

Name of the Student: _____

Max. Marks : 13 Marks

Time : 13 Minutes

Mark Schemes

Q1.

(a) (i) mol CH₄ = 0.75 1mol H₂O = 1.5 1mol H₂ = 1(.0) 1(ii) 0.15 (mol dm⁻³)
conseq = (mol CH₄)/5 1
 (b) (i)
$$\frac{[\text{CO}_2][\text{H}_2]^4}{[\text{CH}_4][\text{H}_2\text{O}]^2}$$
 not just numbers
 do not penalise ()
 If wrong Kc no marks for calc but allow units conseq to their Kc 1

 (ii)
$$\frac{(0.15)(0.25)^4}{(0.10)(0.48)^2}$$
 No marks for calc if concs used wrongly or wrong values inserted 1
0.025(4) 1mol² dm⁻⁶
allow 1 here for correct units from wrong Kc 1(c) increase
if wrong, no further marks in (c) 1M1 lower P 1M2 eqm shifts to side with more moles (Le Chatelier)
not "greater volume" for M1 but allow "moves to form a greater volume"
for M2

1

(d) (forward reaction is) endothermic or backward reaction is exothermic

1

eqm shifts in exothermic direction or to oppose reduction
of or change in temp

This mark must have reference to temp change or exothermic reaction

1

[13]