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UNIT IV

Que. A good fuel is_____.
A. Moderate ignition temperature
B. Cheap and readily available
C. High calorific value
D. All of the above
Ans.D

Que. Unit of Calorific value of a solid fuel in MKS system is_____.
A. Cal/g
B. Kcal/Kg
C. J/Kg
Cal/lit
Ans.B

Que. Calorific value of a good fuel is
_____.
A. High
B. low
C. Mild
D. None of the above
Ans.A

Que. Which of the following is a non renewable energy resource?
A. Solarenergy
B. Windenergy
C. Hydroelectric
D. Coal
Ans. D

Que. Full form ofGCVis_____.
A. Ground calorificvalue
B. Grace calorificvalue
C. Gross Calorificvalue
D. Gram calorific Value
Ans.C

Que. Relation between GCV & NCV is

A. GCV + NCV = 0.09H× (Latent heat of water vapour)
B. GCV= NCV +0.09H × (Latent heat of water vapour)
C. 0.09H (Latent heat of water vapour)=
NCV − GCV
D. None of the above
Ans.B

Que. Biogas is produced by anaerobic fermentation of biological materials.The main constituent of biogasis
_____.
A. Propane
B. Ethane
C. Butane
D. Methane
Ans.D

Que. Bomb calorimeter is used for finding calorificvalueof
_____Fuels.
A. Nonvolatile liquidfuel
B. Gaseousfuel
C. solidfuel
D. Both a and c above
Ans. D

Que. Boy's calorimeter gives the calorific value of_____.
A. Volatile liquid Fuel
B. Gaseousfuel
C. Both a andb
D. None of the above
Ans.C

Que. The texture of anthracite coal is _____.
A. Brownfibrous
B. Lustrousblack
C. Lustrousgreen
D. Dull grey
Ans.B

Que. Which type of coal contains C = 92- 95 % ?
A. Peat
B. Lignite
C. Anthracite
D. Bituminous
Ans.C

Que. Which of the following constituent

of a fuel does not contribute to its calorific value on combustion?
A. Hydrogen
B. Nitrogen
C. Carbon
D. Sulphur
Ans.B

Que. Principle of Bomb calorimeter is _____.
A. Total heat liberated by complete combustion of known amount of fuelis absorbed by known mass of water and copper calorimetervessel
B. Total heat liberated by complete combustion of known amount of fuelis eliminated by known mass of water in calorimeter
C. Total heat liberated by complete combustion of known amount of fuel is absorbed by known mass of kerosene in calorimeter
D. None of the above
Ans. A

Que. In Boy's gas calorimeter, burner is surrounded by chimney calledas _____
A. Combustionchamber
B. Upperchamber
C. Burningchamber
D. None of the above
Ans.A

Que. Which of the following gas has highest calorific value?
A. Sulphur
B. Nitrogen
C. Oxygen
D. Hydrogen
Ans.D

Que. Value of (L) latent heat of condensation of water vapour in cal/gm is

A.758
B.875
C.587
D.857
Ans. C

Que. Gross and Net calorific value of a fuel will bethesame_____.
A. If its ash content iszero.
B. If its carbon content is verylow
C. If its hydrogen/hydrogencompound content iszero.
D. None of the above
Ans.C

Que.Main constituent of natural gas is _____.
A. CH_4 (up to90%)
B. C_2H_6
C. C_3H_8
D. H_2
Ans.A

Que. Which of the following has lowest calorific value?
A. SolidFuel
B. Liquidfuel
C. Gaseousfuel
D. All of the above
Ans.A

Que.1Calorie=_____Joules A.4.887
B.4.187
C. 4.817
D. 4.008
Ans. B

Que. Beckmann's thermometer is capable of reading temperature up to _____°C. A.1/100
B. 1/10
C. 1/1000
D. none of the above
Ans. A

Que. In Boy's gas Calorimeter, spiral tube enclosed in a fully insulated jacket is made upof___
A. Brass
B. Zn
C. Cu
D. Alloy
Ans.C

Que. A coal contains 4% hydrogen and shows GCV = 7800 cal/gm then its NCV is _____
A. 8875cal/gm
B. 7588cal/gm
C. 5788cal/gm
D. 3005.8 cal/gm
Ans.B

Que.A coal has NCV = 7000 cal/gm and 5 % hydrogen, its gross calorificvalue is _____
A. 7400cal/gm
B. 6736cal/gm
C. 7936cal/gm
D. 7264 cal/gm
Ans.D

Que. If 0.5 gm of solid fuel on combustion in bomb calorimeter raises the temperature by 1.5 °C. If total water equivalence of calorimeter set including water is 2400 gm, the gross calorific value willbe_____
A. 3600cal/gm
B. 7200cal/gm
C. 4800cal/gm
D. none of these
Ans.B

Que. A good fuel should have _____moisture content.
A. veryhigh
B. high
C. moderate
D. low
Ans.D

Que. A good fuel should have _____ashcontent.
A. veryhigh
B. high
C. moderate
D. low
Ans. D

Que. A good fuel should have _____volatile mattercontent.
A. veryhigh
B. high
C. moderate
D. low
Ans.D

Que. Calorific value of a fuel is the total quantityof_liberated bycomplete

combustion of unit mass/volume ofthe
fuel
A. heat
B. colour
C. light
D. combustiongases
Ans.A

Que. Gross calorific value is the total amount of heat liberated, when unit mass/volume of the fuel is burnt completelyand_____
A. products of combustion are allowedto escape
B. products of combustion are allowedto cool to roomtemperature
C. products of combustion are filtered
D. none of these
Ans. B

Que. Net calorific value is the total amount of heat liberated, when unit mass/volume of the fuel is burnt completely and
_____
A. products of combustion are allowedto cool to roomtemperature
B. products of combustion are allowedto escape
C. products of combustion arefiltered
D. none of these
Ans.B

Que. A coal contains 5 % hydrogen, its net calorific value is 5320 cal/gm then the gross calorific value willbe_
A. 4561 cal/gm
B. 5108 cal/gm
C. 5584 cal/gm
D. 4967 cal/gm
Ans. C

Que.A coal gas GCV = 7800 cal / gm and 4 % hydrogen, its net calorific value __

A. 8857 cal /gm
B. 7588 cal /gm
C. 5788 cal /gm
D. 3005 cal / gm
Ans.B

Que.A liquid fuel 10 % H and latent heat of water is 2450 KJ/Kg.The difference between higher and lower calorific values of the fuelis _____
A. 2205KJ/Kg
B. 220KJ/Kg
C. 22KJ/Kg
D. 245 KJ/Kg
Ans.A

Que. GCV of a gaseous fuel was found to be 15000 kcal/m^3. If the mass of condensed steam is 0.02 Kg and the volume of gas used is 0.1 m^3at STP then NCV willbe
_____
A. 14882kcal/m^3
B. 13046kcal/m^3
C. 12053kcal/m^3
D. 11185 kcal/m^3
Ans.A

Que.If 0.5 gm of solid fuel on combustion in bomb calorimeter raises the temperature by 1.5 ℃ If total water equivalence of calorimeter set including

water is 2400 gm, the gross calorific value willbe__
A. 3600cal/gm
B. 7200cal/gm
C. 4800cal/gm
D. none of these
Ans.B

Que.Choose the correct options thatis true for a goodfuel
A. It should have low moisturecontent
B. It should have low volatile matter content
C. It should have low ashcontent
D. All ofthese
Ans.D

Que.A coal contains 60 % carbon,7 % hydrogen,5 % sulphur,1 % nitrogen and remainingash.If its NCV is 3230 cal/gm, then GCVis _____
A. 3556.98 cal/gm
B. 3599.8 cal/ gm
C. 3292.83 cal/gm
D. 3262.72 cal/gm
Ans. B

Que.A fuel containing 8 %hydrogen has GCV 5937 cal/gm, hence the net calorific value of the fuel willbe_____
A. 230.8 KJ/gm
B. 23.08KJ/gm
C. 26.09KJ/gm
D. 25.1 KJ/gm
Ans.B

Que. To get more accurate results the corrections considered while calculating the calorific value of a fuel by bomb calorimeterare___
A. coolingcorrection
B. fuse wirecorretion
C. acidcorrection
D. all of these
Ans.D

Que.The thermometer used to record temperature in a bomb calorimeteris _____
A. Beckmann's thermometer
B. Berkmand's thermometer
C. Bercker's thermometer
D. all of these
Ans.A

Que. While calculating GCV by a bomb calorimeter, fuse wire correction should be
A. multiplied
B. neglected
C. substracted
D. added
Ans.C

Que.While calculating GCV bya bomb calorimeter, cooling correction should be_
A. multiplied
B. neglected
C. substracted
D. added
Ans.D

Que. The calorific value is measured by_____
A. colorimeter
B. galvanometer
C. calorimeter
D. thermometer
Ans.C

Que. The relation used to find gross calorific value by Bomb calorimeteris

A. $\frac{(\square-\square)(\square 2-\square 1)}{\square}$ ///

B. $\frac{(\square+\square)(\square 2+\square 1)}{\square}$ ///

C. $\frac{(\square-\square)(\square 2+\square 1)}{\square}$ ///

D. $\frac{(\square+\square)(\square 2-\square 1)}{\square}$ ///

Ans. D

Que. The corrected formula ofgross calorific value by bomb calorimeteris

A. $\square\square\square=\frac{(\square+\square)(\square 2-\square 1-\square\square)-(\square\square+\square\square)}{\square}$ ///

$\square\square$

B.$\square\square\square=$

$\square\square$

$(\square+\square)(\square 2-\square 1+\square\square)+(\square\square+\square\square)$

$\square$

complete combustion of unit mass of the fuel

A. heat

B. products

C. onlyoxygen

D. combustion gases

Ans.A

Que. Types of calorific values are

A. GCV andHCV

B. GCV andNCV

C. NCV andLCV

D. none of these

Ans.B

□□□/

C. □□□= $\frac{(□+□)(□2-□1-□□)+(□□+□□)}{□}$ □□□/□□

D. □□□ = $\frac{(□+□)(□2-□1+□□)-(□□+□□)}{□}$ □□

Ans. D

Que. In the calculation of GCV ofa fuel by bomb calorimeter, cooling correctionis_____
A. added in the actual rise intemperature
B. substracted from the actual risein temperature.
C. multiplied from the actual rise in temperature.
D. divided from the actual rise in temperature.

Ans. A

Que. Calorific value of a fuel isthe total quantity of__liberated by

Que. Ignition temperature of a fuel should be_____
A. verylow

B. veryhigh
C. moderate
D. none ofthese

Ans. C

Que. A good quality of fuel shouldhave low moisture content becauseit_____
A. increases the weight of fuel
B. decreases calorific value
C. becomes tedious for storage and transportation
D. all of these
Ans. D

Que. Example of secondary fuel is
A. coke
B. Diesel
C. kerosene
D. all of these
Ans.D

Que. A good fuel shouldhave_____
A. moderate calorificvalue
B. high calorificvalue
C. low calorificvalue
D. no calorific value
Ans.B

Que. A good quality of fuel shouldhave low moisture content becauseit__
A. increases the weight offuel
B. decreases calorificvalue
C. becomes tedious for storageand transportation
D. all of these
Ans.D

Que. Which of the following is not expected from a good quality fuel?
A. high ashcontent
B. easy storage andtransportation
C. very high velocity ofcombustion
D. moderate ignitiontemperature
Ans.C

Que. Gaseous fuels are better thansolid fuelsbecause_____
A. they have very highignition temperature
B. air requirement is veryhigh
C. they produceash
D. they do not producesmoke
Ans.D

Que. Oxygen pressure in bomb pot is about_
A. 2.5atm
B. 0.25atm
C. 252atm
D. 25 atm
Ans.D

Que. Copper calorimeter is surrounded by air and water jackets toavoid_____
A. heat losses due toradiation
B. waterlosses
C. fuellooses
D. heat looses due toevaporation
Ans.A

Que. Acid corrections in bomb calorimeter occurs dueto __
A. CH_3COOH and$HCOOH$
B. H_2SO_4 andHNO_3
C. NaOH andH_2SO_4
D. HCl and KCl
Ans.B

Que. Which is not the requirement to determine GCV using Boy's calorimeter?
A. quantity of water(W)
B. initial temperature(t_1)
C. water equivalent of calorimeter(w)
D. final temperature (t_2)
Ans.C

Que. Bituminous coal burns wit.
A. Long smokyflame
B. Smoky yellowflame
C. Short non- smokyblue
D. None of the above
Ans.B

Que. Anthracite has_____of % Carbon.
A.55-65%
B.60-75%
C. 78-90 %
D. 92-96%

Ans. D

Que. Proximate analysis involves _____.

A. % Ash + %VM+%moisture
B. % C + % H + % O ofcoal
C. only % H ofcoal
D. only % C
Ans.A

Que. Moisture, ash content, volatile matter and fixed carbon are measuredfor quality of coal is/arepartof___.

A. Proximate analysis
B. Proximate analysis & UltimateAnalysis
C. Ultimate Analysis
D. None of the above
E. Ans.A

Que. The texture of anthracite coal is _____.

A. Brownfibrous
B. dark and lustrousblack
C. Lustrousgreen
D. Dull grey
Ans. B

Que. For determination of %Volatile Matter , coal sample is kept in muffle furnacefor.

A. 500° C, 5min
B. 725 °C, 5min
C. 100 °C, 8min
D. 925° C, 7 min
Ans.D

Que.For determination of %moisture , coal sample is kept in an oven for _____.

A. 500° C, 1 hour
B. 725 °C, 1/2 hour
C. 110 °C, 1 hour
D. 925° C, 1/2 hour
Ans. C

Que.For determination of % ash, coal sample is kept in muffle furnacefor _____.

A. 500° C, 30min
B. 750 °C, 30min
C. 100 °C, 30min
D. 925° C, 30min
Ans. B

Que.For determination of %Volatile Matter , coal sample is kept in muffle furnacefor___.

A. 200° C, 7min
B. 300 °C, 7min
C. 100 °C, 7min
D. 900° C, 7 min
Ans.D

Que. For determination of %moisture , coal sample is kept in an oven for

A. 500° C, 1 hour
B. 725 °C, 1hour
C. 110 °C, 1hour
D. 925° C, 1 hour
Ans.C

Que. For determination of % ash, coal sample is kept in muffle furnacefor _____.

A. 500° C, 20min
B. 750 °C, 30min
C. 100 °C, 20min
D. 925° C, 30min

Ans. B

Que. 1.4 gm of coal sample in Kjeldahl's experiment liberate ammonia absorbed in 50 ml 0.1N H_2SO_4. The resultant solution required 14 ml of 0.1 N NaOH for complete neutralization If blank titration reading is 25ml,find %N in
coal_____.
A.0.11
B. 0.011
C. 1.1
D.1.01
Ans. C

Que.% S estimation in a mass of coal is givenby___.
A. $\%\square=\frac{16\times\square\square\square h\square\square\square\square\square\square\square 4\times 100}{233\times\square}$
B. $\%\square=\frac{12\times\square\square\square h\square\square\square\square\square\square\square 4\times 100}{233\times\square}$
C. $\%\square=\frac{32\times\square\square\square h\square\square\square\square\square\square\square 4\times 100}{233\times\square}$
D. None of the above
Ans. C

Que.In Ultimate Analysis, %of Oxygen is givenby _
A. % O = 100 − (% C +% H+% S+%N+% Ash)
B. % O = 100− (% C +% H)
C. % O = 100− (% C +% S+% N)
D. % O = 100− (%H)
Ans. A

Que.In ultimate analysis, method used for determination of % S is knownas
A. Kjeldahls Method
B. Eschka Method
C. Dumas Method
D. None of the above
Ans.B

Que.If 2.02 g of coal is combusted in combustion tube. After passing the CO_2,increase in weight of KOH tube is 5.88 gm. Hence % C present in coal is _
A.71.39
B.74.39
C. 79.39
D. 77.39
Ans. D

Que.A coal sample weighing 1 gm, looses 0.09 gm weight on heating at 110 ° C for 1 hour. The moisture in the coal will be____
A. 0· 9
B. 9
C. 9· 1
D. 0.91
Ans. B

Que.1.0 gm of coal is heated to remove all moisture. Then the residual coal looses 0.21 gm weight when heated in muffle furnace at 950° C. The % of volatile matter in the coalis ___
A. 41.6
B. 21
C. 55
D. 56

Ans. B

Que.1 gm of coal containing 10 % moisture and if it looses 0.3 gm weight on heating at 950 °C. The % of volatile matter in the coal willbe____
A. 30
B. 20
C. 50
D. 40
Ans. B

Que.Analysis of coal is necessaryfor

A. Commercial classification
B. pricefixation
C. industrial utilisation
D. all of these

Ans.D

Que.A coal that burns with blue and intense flameis _____
A. Peat
B. Lignite
C. bituminous
D. anthracite

Ans.D

Que.In ultimate analysis, in caseof
% of Hydrogen,the gaseous products coming out of combustion tube are allowed to passthrough_____
A. preweighed U-tube containinganhydrous$CaCl_2$
B. preweighed U-tube containing magnesium perchlorate
C. both a andb
D. none of these

Ans.C

Que. In ultimate analysis, in case of
% of carbon, the gaseous products coming out of combustion tube are allowed to pass through____
A. preweighed U-tube containing sodium hydroxide
B. preweighed U-tubecontaining potassium hydroxide
C. both a andb
D. none of these

Ans.C

Que.In ultimate analysis of coal, sulphuris determined by converting itto

A. $CaSO_4$
B. $ZnSO_4$
C. $MgSO_4$
D. $BaSO_4$

Ans. D

Que. Amongst the various ranks ofcoal, carbon content is lowestin _____
A. Peat
B. semi-bituminouscoal
C. bituminouscoal
D. Anthracite

Ans. A

Que. The following rank of coal has highest moisture content
A. lignite
B. petrol
C. peat
D. Ethanol
Ans. C

Que. The highest rank of coalis _____
A. anthracite
B. lignite
C. peat
D. All of these

Ans. A

Que. Properties of anthraciteare_____
A. it is hard, dense and lustrous innature
B. it has very high calorificvalue
C. it burns withoutsmoke
D. All of these

Ans. D

Que. Increase in the weight of anhydrous $CaCl_2$ U-tube indicates the weight of

A. HClformed
B. H_2Oformed
C. CO_2formed
D. H_2SO_4formed

Ans.B

Que. Increase in the weight of KOH U- tube indicates the weightof

A. COformed
B. H_2Oformed
C. H_2O_2formed
D. CO_2formed

Ans.D

Que. The U-tube that absorbsCO_2contains solutionof_____

A. NaCl
B. KOH
C. KCl
D. H_2SO_4

Ans.B

Que. The U-tube which absorbs H_2O formed during combustion,contains

A. KOH
B. anhydrous$CaCl_2$
C. Magnesiumperchlorate
D. both b and c

Ans.D

Que. For ultimate analysis of nitrogen in a coal sample, the method usedis

A. combustion method
B. kjeldahl'smethod
C. Eschkamethod
D. Nernst'smethod

Ans. B

Que. Estimation of nitrogen by kjeldahl's method involves absorption of $(NH_4)_2SO_4$into

A. carbon
B. alkali
C. acid
D. Water

Ans. B

Que. In nitrogen estimation by kjeldahl's method, the unused acid is determined using NaOHby__

A. blanktitration
B. blacktitration
C. bigtitration
D. Back titration

Ans. D

Que. Which precipitate is obtained in Eschka method?

A. $BaCl_2$
B. $CaCl_2$
C. $CaSO_4$
D. $BaSO_4$

Ans. D

Que. When coal sample is kept in open lid crucible in muffle furnace at about 750° C temperature for half an hour, the component determined willbe____

A. %moisture
B. % volatilematter
C. %ash
D. % Fixed Carbon

Ans. C

Que. Match thefollowing

1. Bombcalorimeter	a. cetane number

2.boy'scalorimeter b.
solid and liquids
3.gasoline c.
volatile liquids
4. diesel d.
octane number
A. 1-a, 2-b, 3-d,4-c
B. 1-b, 2-c, 3-d,4-a
C. 1-d, 2-c, 3-b, 4-a
D. 1-c, 2-d, 3-a, 4-b
Ans. B

Que.A sample of coal showed analysis results as follows - % M = 20, % VM = 8, % A = 22, % FC = 50,whichtype of analysis isthis?
A. Ultimate anlysis
B. physicalanalysis
C. proximate analysis
D. none of these
Ans.C

Que.A coal sample was analysed by Kjeldahl's method and Eschka method for determination of certain elements. Which type of analysis isthis?
A. Perfectanalysis
B. Absolute analysis
C. Proximate analysis
D. ultimate analysis
Ans.D

Que.Analysis of a fuel sample showed the following results -% N = 5,% S = 8, % C = 65 ,% O = 1, % H = 19,%
ash = 2.This type of analysisis _____
A. absoluteanalysis
B. Ultimateanalysis
C. perfectanalysis
D. proximate analysis
Ans.B

Que. Peat is an uneconomical because
_____
A. high moisture content (90%)
B. high carbon content (57%)
C. very high calorificvalue
D. All of these
Ans. A

Que. C = 57 %, H = 6 %, O = 35 %, ash = 3.6 % is compositionof _____
A. lignite
B. bituminous
C. peat
D. Anthracite
Ans. C

Que. Very low percentage of volatile matter is observedin _____
A. semi-bituminous
B. bituminous
C. lignite
D. Anthracite
Ans. D

Que. Use of anthraciteis ____
A. metallurgicalfuel
B. makingelectrodes
C. high temperatureheating
D. All of these
Ans. D

Que. Types of coal analysisare_____
A. primary andsecondary
B. nature andderived
C. proximate andultimate
D. addition and condensation
Ans.C

Que. Which of the following is not a part of proximate analysis?
A. %moisture
B. %N

C. %ash
D. % V.M.

Ans.B

Que. Which of the following comes under proximate analysis?
A. %hydrogen
B. %nitrogen
C. % fixedcarbon
D. % Sulphur

Ans.C

Que. To determine % moisture of a coal sample , the sample is heatedin _
A. burner
B. anoven
C. furnace
D. all of these

Ans.B

Que. Quality of coal is better if its moisture content is
A. lower
B. higher
C. as high as %C
D. as low as % C

Ans.A

Que. The content of which of the following is not determined in ultimate analysis of coal?
A. carbon
B. nitrogen
C. sulphur
D. volatile matter

Ans.D

Que. For ash content determination ofa coal sample, it is kept in __
A. mufflefurnace
B. anoven
C. bombcalorimeter
D. boy'scalorimeter

Ans. A

Que. If a coal sample is kept in a muffle furnace at 750° C, for half an hour, we can determineits ___
A. %FC
B. %N
C. %S
D. %Ash

Ans. D

Que. In a good quality of coal, % ash should be minimum becauseof _____
A. It increases Calorific value offuel
B. Its disposal is a problem
C. It reduces % M offuel
D. It produces smoke.

Ans. B

Que. For ultimate analysis of nitrogen in a coal sample, the method usedis _____
A. combustionmethod
B. kjeldahl'smethod
C. Eschkamethod
D. Nernst'smethod

Ans. B

Que. For determination of sulphur, the coal is burnt
A. in bombcalorimeter
B. by Eschkamethod
C. in Boy'scalorimeter
D. by kjeldahl's method

Ans.A

Que. Which precipitate is obtained in Eschka method?
A. $BaCl_2$
B. $CaCl_2$
C. $CaSO_4$
D. $BaSO_4$
Ans.D

Que. % ash of a coalsampleis_____when 2 gm of coal sample in muffle furnace at 750°C leaves 0.25 gmash
A. 1.2 %
B. 1.25%
C. 12.5%
D. 125%
Ans. C

Que. If a coal sample contains 15 % moisture, 9 % volatile matter and 17 % ash, its FCis _
A. 41.5 %
B. 59 %
C. 4.1%
D. 5.9%
Ans. B

Que. Calorific value of a sample of coalis _____ highif_____
A. fixed carbon ishigh
B. moisture content ishigh
C. ash content ishigh
D. volatile matter is high
Ans.A

Que. When coal sample is kept in open lid crucible in muffle furnace at about 750°C
,for half an hour, thecomponent determined willbe_
A. %moisture
B. % volatilematter
C. %Fixed Carbon
D. %Ash
Ans. C

Que. In Kjeldahl's method, 1.4 gm of coal sample gave (V_2-V_1) = 10 ml for 0.1 N NaOH.% N of this coal sampleis
A. 1%
B. 1.4%
C. 2.8 %
D. 14 %
Ans. A

Que.Calculate % S in coal sample when 3.2 g of coal sample is combusted in bomb calorimeter, solution from bomb pot on treatment with $BaCl_2$ forms 2.33 gm of $BaSO_4$
A. 0.1 %
B. 1%
C. 10 %
D. 100 %
Ans. C

Que. If a coal sample contains C =85 %, H = 5 %, N = 1.5 %, S = 2.3%, its O
A. 2.6
B. 6.2
C. 26
D. 62

Ans. B

Que. The first stage of coalification gives brown, fibrous jelly like masscalled_____
A. lignite
B. sub-bituminous
C. peat
D. semi-bituminous
Ans.C

Que.Proximate analysis of abetter quality coalshows_____
A. lower % M, higher %V.M.
B. lower % V.M, higher %M
C. lower % A, higher %V.M.
D. lower % V.M., higher % FC
Ans.D

UNIT IVC

Que.Octane no. of petrol is percentageof___.
A. Pentane andisopentane
B. Butane andisobutane
C. n heptane andiso-octane
D. none of the above
Ans.C

Que.In petrol engine, knockingis dueto_____.
A. Slow combustion
B. Moderatecombustion
C. Spontaneouscombustion
D. None of the above
Ans.C

Que.α methyl naphthalenehas
Cetaneno._____.
A. 0
B. 100
C. 90
D. 28
Ans. A

Que._____when mixed with petrol in proper proportion is called as power alcohol.
A. Propanol
B. Butanol
C. Ethanol

____

D. Isopropyl alcohol
E. Ans.C

Que.CNG is_____.
A. Compressed natural gas about 1000 atm.
B. Substitute ofgasoline
C. 88% CH_4 + 10-11 % C_2-C_4 + 0.5-1% CO
D. All of the above
Ans. D

Que.Biodiesel is producedvia
_____.
A. Neutralisationprocess
B. Transesterificationprocess.
C. EtherificationProcess.
D. None of the above
Ans.B

Que.Composition of LPG is
_____.
A. 40% butane+60% Propane+ traces of propene andbutene.
B. Onlymethane
C. Onlybutane
D. All of the above
Ans.A

Que.Which of the following petroleum fractions has lowestboiling point?
A. Diesel
B. Kerosene
C. Petroleumether
D. Petrol
Ans.C

Que.Power alcohol is disadvantageous because____
A. It' s highlyvolatile
B. it gives startingtrouble
C. it causes corrosion of engineparts
D. all ofthese
Ans.D

Que. Biodiesel is _____
A. nonrenewable
B. renewable fuel /biofuel
C. a toxicfuel
D. none of these
Ans.B

Que.Biodiesel is obtained by transesterificationof
A. Soyabeanoil
B. rapeseed oil/ canola seedoil
C. sunfloweroil
D. all ofthese
Ans.D

Que.Dry alcoholis _____
A. absolute alcohol
B. 100%alcohol
C. 50% water + 50%alcohol
D. Both A and B
Ans. A

Que.Which of the following petroleum fractions has lowestboiling point?
A. Diesel
B. Kerosene

C. Petroleumether
D. Petrol
Ans. C

Que.The refining of crude oil is done by passing hot vapours of oil in a fractionating tower at the temperature

A. 400°C
B. 600°C
C. 800°C
D. 1000° C
Ans. A

Que. Biodiesel is obtained by transesterificationof
E. Soyabeanoil
F. rapeseed oil/ canola seedoil
G. sunfloweroil
H. all ofthese
Ans.D

Que.The byproduct obtained in the preparation of biodieselis
A. ethanol
B. glycerol
C. methanol
D. glycol
Ans.B

Que.Molar ratio of alcohol to triglyceride required to complete transesterificationreactionis_____
A. 1:3
B. 3 :1
C. 1 :1
D. 1 :5
Ans. B

Que. Fractional distillation of petroleum is called__
A. refining
B. reformation
C. destructive distillation
D. demineralisation
Ans.A

Que. The first step in refining of petroleumis _____
A. removal ofsulphur
B. fractionaldistillation
C. removal ofwater
D. removal of NaCl
Ans.C

Que. To remove harmful sulphur compounds from petroleum, it is treated with_
A. sodiumoxide
B. copperoxide
C. ConcentratedH_2SO_4
D. dilute NaOH
Ans.B

Que. Which is not obtained as a fraction in fractional distillation of petroleum?
A. kerosene
B. naphtha
C. lignite
D. wax
Ans.C

Que. The chemical process of breaking down higher hydrocarbon molecules to smaller molecules is called
A. breaking
B. cracking
C. destruction
D. fracture
Ans.B

Que. Using the process of catalytic cracking, heavy oils can

be converted into petrol anddiesel

A. methanol andethanol
B. biodiesel and poweralcohol
C. acid and ester

Ans.A

Que. Ethyl alcohol is manufactured by fermentation of

A. proteins
B. molasses
C. vitamins
D. wood

Ans. B

Que. What is the advantages of using power alcohol?
A. reduces emission of harmfulgases
B. removes traces of moisture in thepetrol
C. reduces dependency onforeign countries forpetrol
D. all of the above
E. Ans.D

Que. At 30°C,sucrose is converted into glucose and fructose due to enzyme

A. maltase
B. invertase
C. zymase
D. none of these

Ans.B

Que. Which enzyme converts glucose and fructose into ethyl alcohol and CO_2 by fermentation?
A. Invertase
B. lignin
C. Zymase
D. all of these

Ans. C

Que. Chemically, biodiesel is a mixture of methyl estersof

A. very short chain carboxylicacid
B. long chain of carboxylicacid
C. long chain ofcarbohydrates
D. long chain of aromatic compounds

Ans.B

Que. Vegetable or animal oils are mainly

A. alcohols
B. ethers
C. triglycerides
D. fatty acids

Que. What is the advantage of using biodiesel?
A. reduces dependency on foreign countries
B. it is non toxic and free from sulphur
C. it has higher cetane number
D. all of these

Ans. D

Que. Match thefollowing

1. Eschkamethod	a. petrol
2.Fractionaldistillation	b. PEMFC
3.Transesterification	c. ofsulphur
4. hydrocarbon	d. biodiesel

Ans. C

Que. Biodiesel can be blendedwith

A. petrol
B. poweralcohol
C. diesel
D. none of the above

Ans.C

Que. Biodiesel cannot be used as such in conventional

A. high flash point
B. low calorific value
C. all of the above
D. highviscosity

Ans.D

A. 1-a, 2-b, 3-d,4-c
B. 1-b, 2-c, 3-d,4-a
C. 1-c, 2-a, 3-d, 4-b
D. 1-d, 2-a, 3-c,4-b

Ans. C

Que. Match thefollowing

1. Combustion a.
presence of oxygen
2. proximateanalysis b.% N and %S
3. lignite c.
primary fuel
4. ultimateanalysis d.
% M,% V.M.
A. 1-a, 2-d, 3-c,4-b
B. 1-a, 2-b, 3-c,4-d

C. 1-c, 2-d, 3-a,4-b
D. 1-c, 2-d, 3-b,4-a

Ans. A

Que.Match thefollowing
1. Petrol a. Primaryfuel
2.Diesel b. derivedfuel
3.Peat c.Spark
ignition
4. LPG d.Delayed
ignition
A. 1-d, 2-c, 3-b,4-a
B. 1-a, 2-b, 3-c,4-d
C. 1-c, 2-d, 3-a,4-b
D. 1-b, 2-a, 3-d,4-c

Ans. C

Que. Match thefollowing
1. Bombcalorimeter a. fractionaldistillation
2.petrol b.
gaseous fuel 3.boy's calorimeter c.coolingcorrection
4. crudeoil d.
TEL
A. 1-d, 2-c, 3-a,4-b
B. 1-c, 2-d, 3-b,4-a
C. 1-a, 2-c, 3-b,4-d
D. 1-b, 2-a, 3-d,4-c
Ans. B

Que. Which of the following is not a product of fractional distillation of crude oil
A. petrol
B. coke
C. diesel
D. kerosene
Ans.B

Que. The process of obtaining biodiesel is

A. transesterification
B. transetherification
C. transacification
D. transalcoholification
Ans.A

UNIT IVD

Que. What is the percentage of oxygen by volume in the atmosphere?
A. 14
B. 23
C. 21
D. 79
Ans.C

Que. Calculate % O if % C = 79%,% H = 7%,% S =3.5%,% N= 2.1% and%
Ash = 4.4.
A. 2%
B. 3%
C. 4%
D. 1%

Ans. C

Que. 0.25 gm of coal on burning in combustion chamber in a current of pure oxygen was found to increase in $CaCl_2$ U-tube by 0.08 gm. Hence % H present in the coal is _
A. 3.55
B.3.1
C.3.7
D.3.98
Ans. A