eExam Question Bank

Coursecode:

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Question Type	Question	A	B	C	D	Answer	Remark
FBQ	The _____ law of thermodynamics discusses entropy.	second	2nd				eExam
FBQ	The conjugate acid of H_2O is H_3O^+. _____ (True or False)?	1	1				eExam
FBQ	The _____ scale of temperature has absolute zero for its zero point	Kelvin	Kelvin				eExam
FBQ	_____ is the amount of heat required to melt one gram of substance at its melting point.	latent heat of fusion	latent heat				eExam
FBQ	The pH of an aqueous solution which is 0.0020 M $HClO_4$ is _____	2.7	2.7				eExam
FBQ	For a reversible system at constant temperature the value of K_c increases if the concentration are changed at equilibrium. _____ (True or False)?						eExam
FBQ	Free energy change at equilibrium is _____	zero	0				eExam
FBQ	Only _____ substances can undergo electrolysis.	ionic	electrovalent				eExam

☐								
☐	FBQ	If more collisions can be made to take place in a given time, the rate of the reaction will [ ] __.	increase	increase				eExam
☐	FBQ	In order for a reaction to occur, the particles must [ ] _.	collide	collide				eExam
☐	FBQ	A high pH value means that the solution has a low concentration of H^{+}(aq) ions. [ ] (True/false)	1	1				eExam
☐	FBQ	If the rate of a reaction increases by a factor of 9 when the concentration of a reactant is tripled, then the reaction is [ ] _order with respect to that reactant.	second	2nd				eExam
☐	FBQ	If a hypothetical rate law is rate = $k[A]^2[B]^2$ what is the overall reaction order? [ ]	4	four				eExam
☐	FBQ	The temperature at which the motion of particles theoretically ceases is known as [ ] zero.	absolute	absolute				eExam
☐	FBQ	For a first order reaction, the rate of the reaction doubles as the concentration of the reactant(s) doubles. [ ] (True/false)	1	1				eExam
☐	FBQ	There are [ ] laws of thermodynamics	four	4				eExam
☐	FBQ	[ ] Variables are dependent on the mass of the material.	extensive	extensive				eExam
☐	FBQ	[ ] Variables are independent of the mass of material.	intensive	intensive				eExam

☐								
☐	FBQ	_____ system is a system in which both energy and matter can exchange with the surroundings.	open	open				eExam
☐	FBQ	The rate at which a substance takes part in a chemical reaction depends upon its _____ _.	concentration	concentration				eExam
☐	FBQ	Conductivity is inversely proportional to the degree of ionization of a weak electrolyte. _____ (true or false)						eExam
☐	FBQ	A solution of a weak acid and its salt is known as a _____ solution	buffer	buffer				eExam
☐	FBQ	According to the Bronsted-Lowry theory a base is an electron acceptor. _____ (True or false.)						eExam
☐	FBQ	In any Bronsted-Lowry acid-base equilibrium, there are invariably acid-base pairs. _____ (True or false.)	1	1				eExam
☐	FBQ	A catalyst makes a reaction more exothermic. _____ (True or false.)						eExam
☐	FBQ	Rate of reaction generally _____ with the rise of temperature.	increases	rises, increase, rise				eExam
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☐	FBQ	Rivers flowing from mountain to field shows decrease in entropy. _____ (true of false)						eExam

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☐	FBQ	1 mole of an ideal gas is heated at a constant pressure of 101.3 KPa, from 273.2 K to 373 K. The work involved is _____ J. (R = 8.314 J/mol/K)	831.4 J	831.4J, 831J, 831 J				eExam
☐	FBQ	1 g of ice will occupy _____ space than 1 g of water (less/more)	less	less				eExam
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☐	FBQ	The energy required to cook your meals is an extensive property; _____ (True or false)	1	1				eExam
☐	FBQ	Refractive index is an intensive propert; _____ _.(True or false)	1	1				eExam
☐	FBQ	The entropy of a pure crystal at 0 K is _____ J/K.	0	zero				eExam
☐	FBQ	For any process, the change in entropy of the universe equals the sum of entropy changes to the system and the _____ _.	sorroundings	sorrounding, environment				eExam

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☐	FBQ	The higher the pH, the _____ the acidity	lower	smaller, lesser				eExam
☐	FBQ	A substance that is capable of acting as both an acid and as a base is _____ __.	amphoteric	amphoteric				eExam
☐	FBQ	The conjugate base of HCl is _____	Cl-	chloride ion				eExam
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☐	FBQ	In the reaction: $2B \rightarrow Product$; the rate equation is: Rate = k[B]. If the concentration of 'B' is doubled, the rate of reaction will increase by a multiple of	two	2				eExam
☐	FBQ	A reaction catalyzed by light is called a reaction	photochemical	photocatalytic				eExam
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☐	FBQ	If ΔH = +119 kJ and ΔS = +263 J/K, the temperature at which the reaction becomes spontaneous is K	452	452 K, 452K				eExam
☐	FBQ	In a reaction in which the rate of the reverse reaction is equal to the rate of the forward reaction, a state of is attained.	equilibrium	dynamic equilibrium				eExam
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☐	FBQ	Every type of chemical bond contains a certain amount of energy. The total bond energy, which is essentially equivalent to the total potential energy of the system, is a quantity known as:	enthalpy	enthalpy				eExam

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☐	FBQ	Enthalpy and internal energy of a system are always identical. _____ (True or false?)						eExam
☐	FBQ	The first law of thermodynamics deals with _____	conservation of energy	energy conservation				eExam
☐	FBQ	A process taking place at constant pressure is termed _____	isobaric	isobaric				eExam
☐	FBQ	A process in which no heat is allowed to enter or leave a system is termed _____	adiabatic	adiabatic				eExam
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☐	FBQ	The zeroth law of thermodynamics is based on the concept of	thermodynamic equivalence	thermodynamic equivalence				
☐	MCQ	A beaker with a mixture of ice and water is maintained at equilibrium: $H_2O(s) + heat \rightarrow H_2O(l)$; If the temperature of the system is decreased:	Water freezes to form ice (shifts to the left)	Ice melts to form liquid water (shift to the right)	The container cacks	No change occurs	B	eExam
☐	MCQ	When extra NH_{3} is added to the following system at equilibrium: $3H_2(g) + N_2(g) \rightarrow 2NH_3$(g), what happens?	In order to restore equilibrium, the reaction shifts left, toward reactants	In order to restore equilibrium, the reaction shifts right, toward product	No change occurs	Concentration of hydrogen decreases, but that of hydrogen increases	A	eExam
☐	MCQ	The reaction below is exothermic: $2SO_2(g) + O_2(g) \rightarrow 2SO_3$(g). Le Chatelier's Principle predicts that _____ will result in an increase in the number of moles of SO_3 (g) in the reaction container.	removing some oxygen	decreasing the pressure	increasing the pressure	increasing the volume of the container	C	eExam

☐	MCQ	Equilibrium is a state of dynamic molecular behaviour, meaning that	the reaction eventually comes to a stop.	products continually turn into reactants at a progressively faster rate.	reactants turn into products and products turn into reactants at different rates.	reactants turn into products and products turn into reactants at equal rates	D	eExam
☐	MCQ	In general, the rate of a reaction can be increased by all the factors except	Increasing the activation energy	Increasing the temperature	Increasing the concentration of reactants	Using a catalyst	A	eExam
☐	MCQ	The factor that affects the rate of reaction is	Temperature of the reactants	Nature and concentration of the reactants	Catalyst	All of these	D	eExam
☐	MCQ	Rate of reaction is defined as the	Rate of change of conc. of product only	Rate of change of conc. of reactant only	Rate of change of concentration Of either reactant or product per unit time	None of the above	C	eExam
☐	MCQ	The term -dx/dt in a rate expression refers to the	instantaneous rate of the reaction	Average rate of the reaction	increase in concentration of the reactants	Change in concentration of the reactants with time	D	eExam
☐	MCQ	Powdered marble reacts more rapidly with HCl than the chips of marble because:	Surface area of powdered marble is more that of chips of marble and hence there is more collisions between the molecules of reactants	Number of molecules increases.	Energy of activation decreases	Marble chips will not react with HCl	A	eExam
☐	MCQ	Rusting of iron Is an example of_____ reaction	Slow	Fast	Moderate	explosive	A	eExam
☐	MCQ	In a reaction: $2A \rightarrow B + 2C$, which of the statement is true?	Rate of formation of B = Rate of disappearance of A	Rate of formation of C= Rate of formation of B	Rate of disappearance of A = Rate of formation of C	Rate of disappearance of A = Rate of formation of B	C	eExam
☐	MCQ	The reactions with the high value of energy of activation are	Fast	Slow	Moderate	Not feasible	B	eExam
☐	MCQ	For a reaction: $2H_2$ + 2NO \rightarrow 2$H_20 + N_2$ the rate law is R = $K[H_2][NO]^2$ The Order of the reaction is	0	3	2	1	B	eExam

☐	MCQ	Milk sours more rapidly in summer than in winter because	in summer, the temperature Is high due to which effective collisions increase and hence the rate of reaction becomes fast	in winter, number of molecules per unit volume increases and hence the rate of reaction becomes fast	in summer, the energy of activation decreases and hence the of reaction becomes fast	none of the above	A	eExam
☐	MCQ	Which of the following statements about the kinetics of the reaction H_2(g) + Br_2(g) \rightarrow 2HBr(g)$ is definitely true?	The reaction is first order with respect to bromine, Br_2.	The reaction is second order overall.	The presence of hydrogen bromide, HBr, inhibits the rate of the reaction	It is not possible to determine anything about the kinetics of the reaction from the stoichiometry.	D	eExam
☐	MCQ	Calculate the ΔH value of the reaction: $HCl + NH_3 \rightarrow NH_4Cl$ ΔH^o values for HCl, NH_3 and NH_4Cl are -92.30, -80.29 and -314.4 respectively	141.8	252.88	-486.99	-141.8	D	eExam
☐	MCQ	Which of the following statements about enthalpy is incorrect?	Enthalpy and internal energy of a system are always identical	enthalpy is a state function	ΔH is the enthalpy change at constant pressure	Reactions which absorb heat have a positive ΔH	A	eExam
☐	MCQ	Which of these followings would lead to an increase in the internal energy of a system?	Work done on the system	Work done by the system	Loss of heat from the system	Adiabatic expansion of the system	A	eExam
☐	MCQ	One mole of an ideal gas is heated at a constant pressure of 101300 $N m^{-2}$, from 273.2 K to 373 K. Calculate the work involved R = 8.314 J/mol/K).	8.314 J/mol	83.14 J/mol	831.4 J/mol	8314 J/mol	C	eExam
☐	MCQ	If a gas absorbs 1000 J of heat and expands by 0.5 dm^3 against a constant pressure of 4 atms (1 atm = 100000 Pa), then the change in internal energy is approximately	-800 J	800 J	1200 J	-1200 J	B	eExam
☐	MCQ	Which of the following expressions is associated with the law of conservation of energy?	dG = dH – TdS	q = mCdT	dE = q + w	H = E + PV	C	eExam
☐	MCQ	The first law of thermodynamics deals with	conservation of energy	thermodynamic equivalence	entropy	absolute zero temperature.	A	eExam

☐	MCQ	The molar heat capacity of Al is 24.4 $J/mol/^o$ C. How much heat energy is required to heat 100 g of Al from 20 ^{o} C to 80 ^oC? (Al = 27)	146000 J	30000 J	813000 J	5422 J	D	eExam
☐	MCQ	Which of these is true of an isochoric system?	Takes place at constant temperature	Heat is allowed into the system but not allowed out of the system	Volume remains constant	Pressure is not constant	C	eExam
☐	MCQ	Which of the following is not a state function?	enthalpy	entropy	work	free energy	C	eExam
☐	MCQ	The minimum additional energy, above the average internal energy, which the reacting molecules must possess so that their collision result in a reaction is known as	Kinetic energy	Threshold energy	Activation energy	Thermodynamic energy	C	eExam
☐	MCQ	Which of these is not an extensive property of a system?	Density	Mass	Volume	Energy	A	eExam
☐	MCQ	Which of the following statements is correct?	Temperature is an extensive property while heat is an intensive property	temperature is an intensive property while heat is an extensive property	both temperature and heat are intensive properties	both temperature and heat are extensive properties.	B	eExam
☐	MCQ	Which of the following statements describes an isolated system?	No exchange of matter and energy with the surrounding is possible	only exchange of matter with the surrounding is possible	only exchange of energy with the surrounding is possible	exchange of both matter and energy with the surrounding is possible	A	eExam
☐	MCQ	Which of the followings is not a type of system?	Closed	Open	Intensive	Isolated	C	eExam

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