping, instruments, material of construction, insulation, cathodic protection, etc. irrespective of its magnitude is also referred as management of plant change.</p> <p>ii) Noise and vibration are the example physical hazards.</p> <p>iii) Synthetic gloves of various materials offer protection against heat and cold, are cut- and abrasive-resistant and may withstand some diluted acids.</p>	5	CO2

	<p>iv) Asset Manager, is head of the On-site emergency organization and is designated as the Chief Emergency Commander/Chief Emergency Coordinator (CEC) at Asset level.</p> <p>v) Industrial safety management is the branch of management which is concerned with ---- hazard from the industries.</p>		
<p>Q.3.</p>	<p>Write full from of following abbreviations:</p> <p>i) OISD .....</p> <p>ii) NORM.....</p> <p>iii) MSDs.....</p> <p>iv) MOC.....</p> <p>v) BOD &amp; COD-----</p>	<p>5</p>	<p>CO1</p>
<p>Q.4</p>	<p>Choose the correct answers:</p> <p>i) Produced water is an example of</p> <p>a) Physical hazard b) Chemical hazard d) Mechanical hazard e) None of these</p> <p>ii) ----- is a measure of the oxygen used by microorganisms to decompose this waste. If there is a large quantity of organic waste in the water supply, there will also be a lot of bacteria present working to decompose this waste.</p> <p>a) Biological oxygen demand c) Chemical oxygen demand</p> <p>d) Dissolve Oxygen e) None of these</p> <p>iii) OISD (Oil Industry Safety Directorate) is a technical directorate under the ----- that formulates and coordinates the implementation of a series of self regulatory measures aimed at enhancing the safety in the Oil &amp; Gas industry in India.</p> <p>a) Ministry of Environment and Petroleum b) Ministry of Petroleum and Natural Gas</p> <p>c) Ministry of Natural gas d) Ministry of Petroleum of India</p> <p>iv) Work permit are required for all the followings:</p> <p>a) Confined space work b) Surface excavation</p> <p>c) working at height d) all above</p>	<p>5</p>	<p>CO2</p>

	v) .....hard hats provide the highest level of protection against electrical hazards, with high- voltage shock and burn protection (up to 20,000 volts). They also provide protection from impact and penetration hazards by flying/falling objects.  a) Class A    b) Class B    c) Class C    d) All of the above		
Q.5.	Identify five principles of ergonomics which are used to reduced ergonomics hazards.	<b>5</b>	<b>CO2</b>
Q.6	List out any five Safety related Hazards Associated with Oil and Gas Extraction Activities	<b>5</b>	CO1
<b>SECTION B ( 10 x 5= 50 Marks)</b> <b>(Attempt all question from this section however internal choice is given Q.11)</b>			
Q.7.	To maintain hygienic conditions in the rural and urban environment, there is an urgent need for effective solid waste management. Explain any four methods which are useful for the disposal of solid waste pollution.	<b>10</b>	<b>CO3</b>
Q.8.	Describe various principle and functions of air pollution control equipment which are used to control particulate pollutants generated from industrial emission with well labelled diagram.	<b>10</b>	<b>CO4</b>
Q.9.	List out the objectives of HSE Audit and mention their types. What are the different types. Explain the methodology to be followed while conducting HSE audit in Petroleum Exploration.	<b>10</b>	<b>CO2</b>
Q.10	Explain various methods which are used for removal of dissolved solids from the effluent which are generated during drilling and production activities	<b>10</b>	<b>CO3</b>
Q.11	Create an emergency management plan/disaster management for an oil and gas installation for controlling emergencies.  <b>Or</b>  <b>Write short notes on-</b> <span style="float: right;"><b>(05+05=10Marks)</b></span>  a) Petroleum and Natural Gas Regulatory Board    b) Oil Industry Safety Directorate	<b>10</b>         <b>10</b>	<b>CO3</b>         <b>CO3</b>

**SECTION-C SECTION -C (2 x 20 = 20 Marks)**  
**Please attempt any one question from this section.**

Q.12	<p>When drilling effluents / waste water is discharged into a water bodies i.e. river, lake and sea, a number of process occur like physical, chemical and biological characteristics of water change which causes loss of organism and deterioration of water quality. Evaluate the various units of Primary, Secondary and Tertiary treatment of Effluent Treatment Plant with the help of well labeled diagram.</p> <p style="text-align: center;">Or</p> <p>Q.12. a) What are characteristics of Permit required confined space and non permit confined space as per OSHA standards ? Evaluate various parameters and characteristic of Class A, Class B and Cass C types of confined space. (5+ 5 = 10 Marks)</p> <p>a) Create a check list which you should considered for entry and working in permit required confined space. (10 Marks)</p>	20	CO4
		20	CO4