UNIVERSITY OF PETROLEUM & ENERGY STUDIES

UPES SAP ID No.: 40001862

UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM & ENERGY STUDIES
Examination, July 2020

Programme: B.Tech APE GAS **Semester : 6th**
Course Name: Production Engineering - II **Max. Marks : 100**
Course Code: PEAU 4013
No. of Pages: 05

Instructions: All question are compulsory.

Section – A: It has time duration is 2hrs.

Section - B: It has time duration is 24 hrs. The Students should clearly mention Student Name, SAP ID and Roll Number at top of the answer script for this section. The 50% marks will be deducted if plagiarism is found.

SECTION - A (Attempt all the questions) (60 × 1 marks)				
Sl. No.		**MCQs**	**Marks**	**CO**
Q.1	(a)	What parameters affecting the reservoir deliverability: a) Reservoir Pressure b) Permeability c) Wellbore radius d) All of these	**1**	**CO2**
	(b)	In water drive, little pressure drop in average reservoir pressure at: a) High production ratesb) Low production rates c) Medium production rates d) None of these	**1**	**CO2**
	(c)	In solution gas drive, high pressure drop in average reservoir pressure at: a) High production ratesb) Low production rates c) Medium production rates d) None of these	**1**	**CO2**
	(d)	The Inflow performance relationship curves totally depends upon the: a) Reservoir drive mechanisms b) Type of well completion c) Well perforation d) Both b and c	**1**	**CO2**
	(e)	For Corey type relationship, the value of n for consolidated sandstone is: a) 1 b) 2 c) 3 d) 4	**1**	**CO2**
	(f)	Linear relation between flow rate and pressure is observed in a) single phase reservoirb) Multiphase reservoir c) Both A & B d) None of These	**1**	**CO2**
	(g)	The hydrocarbon recovery from a producing well can be supplemented by: a) Water drive reservoir b) Gas Cap Drive c) Both A & B d) None of These	**1**	**CO2**
	(h)	The dissolved gas in oil will start to come out at: a) Below Bubble point pressure b) Dew point pressure c) Critical point d) All of these	**1**	**CO2**

	(i)	A dissolved gas drive reservoir is also known as a) Gas cap reservoir b) Solution gas drive reservoir c) Water drive d) both a) and b)	**1**	**CO2**
	(j)	Unit of Oil formation volume factor is. a) rb/stb b) stb/rb c) rb d) stb	**1**	**CO2**
	(k)	Which of the following represents a hydraulic pump a) Positive displacement pumps b) Jet pumps c) Screw pumps d) Both a and b	**1**	**CO2**
	(l)	Which type of artificial lift can easily handle sandy and abrasive formation fluids: a) ESPCP b) SRP c) Gas lift d) both a) and b)	**1**	**CO2**
	(m)	Which type of artificial lift is not plugged by paraffin, gypsum or scale: a) ESPCP b) SRP c) Gas lift d) None of the above	**1**	**CO2**
	(n)	Carryover indicates _____ in the oil and gas separator. a) High liquid level b) Low liquid level c) High gas level d) Low gas level	**1**	**CO2**
	(o)	Blowby indicates _____ in the oil and gas separator. a) High liquid level b) Low liquid level c) High gas level d) Low gas level	**1**	**CO2**
Q. 2	(a)	Artificial lift is a method used to lower the producing a) PI b) Formation Fluid density c) Bottomhole Pressure d) Reservoir Pressure	**1**	**CO3**
	(b)	Gas Lift is the gas injected into the tubing for a) Reducing the density of fluids b) Increasing the density of fluids c) No effect on density of fluids d) None of these	**1**	**CO3**
	(c)	"Carryover" is an operational problem in oil and gas separator. It is occur when: a) Free gas escapes with liquid phase b) Free liquid escapes with gas phase c) both a & b d) None of these	**1**	**CO3**
	(d)	"Blowby" is an operational problem in oil and gas separator. It is occur when: a) Free gas escapes with liquid phase b) Free liquid escapes with gas phase c) Both a) & b) d) None of these	**1**	**CO3**
	(e)	The process of creating holes in the casing that pass through the cement sheath and extend some depth into the formation: a) perforation b) fracturing c) Acidizing d) None of the above	**1**	**CO3**
	(f)	Which of the following is an example of major workover job? a) Replacement of leaking tubing b) Reperforation c) Installation of artificial lift system d) All of the above	**1**	**CO3**
	(g)	As per Schwartz method, which of the following criteria of gravel selection size ratio is considered for Non-uniform sand and with flow velocity greater than 0.05ft/s. a) D10 gravel = 6 times D10 sand b) D10 gravel = 6 times D10 gravel c) D40 gravel = 6 times D40 sand d) D40 gravel = 6 times D40 gravel	**1**	**CO3**
	(h)	What are the reasons for carrying out workover operation? a) Stimulation b) Cementing c) Zone transfer d) All of above	**1**	**CO3**
	(i)	If the uniformity coefficient is greater than 5 then sand is very non-uniform and describe by the size of sand is: a) D10 b) D60 c) D70 d) D40	**1**	**CO3**
	(j)	In sieve analysis, US mess size is increases then sieve opening size is: a) Increases b) Decreases c) Constant d) None of above	**1**	**CO3**
	(k)	Gas coning is related to: a) Gas supply in oil well b) Gas production from oil well c) gas condensation in oil well d) Gas injection in oil well	**1**	**CO3**

	(l)	What is the unit of the productivity index? a) STB/psi b) (STB/day)/psi2 c) STB/day-psi d) psi/(STB/day)	**1**	**CO3**
	(m)	Which of the following is the main cause of excessive water production in an oil well? a) Channeling b) Coning c) both a & b d) None of above	**1**	**CO3**
	(n)	Which of the following are the causes of sand production? a) Unconsolidated formation b) High production rate c) both a & b d) None of above	**1**	**CO3**
	(o)	Sand is uniform and described by the D10 size when uniformity coefficient is: a) less than 3 b) greater than 5 c) less than 6 d) greater than 6	**1**	**CO3**
Q.3	(a)	_____is the attraction of water from an adjacent connecting zone towards the wellbore due to reduced pressure caused by production. a) Water fingering b) water coning c) water channeling d) all of above	**1**	**CO1**
	(b)	Which of the following method is used to control sand production problem? a) Slotted Screen b) resin consolidation c) gravel packing d) all of above	**1**	**CO1**
	(c)	Which of the following method is not used to control sand production problem? a) Water shut-off b) resin consolidation c) gravel packing d) Slotted Screen	**1**	**CO1**
	(d)	The coning tendencies are inversely proportional to the _____ difference and are directly proportional to the _____. a) density, viscosity b) viscosity, density c) density, density d) viscosity, viscosity	**1**	**CO1**
	(e)	The mostly oil wells are perforated closer to _____ contact to avoid the conning. a) water-oil b) gas-oil c) both a & b d) none of these	**1**	**CO1**
	(f)	High permeability reservoirs shows _____ tendency for coning than low permeability reservoirs. a) high b) less c) both a & b d) none of these	**1**	**CO1**
	(g)	Thus due to minimum pressure drawdown in the near wellbore region, high-permeability reservoirs exhibit _____coning tendency. a) maximum b) minimum c) both a & b d) none of these	**1**	**CO1**
	(h)	The _____ is defined as the maximum rate at which oil is produced without production of gas or water. a) oil rate b) gas rate c) critical rate d) both a & c	**1**	**CO1**
	(i)	In isotropic reservoirs, where _____ is same in the vertical and horizontal directions. a) porosity b) permeability c) saturation d) none of these	**1**	**CO1**
	(j)	In anisotropic reservoirs, where permeability is _____in the vertical and horizontal directions. a) same b) maximum c) not same d) none of these	**1**	**CO1**
	(k)	If uniformity coefficient is greater than 10 which is described by the D70 size then sand is : a. Very non uniform b. non uniform c. uniform d. none of these	**1**	**CO1**
	(l)	The electrical submersible pump is a multistage: a) Centrifugal Pump b) Positive Displacement Pump c) Reciprocating Pump d) None of these	**1**	**CO1**
	(m)	The downhole pump acts a transformer to convert the energy into: a) Pressure in fluids b) Pressure in gas c) Pressure in oil d) None of these	**1**	**CO1**
	(n)	Fishing tools are the part of : a) Wellhead equipment b) Downhole equipment c) Wireline tools d) All of these	**1**	**CO1**
	(o)	The basic method of servicing a live well is: a) Wireline b) Workover fluid c) both a & b d) None of these	**1**	**CO1**
Q.4	(a)	Workover fluid is used to: a) Kill the well b) Activation of well c) damage the well d) None of these	**1**	**CO4**

	(b)	The Uniformity coefficient (C) is defined by : a) D40/D90 b) D90/D40 c) Both a & b d) None of these	**1**	**CO4**
	(c)	The term gravel size sand ratio has been given by Saucier means: a) G-S ratio = Largest gravel size/10 percentile sand size b) G-S ratio = 50 percentile gravel size/50 percentile sand size c) G-S ratio = 10 percentile gravel size/10 percentile sand size d) G-S ratio = Smallest gravel size/10 percentile sand size	**1**	**CO4**
	(d)	Which well have comparative more chances of water coning at high production rate: a) Horizontal well b) Vertical Well c) Both a & b d) None of these	**1**	**CO4**
	(e)	The term gravel size sand ratio has been given by Maly means: a) G-S ratio = Largest gravel size/10 percentile sand size b) G-S ratio = 50 percentile gravel size/50 percentile sand size c) G-S ratio = 10 percentile gravel size/10 percentile sand size d) G-S ratio = Smallest gravel size/10 percentile sand size	**1**	**CO4**
	(f)	Correlations that are used to solve the coning problem based on following parameters a) Critical rate calculations b) Breakthrough time prediction c) Well performance calculations after breakthrough d) All of these	**1**	**CO4**
	(g)	Coning can seriously impact on the a) Well productivity b) Overall recovery efficiency c) Influence the degree of depletion d) All of these	**1**	**CO4**
	(h)	The Meyer-Garder Correlations are used for determining the critical oil flow rate: a) Gas coning b) Water coning c) both gas and water coning d) None of these	**1**	**CO4**
	(i)	The Meyer-Garder Correlation is used for determining the critical oil flow rate: a) For Vertical Well b) For horizontal well c) both a & b d) None of these	**1**	**CO4**
	(j)	Coning is a term used to describe the mechanism underlying the _____ into the perforations of a producing well. a) Upward movement of water b) Downward movement of gas c) Both A & B d) None of these	**1**	**CO4**
	(k)	Sand production may be minimize by the _____. a) Chemical methods b) Mechanical methods c) Both a & b d) None of these	**1**	**CO4**
	(l)	Intermittent gas lift method is generally used on wells that produce: a) Low volume of fluid b) High volume of fluid c) both a & b d) None of the above	**1**	**CO4**
	(m)	Intermittent gas lift is recommended normally have the characteristics of: a) High PI and High BHP b) Low PI and low BHP c) Low PI and High BHP d) None	**1**	**CO4**
	(n)	Constant gas lift is recommended for: a) High PI and High BHP b) Low volume and Low BHP c) High volume & high static BHP d) both b & c	**1**	**CO4**
	(o)	Which of the following represents a hydraulic pump a) Positive displacement pumps b) Jet pump c) Screw pumps d) Both a and b	**1**	**CO4**

****

SECTION - B (Attempt all the questions) (4 × 10 marks)			
Q.5	Gravel packing play most important to control sand production in oil well. Write the practical aspects for the successful placement of gravel packing to control the sand production with the help of suitable diagram.	**10**	**CO3**
Q.6	Workover is used for the sick well to repair and increases the productivity of the well. Differentiate between conventional and non-conventional workover system in details.	**10**	**CO4**
Q.7	Artificial lift is used for lifting the wellbore fluid to the surface. Illustrate the electrical submersible progressive cavity pumping system (ESPCP) and write its advantages and disadvantages.	**10**	**CO4**
Q.8	The drive mechanism play most important role for the natural energy of the reservoir. Differentiate between water drive and solution gas drive.	**10**	**CO3**

****