

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

End Semester Examination – 2020

Course: B. Tech in Mechanical Engineering

Sem: VIII

Subject Name: Alternate Fuels for IC Engine

Subject Code: ME803E

Question Bank

Id	
Question	Advantage of gaseous fuel is that
A	it can be stored easily
B	it can mix easily with air
C	it can displace more air from the engine
D	all of the above
Answer	
Marks	1.5
Unit	III

Id	
Question	Paraffins are in general represented by
A	C_nH_n
B	C_nH_{2n}
C	C_nH_{2n+n}
D	C_nH_{2n-n}
Answer	
Marks	1.5
Unit	I

Id	
Question	Paraffin's have molecular structure of
A	chain saturated
B	chain unsaturated
C	ring saturated
D	ring unsaturated
Answer	
Marks	1.5
Unit	I

Id	
Question	Olefins are represented by the formula
A	C_nH_n
B	C_nH_{2n}
C	C_nH_{2n+2}
D	C_nH_{2n-2}
Answer	
Marks	1.5
Unit	I

Id	
Question	Hydrocarbons are decomposed into smaller hydrocarbons by
A	reforming
B	refining
C	cracking
D	polymerization
Answer	
Marks	1.5
Unit	I

Id	
Question	The molecular structure of the straight-run gasoline is changed by
A	cracking
B	reforming
C	refining
D	boiling
Answer	
Marks	1.5
Unit	I

Id	
Question	For SI engines fuels most preferred are
A	Aromatics
B	paraffins
C	olefins
D	naphthenes
Answer	
Marks	1.5
Unit	I

Id	
Question	For CI engine fuels most preferred are
A	naphthenes
B	paraffin's
C	olefins
D	aromatics
Answer	
Marks	1.5
Unit	I

Id	
Question	Octane number of iso-octane is
A	0
B	30
C	60
D	100
Answer	
Marks	1.5
Unit	I

Id	
Question	Ignition diesel fuel is indicated by its quality of
A	octane number
B	cetane number
C	flash point
D	fire point
Answer	
Marks	1.5
Unit	I

Id	
Question	The following is the desirable property (ies) of good Internal Combustion engine fuel
A	High energy content per unit quantity of fuel
B	Free from fire hazards
C	Low toxicity
D	All of the above
Answer	
Marks	1.5
Unit	I

Id	
Question	The solid fuels can be used in Internal combustion engine only after their
A	Solidification
B	Liquefaction
C	Gasification
D	All of the above
Answer	
Marks	1.5
Unit	I

Id	
Question	The major constituent of natural gas is
A	Methane
B	Ethane
C	Propane
D	Butane
Answer	
Marks	1.5
Unit	III

Id	
Question	Which of the following gases is used as fuel in internal combustion engine?
A	Liquefied petroleum gas (LPG)
B	Blast furnace gas
C	Coke oven gas
D	All of the above
Answer	
Marks	1.5
Unit	III

Id	
Question	The following is not normal paraffin.
A	Methane
B	n-butane
C	n-octane
D	Iso-octane
Answer	
Marks	1.5
Unit	I

Id	
Question	Decomposition of higher hydrocarbon molecules into lower hydrocarbons having lower boiling temperatures is known as
A	Polymerization
B	Hydrogeneration
C	Isomerization
D	Cracking
Answer	
Marks	1.5
Unit	I

Id	
Question	In order to have good engine performance
A	The fuel should have low boiling temperature for lower warm up period
B	The percentage of volume evaporated at low temperatures should be small
C	A rich mixture of air-fuel ratio of 12 to 13:1 is considered to be suitable for easy starting of the engine
D	All of the above
Answer	
Marks	1.5
Unit	I

Id	
Question	The antiknock property of the fuel depends on its
A	Self-ignition temperature
B	Molecular structure
C	Chemical composition
D	All of the above
Answer	
Marks	1.5
Unit	I

Id	
Question	Iso-octane and n-heptane has assigned a rating of
A	0,100
B	50,50
C	100,0
D	20,80
Answer	
Marks	1.5
Unit	I

Id	
Question	Compression ratio at which the fuel can be used in an engine without detonation on a specific test engine under standard operating conditions is known as
A	Highest useful compression ratio
B	Lowest useful compression ratio
C	Optimal useful compression ratio
D	Minimal useful compression ratio
Answer	
Marks	1.5
Unit	I

Id	
Question	The following is used for rating for Compression ignition engines.
A	Octane number
B	Cetane number
C	Butane number
D	All of the above
Answer	
Marks	1.5
Unit	I

Id	
Question	The following is (are) used as additives for Compressed Ignition engine fuels.
A	Amyl Nitrate
B	Ethyl Thionitite
C	Amyl Nitrite
D	All of the above
Answer	
Marks	1.5
Unit	I

Id	
Question	The following method is used for analysis of combustion products (flue gases)?
A	Non Dispersive Infra-Red Analyzer
B	Flame Ionization Detector
C	Flue Gas Analyzer for Boiler Flue GasesA1
D	None of above
Answer	
Marks	1.5
Unit	I

Id	
Question	Hydrocarbons are decomposed into smaller hydrocarbons by
A	Reforming
B	Refining
C	Cracking
D	Polymerization
Answer	
Marks	1.5
Unit	I

Id	
Question	The molecular structure of the straight-run gasoline is changed by
A	Reforming
B	reforming
C	cracking
D	boiling
Answer	
Marks	1.5
Unit	I

Id	
Question	For S.I. engines fuel most preferred are
A	naphthenes
B	paraffin's
C	controlling ignition timing
D	adding dopes like tetraethyl lead and ethylene dibromide
Answer	
Marks	1.5
Unit	I

Id	
Question	This of the following statements is not correct with respect to alcohols as alternate fuels in IC engines
A	anti-knock characteristics of alcohol is poor
B	alcohol contains about half the heat energy of gasoline/litre
C	alcohol does not vaporize as easily as gasoline
D	alcohols are corrosive in nature
Answer	
Marks	1.5
Unit	III

Id	
Question	Gasohol is a mixture of
A	. 0% ethanol + 10% gasoline
B	10% ethanol + 90% gasoline
C	40% ethanol + 60% gasoline
D	40% ethanol + 60% gasoline
Answer	
Marks	1.5
Unit	III

Id	
Question	Stoichiometric air-fuel ratio of alcohol when compared to gasoline is
A	higher
B	lower
C	equal
D	none of the above
Answer	
Marks	1.5
Unit	III

Id	
Question	Small amount of gasoline is often added to alcohol to
A	reduce the emission
B	increase the power output
C	increase the efficiency
D	improve cold weather starting
Answer	
Marks	1.5
Unit	III

Id	
Question	Methanol by itself is not a good CI engine fuel because
A	its octane number is high
B	its cetane number is low
C	both (a) and (b)
D	none of the above
Answer	
Marks	1.5
Unit	III

Id	
Question	Anti-knock characteristics of alcohol when compared Lo gasoline is
A	higher
B	Lower
C	equal
D	none of the above
Answer	
Marks	1.5
Unit	I

Id	
Question	Alcohols alone cannot be used in CI engines as
A	their self-ignition temperature is high
B	latent heat of vaporization is Low
C	both (a) and (b)
D	none of the above
Answer	
Marks	1.5
Unit	III

Id	
Question	Advantage of hydrogen as an IC engine fuel high volumetric efficiency
A	high volumetric efficiency
B	low fuel cost
C	No HC and CO emissions
D	relatively safe
Answer	
Marks	1.5
Unit	III

Id	
Question	Major constituent of natural gas is
A	ethane
B	methane
C	propane
D	butane
Answer	
Marks	1.5
Unit	III

Id	
Question	Octane number of natural gas is
A	60—80
B	80-100
C	>100
D	<60
Answer	
Marks	1.5
Unit	I

Id	
Question	Major disadvantage of LPG as a fuel in automobile is
A	reduction in life of the engine
B	less power compared to gasoline
C	both (a) and (b)
D	knocking tendency
Answer	
Marks	1.5
Unit	I

Id	
Question	Advantage of LPG as fuel in automobiles
A	engine has longer life when running on LPG
B	less weight of fuel handling system
C	safe fuel
D	low self-ignition temperature compared to gasoline
Answer	
Marks	1.5
Unit	I

Id	
Question	Disadvantage of hydrogen as a fuel in IC engine
A	storage is easy
B	low NO emissions
C	detonating tendency
D	easy handling
Answer	
Marks	1.5
Unit	I

Id	
Question	Compared to diesel, biomass fuels have the advantages of
A	lower emissions
B	easy availability
C	both (a) and (b)
D	higher energy content
Answer	
Marks	1.5
Unit	III

Id	
Question	Biomass fuels suffer from the disadvantage of
A	low energy content
B	high sulfur
C	high specific fuel consumption
D	both (a) and (c)
Answer	
Marks	1.5
Unit	III

Id	
Question	Which of the following statement is not correct with respect to alcohols as alternate fuel in IC engines?
A	anti-knock characteristics of alcohol is poor
B	alcohol contains about half the heat energy of gasoline/litre
C	alcohol does not vaporize as easily as gasoline
D	alcohols are corrosive in nature
Answer	
Marks	1.5
Unit	III

Id	
Question	Alcohols alone cannot be used in CI engines as
A	their self-ignition temperature is high
B	latent heat of vaporization is high
C	all of the mentioned
D	none of the mentioned
Answer	
Marks	1.5
Unit	III

Id	
Question	The normal heptane (C_7H_{16}) is given a rating of _____ octane number.
A	0
B	50
C	100
D	120
Answer	
Marks	1.5
Unit	I

Id	
Question	Fuel of an octane number rating of 75 matches in knocking intensity as a mixture of
A	75% iso-octane and 25% normal heptane
B	75% normal heptane and 25% iso-octane
C	75% petrol and 25% diesel
D	75% diesel and 25% petrol
Answer	
Marks	1.5
Unit	I

Id	
Question	Anti-knock for compression ignition engines is
A	naphthene
B	tetra ethyl lead
C	amyl nitrate
D	hexadecane
Answer	
Marks	1.5
Unit	I

Id	
Question	The fuels in order of decreasing knock tendency for spark ignition engines are
A	paraffins, aromatics, naphthenes
B	paraffins, naphthenes, aromatics
C	naphthenes, aromatics, paraffins
D	none of the mentioned
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following fuel has little tendency towards detonation?
A	Benzene
B	Iso-octane
C	Normal heptane
D	Alcohol
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following fuel detonates readily?
A	Benzene
B	Iso-octane
C	Normal heptane
D	Alcohol
Answer	
Marks	1.5
Unit	I

Id	
Question	Alcohol based CI engine have compression ratio----- than diesel fuel engine.
A	Higher
B	Lower
C	Both A & B is possible
D	None of these
Answer	
Marks	1.5
Unit	III

Id	
Question	For same power output of ethanol mass consumption is ---- as compared to gasoline.
A	Equal
B	Twice
C	One and half
D	Thrice
Answer	
Marks	1.5
Unit	III

Id	
Question	For equal energy content, which is true?
A	1.3 gallons of methanol & 1 gallon of ethanol
B	1 gallon of methanol & 1.3 gallons of ethanol
C	2 gallons of methanol & 1.5 gallon of ethanol
D	None of these
Answer	
Marks	1.5
Unit	III

Id	
Question	Motor Octane No. of LPG is about
A	50
B	70-80
C	80-90
D	105-115
Answer	
Marks	1.5
Unit	I

Id	
Question	Self-ignition temp. of diesel compared with gasoline is
A	Higher
B	Lower
C	Same
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Calorific value of CNG compared to LPG is
A	Higher
B	Lower
C	Same
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	For high octane No. of a fuel, Flame speed is
A	Higher
B	Lower
C	Same
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Anti-knock character of methanol compared to ethanol is
A	Higher
B	Lower
C	Same
D	None of these
Answer	
Marks	1.5
Unit	III

Id	
Question	Disadvantage of hydrogen as a fuel in IC engine is
A	storage is easy
B	low NOx emission
C	detonating tendency
D	easy handling.
Answer	
Marks	1.5
Unit	III

Id	
Question	Steam reformation is a process of making
A	biodiesel
B	CNG
C	LPG
D	Hydrogen
Answer	
Marks	1.5
Unit	I

Id	
Question	Stoichiometric air-fuel ratio of an alcohol when compared to gasoline is
A	higher
B	Lower
C	Same
D	None of these
Answer	
Marks	1.5
Unit	III

Id	
Question	Alcohol alone cannot be used in CI engine as
A	its self-ignition temperature is high
B	its latent heat of vaporization is low
C	both (a) and (b)
D	none of these
Answer	
Marks	1.5
Unit	III

Id	
Question	The term isomers are used for ...
A	Alkenes of different chemical structure but same chemical formula
B	Paraffins of different chemical structure but same chemical formula
C	Naphthenes of different chemical structure but same chemical formula
D	Aromatics of different chemical structure but same chemical formula
Answer	
Marks	1.5
Unit	I

Id	
Question	Iso-octane is fuel for CI engine.
A	Good
B	Bad
C	both (a) and (b)
D	none of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Normal octane and Iso-octane has assigned a rating of
A	0, 100
B	50 , 50
C	100, 0
D	70, 80
Answer	
Marks	1.5
Unit	I

Id	
Question	Propane (C ₃ H ₈) as compared to Benzene (C ₆ H ₆) has knocking tendency.
A	higher
B	Lower
C	Same
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Sweet petrol means....
A	unleaded petrol
B	petrol mixed with glucose
C	desulphurised petrol
D	none of these.
Answer	
Marks	1.5
Unit	III

Id	
Question	Corrosion in crude distillation unit column overhead system is caused by
A	The presence of naphthenic acid in crude oils
B	The presence of HCL formed by dissociation of chloride salts
C	The sulphur compounds in crude oils
D	All of the above
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following petroleum product has maximum kinematic viscosity at a given temperature?
A	Gasoline
B	Aviation turbine fuel
C	LSD
D	Furnace oil
Answer	
Marks	1.5
Unit	II

Id	
Question	Which of the following petroleum product has maximum C/H ratio (by weight)?
A	Naphtha
B	Kerosene
C	Light diesel oil
D	Fuel oil
Answer	
Marks	1.5
Unit	II

Id	
Question	Which of the following petroleum product has minimum C/H ratio (by weight)?
A	Naphtha
B	Kerosene
C	Light diesel oil
D	Fuel oil
Answer	
Marks	1.5
Unit	II

Id	
Question	Which of the following petroleum product has minimum viscosity at a given temperature?
A	Motor Spirit
B	Light diesel oil
C	Aviation Turbine fuel
D	HSD oil
Answer	
Marks	1.5
Unit	II

Id	
Question	The viscosity of hydrocarbon liquids
A	Remain unaffected with change in density
B	Decreases with increase in density
C	Increases with increase in density
D	None of the above
Answer	
Marks	1.5
Unit	II

Id	
Question	Which of the following has maximum hydrogen/carbon ratio (by weight)?
A	Naphtha
B	Gasoline
C	Diesel
D	Fuel oil
Answer	
Marks	1.5
Unit	II

Id	
Question	Methyl tertiary butyl ether (MTBE), a high octane (octane no. = 115) gasoline blending component is produced by the simple additive reaction of isobutylene with
A	Methyl alcohol
B	Ethyl alcohol
C	Methane
D	Ethane
Answer	
Marks	1.5
Unit	III

Id	
Question	C_nH_{2n+2} is the general formula for
A	Olefins
B	Naphthenes
C	Both (A) and (B)
D	Neither A nor B
Answer	
Marks	1.5
Unit	I

Id	
Question	The general formula of naphthenes is
A	C_nH_{2n+2}
B	C_nH_{2n-6} (where, $n \geq 6$)
C	C_nH_{n-4}
D	Same as that for olefins i.e. C_nH_{2n}
Answer	
Marks	1.5
Unit	I

Id	
Question	Carbon percentage (by weight) in crude petroleum may be about
A	65
B	75
C	85
D	95
Answer	
Marks	1.5
Unit	II

Id	
Question	In catalytic cracking, the
A	Gasoline obtained has a very low octane number
B	Pressure & temperature is very high
C	Gasoline obtained has very high aromatic content
D	Gasoline obtained has very high amount of gum forming compounds
Answer	
Marks	1.5
Unit	I

Id	
Question	Petroleum liquid fuels having flash point greater than 66°C is considered as safe during storage and handling. Which of the following has flash point > 66°C?
A	Naphtha
B	Petrol
C	Kerosene
D	Heavy fuel oil
Answer	
Marks	1.5
Unit	II

Id	
Question	Pressure & temperature maintained in catalytic cracking is about
A	2 atm& 500°C
B	10 atm& 500°C
C	30 atm& 200°C
D	50 atm& 750°C
Answer	
Marks	1.5
Unit	I

Id	
Question	Flash point of a liquid petroleum fuel gives an idea about its
A	Volatility
B	Explosion hazards characteristics
C	Nature of boiling point diagram
D	All (A), (B) and (C)
Answer	
Marks	1.5
Unit	II

Id	
Question	Hydrogen percentage (by weight) in crude petroleum may be about
A	5
B	15
C	25
D	35
Answer	
Marks	1.5
Unit	III

Id	
Question	Hydrogen percentage (by weight) in crude petroleum may be about
A	Aromatics
B	i-paraffins
C	Naphthene
D	Olefins
Answer	
Marks	1.5
Unit	I

Id	
Question	Catalyst used in catalytic polymerisation which produces polymer gasoline is
A	H_2SO_4
B	H_3PO_4
C	Both (A) and (B)
D	AlCl_3
Answer	
Marks	1.5
Unit	I

Id	
Question	Liquefied Petroleum Gas (LPG) is mainly a mixture of
A	Propane & butane
B	Methane & ethane
C	High boiling olefins
D	High boiling naphthenes
Answer	
Marks	1.5
Unit	I

Id	
Question	Flash point of an oil is determined by the
A	PenskyMartens apparatus
B	Ramsbottom apparatus
C	Saybolt viscometer
D	Conradson apparatus
Answer	
Marks	1.5
Unit	II

Id	
Question	Which of the following is not an important property of fuel oil/furnace oil?
A	Sulphur content
B	Viscosity
C	Aniline point
D	Flash point
Answer	
Marks	1.5
Unit	II

Id	
Question	Dearomatization of kerosene (by liquid sulphur dioxide extraction) is done to
A	Increase its smoke point
B	Improve its oxidation stability
C	Decrease the breathing loss
D	None of these
Answer	
Marks	1.5
Unit	II

Id	
Question	High aniline point of a petrofuel (say diesel) indicates that
A	It is highly aromatic in nature
B	It is highly paraffinic in nature
C	It has a very low diesel index
D	Its ignition quality is very poor
Answer	
Marks	1.5
Unit	II

Id	
Question	The main aim of cracking is to produce
A	Gasoline
B	Lube oil
C	Petrolatum
D	Coke
Answer	
Marks	1.5
Unit	I

Id	
Question	The most important property for a jet fuel is its
A	Viscosity
B	Freezing point
C	Calorific value
D	Flash point
Answer	
Marks	1.5
Unit	II

Id	
Question	Presence of aromatics in
A	Diesel increases its cetane number
B	Kerosene increases its smoke point
C	Petrol increases its octane number
D	All (A), (B) and (C)
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following is the most widely used cracking process in oil refineries?
A	Dubbs process
B	T.C.C. moving bed process
C	Fluidized bed catalytic cracking process
D	Houdry's fixed bed process
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following reactions is undesirable in the production of catalytically reformed gasoline?
A	Dehydrogenation of Naphthene
B	Dehydrogenation of lower paraffins
C	Dehydrocyclization of higher paraffins
D	Isomerisation of paraffins
Answer	
Marks	1.5
Unit	I

Id	
Question	Catalytic cracking compared to thermal cracking of residue of vacuum distillation of crude oil
A	Gives higher yield of petrol
B	Lower octane number of petrol
C	Higher sulphur content in the product
D	Higher gum forming material in petrol
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following is an additive used for improving the cetane number of diesel?
A	Tetraethyl lead
B	Tetramethyllead
C	Ethyl nitrate or acetone
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Higher boiling fractions like atmospheric residue is distilled under vacuum at low temperature because at high temperature, there is a tendency of the predominance of
A	Thermal cracking
B	Gum formation
C	Coking
D	Discoloration
Answer	
Marks	1.5
Unit	I

Id	
Question	Octane number of gasoline produced by two stage fluidised catalytic cracking process is
A	80
B	87
C	92
D	97
Answer	
Marks	1.5
Unit	I

Id	
Question	Reforming converts
A	Olefins into paraffins
B	Naphthenes into aromatics
C	Naphthenes into olefins
D	Naphthenes into paraffin
Answer	
Marks	1.5
Unit	I

Id	
Question	Feedstock for polymerisation is
A	Naphtha
B	Cracked gases rich in C ₂ & C ₄ olefins
C	Low boiling aromatics
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following has the minimum °API gravity of all?
A	Diesel
B	Kerosene
C	Petrol
D	Furnace oil
Answer	
Marks	1.5
Unit	I

Id	
Question	Olefins are
A	Saturated hydrocarbons
B	Unsaturated cyclic compounds (hydrocarbons)
C	Present in substantially good quantity in crude petroleum
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Natural gas recovered along with crude oil from oil wells is called wet natural gas which has a higher _____ compared to the dry natural gas.
A	Unsaturated hydrocarbon content
B	Calorific value
C	Quantity of propane
D	Quantity of butane
Answer	
Marks	1.5
Unit	III

Id	
Question	Which of the following processes is used for the production of petroleum coke?
A	Stabilisation
B	Visbreaking
C	Cracking
D	Reforming
Answer	
Marks	1.5
Unit	I

Id	
Question	LPG stands for
A	Liquid petroleum gas
B	Liquefied petrol gas
C	Liquid petrol gas
D	Liquefied petroleum gas
Answer	
Marks	1.5
Unit	I

Id	
Question	Char value of Kerosene is the amount of charred oil deposition on the wick obtained after burning it in a standard wick lamp at a standard rate for 24 hours. Char value of a good quality kerosene should be less than _____ mg/kg of kerosene.
A	1
B	20
C	100
D	500
Answer	
Marks	1.5
Unit	II

Id	
Question	Catalyst used in isomerisation process is
A	H ₂ SO ₄
B	H ₃ PO ₄
C	Both (A) and (B)
D	AlCl ₃
Answer	
Marks	1.5
Unit	I

Id	
Question	The amount of tetraethyl lead added to improve the octane number of motor gasoline is around _____ c.c per gallon of petrol.
A	3
B	300
C	3000
D	1000
Answer	
Marks	1.5
Unit	I

Id	
Question	Octane number of n-heptane is assumed to be
A	100
B	0
C	70
D	∞
Answer	
Marks	1.5
Unit	I

Id	
Question	Tetra-ethyl lead is added in gasoline to
A	Increase its smoke point
B	Reduce gum formation
C	Reduce the pour point
D	Increase its octane number
Answer	
Marks	1.5
Unit	I

Id	
Question	Cracking is
A	An exothermic reaction
B	An endothermic reaction
C	Favoured at very low temperature
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Choose the correct statement regarding thermal cracking.
A	Moderate changes in operating temperature does not change the depth of cracking
B	Increased residence time results in the decreased severity of cracking
C	At low pressure, the yields of lighter hydrocarbons are more
D	Greater depth of cracking gives lower octane number gasoline
Answer	
Marks	1.5
Unit	I

Id	
Question	Catalyst used in alkylation process is
A	Sulphuric acid
B	Nickel
C	Silica gel
D	Alumina
Answer	
Marks	1.5
Unit	I

Id	
Question	Sour crude means the _____ bearing crude.
A	Asphalt
B	Sulphur compounds
C	Wax
D	Nitrogen compounds
Answer	
Marks	1.5
Unit	I

Id	
Question	Good quality kerosene should have
A	Low smoke point
B	High smoke point
C	High aromatics content
D	Low paraffins content
Answer	
Marks	1.5
Unit	I

Id	
Question	Pick out the wrong statement.
A	Iso-paraffin crack faster than n-paraffin.
B	Catalytic cracking is endothermic, but the regeneration of catalyst is exothermic
C	Rate of decomposition of olefins in catalytic cracking is slightly slower than the thermal cracking
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following fractions of petroleum contains maximum sulphur?
A	Diesel
B	Gasoline
C	Naphtha
D	Atmospheric residue
Answer	
Marks	1.5
Unit	I

Id	
Question	1 centistoke is equal to _____ Redwood I seconds.1
A	1
B	4.08
C	0.408
D	40.8
Answer	
Marks	1.5
Unit	II

Id	
Question	Testing of the knocking characteristics of petrofuels is done in a _____ engine.
A	Carnot
B	CFR (Co-operative fuel research)
C	Stirling
D	Diesel
Answer	
Marks	1.5
Unit	I

Id	
Question	Higher vapour pressure of gasoline indicates
A	Low flash point
B	High breathing loss
C	Both (A) and (B)
D	Neither (A) nor (B)
Answer	
Marks	1.5
Unit	II

Id	
Question	Aromatics are desired constituents of
A	Lubricating oil
B	Diesel
C	Kerosene
D	Petrol
Answer	
Marks	1.5
Unit	I

Id	
Question	The average boiling point of aviation turbine fuel is closest to that of
A	Lubricating oils
B	LPG
C	Diesel
D	Kerosene
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following is the easiest to crack?
A	Paraffins
B	Olefins
C	Naphthenes
D	Aromatics
Answer	
Marks	1.5
Unit	I

Id	
Question	Increase in the specific gravity of petroleum products indicates
A	Decrease in paraffin content
B	Increase in thermal energy per unit weight
C	Increase in aromatic content
D	Higher H/C ratio
Answer	
Marks	1.5
Unit	II

Id	
Question	Ethyl mercaptan is a/an _____ compound.
A	Sulphur
B	Nitrogen
C	Oxygen
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Gasoline extracted from natural gas (by compression and cooling) is called the _____ gasoline.
A	Polymer
B	Unleaded
C	Casing head
D	Straight run
Answer	
Marks	1.5
Unit	III

Id	
Question	Which of the following petroleum products contain minimum sulphur?
A	Naphtha
B	Kerosene
C	LSHS
D	Furnace oil
Answer	
Marks	1.5
Unit	I

Id	
Question	Smoke point of kerosene is the
A	Time after which smoking starts on burning
B	Temperature at which smoking starts
C	Maximum height of flame (in mm) without causing smoking, when burnt in a standard lamp
D	None of these
Answer	
Marks	1.5
Unit	II

Id	
Question	A typical yield of diesel in straight run distillation of crude oil may be about ___ percent.
A	8
B	18
C	28
D	35
Answer	
Marks	1.5
Unit	I

Id	
Question	Molecular weight of crude petroleum may be around
A	50
B	250
C	1500
D	5000
Answer	
Marks	1.5
Unit	I

Id	
Question	Pour point of a petrofuel is
A	Multiple of 3°F
B	Multiple of 5°F
C	5°C below the temperature at which oil ceases to flow
D	None of these
Answer	
Marks	1.5
Unit	II

Id	
Question	Octane number (unleaded) of gasoline produced by isomerisation of butane may be about
A	45
B	55
C	70
D	90
Answer	
Marks	1.5
Unit	I

Id	
Question	Straight run naphtha is converted into high octane number petrol (gasoline) by catalytic
A	Cracking
B	Polymerisation
C	Reforming
D	Isomerisation
Answer	
Marks	1.5
Unit	I

Id	
Question	In a refinery petroleum crude is fractionated into gas fraction, light ends, intermediate distillates, heavy distillates, residues and by products. The group of products including gas oil, diesel oil and heavy fuel oil belongs to the fraction
A	Heavy distillates
B	Intermediate distillates
C	Light ends
D	Residues
Answer	
Marks	1.5
Unit	I

Id	
Question	Paraffins are desirable in lubricating oil, as it has got high
A	Viscosity
B	Viscosity index
C	Smoke point
D	Pour point
Answer	
Marks	1.5
Unit	I

Id	
Question	Which is almost absent in crude petroleum?
A	Olefins
B	Mercaptans
C	Naphthenes
D	Cycloparaffins
Answer	
Marks	1.5
Unit	I

Id	
Question	Hydrocracking employs
A	High pressure & temperature
B	Low pressure & temperature
C	High pressure and low temperature
D	High temperature and low pressure
Answer	
Marks	1.5
Unit	I

Id	
Question	With increase in the molecular weight of aromatic present in kerosene, its smoking Tendency.
A	Increases
B	Decreases
C	Remain same
D	Is unpredictable
Answer	
Marks	1.5
Unit	II

Id	
Question	Pick out the wrong statement.
A	Higher specific gravity of petroleum products means higher C/H ratio
B	Aromatics have lower specific gravity than corresponding paraffins
C	Hydrocarbons of low specific gravity (e.g., paraffins) possess the maximum thermal energy per unit volume
D	Hydrocarbons of high specific gravity (e.g., aromatics) possess the maximum thermal energy per unit weight
Answer	
Marks	1.5
Unit	II

Id	
Question	Pick out the wrong statement.
A	Alkylation produces a larger iso-paraffin (having higher octane number) from the reaction of an olefin with smaller iso-paraffin
B	Catalytic alkylation processes use HF, AlCl ₃ & H ₂ SO ₄ as Catalysts
C	All the alkylation processes use very high temperature (> 1000°C)
D	Gasoline having an octane number of 90 can be produced by alkylation process
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following is a Naphthene?
A	Butene
B	Butadiene
C	Cyclohexane
D	Acetylene
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following has the highest flash point of all?
A	Diesel
B	Kerosene
C	Petrol
D	Furnace oil
Answer	
Marks	1.5
Unit	II

Id	
Question	Smoke point of a good burning kerosene may be around _____ mm.
A	Diesel
B	Kerosene
C	Petrol
D	Furnace oil
Answer	
Marks	1.5
Unit	II

Id	
Question	Smoke point of a good burning kerosene may be around _____ mm.
A	0-5
B	20-25
C	60-75
D	100-120
Answer	
Marks	1.5
Unit	II

Id	
Question	Gum formation in stored gasoline is mainly due to the
A	Alkylation of unsaturated
B	Presence of sulphur
C	Oxidation & polymerisation of unsaturated
D	Higher aromatic content
Answer	
Marks	1.5
Unit	I

Id	
Question	Aromatics have the highest _____ of all the hydrocarbons of same carbon atoms.
A	Smoke point
B	Octane number
C	Cetane number
D	Viscosity
Answer	
Marks	1.5
Unit	I

Id	
Question	Road grade bitumen is produced from vacuum residue by its
A	Aeration
B	Pyrolysis
C	Hydrogenation
D	Steam reforming
Answer	
Marks	1.5
Unit	I

Id	
Question	Flash point of diesel/kerosene ($>50^{\circ}\text{C}$) is determined by the
A	Abel apparatus
B	Pensky-Martens apparatus
C	Sayboltchromometer
D	None of these
Answer	
Marks	1.5
Unit	II

Id	
Question	Products drawn from the top to bottom of the crude oil distillation column has progressively increasing
A	Boiling points
B	Molecular weight
C	C/H ratio
D	All (A), (B) and (C)
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following is desirable in diesel and kerosene but is undesirable in gasoline?
A	Aromatics
B	Mercaptans
C	Paraffins
D	Naphthenic acid
Answer	
Marks	1.5
Unit	I

Id	
Question	Iso-octane is used as a reference substance in the definition of octane number and it is assigned an octane number value of 100. Iso-octane is chemically known as
A	α -methyl naphthalene
B	2-2-4 tri methyl pentane
C	1, 3 butadiene
D	Tetra methyl ethylene
Answer	
Marks	1.5
Unit	I

Id	
Question	Cetane number of alpha methyl naphthalene is assumed to be
A	0
B	100
C	50
D	∞
Answer	
Marks	1.5
Unit	I

Id	
Question	Cetane number of a diesel fuel is the measure of its
A	Ignition delay
B	Smoke point
C	Viscosity
D	Oxidation stability
Answer	
Marks	1.5
Unit	I

Id	
Question	Pick out the wrong statement about the smoking tendency of various hydrocarbon constituents of kerosene.
A	Smoking tendency of hydrocarbons increases in the order: paraffins → isoparaffins → naphthenes → aromatics
B	Smoking tendency of paraffins increases with decrease in its molecular weight
C	Smoking tendency of naphthenes decreases with its increasing molecular weight & also on addition of double bond
D	Smoking tendency of aromatics decreases with increase in its molecular weight
Answer	
Marks	1.5
Unit	II

Id	
Question	Tetraethyl lead is added to the petrol to increase its octane number, because its octane number is
A	More than 100
B	Round about 100
C	Between 50 and 100
D	Less than 25
Answer	
Marks	1.5
Unit	I

Id	
Question	Antioxidants are added in petrol to
A	Impart colour to it, for easy identification
B	Minimise the gum formation
C	Prevent icing of the carburettor
D	Prevent the lead build up in engines
Answer	
Marks	1.5
Unit	I

Id	
Question	Aniline point is the temperature at which
A	Equal weight of diesel & the aniline are completely miscible
B	Equal weight of aniline & the test sample are completely miscible
C	Equal volume of aniline & the test sample are completely miscible
D	Aniline vaporises
Answer	
Marks	1.5
Unit	II

Id	
Question	Sweetening of petroleum product means the removal of
A	Sulphur & its compounds
B	Water
C	Organic impurities
D	Wax
Answer	
Marks	1.5
Unit	III

Id	
Question	Aniline point of high speed diesel may be about _____ °C.
A	35
B	70
C	105
D	150
Answer	
Marks	1.5
Unit	II

Id	
Question	Octane number (unleaded) of reformed gasoline may be upto
A	60
B	70
C	80
D	90
Answer	
Marks	1.5
Unit	I

Id	
Question	Equal volumes of aniline and diesel oil when mixed at room temperature (during summer) was found to be completely miscible. It means that the aniline point of the diesel is _____ the room temperature.
A	More than
B	Less than
C	Same as
D	Either more or less; depends on the room temperature
Answer	
Marks	1.5
Unit	II

Id	
Question	H/C ratio (by weight) for the same number of carbon atoms is the highest in case of
A	Aromatics
B	Paraffins
C	Olefins
D	Naphthenes
Answer	
Marks	1.5
Unit	II

Id	
Question	Molecular weight of petrol may be about
A	40-60
B	100-130
C	100-120
D	350-400
Answer	
Marks	1.5
Unit	II

Id	
Question	Which of the following is the most important property for a jet fuel?
A	Cloud point
B	Pour point
C	Colour
D	Freezing point
Answer	
Marks	1.5
Unit	II

Id	
Question	Pyrolysis of kerosene or natural gasoline is done to produce mainly the
A	Olefins and aromatics
B	Lighter paraffins
C	Stabilised gasoline
D	Diesel
Answer	
Marks	1.5
Unit	I

Id	
Question	A good lubricant should have high
A	Viscosity index
B	Volatility
C	Pour point
D	None of these
Answer	
Marks	1.5
Unit	II

Id	
Question	Pick out the additive property of lube oil out of following.
A	°API gravity
B	Specific gravity
C	Viscosity
D	Flashpoint
Answer	
Marks	1.5
Unit	II

Id	
Question	Phenols are added in gasoline to
A	Improve the octane number
B	Act as an antioxidant
C	Reduce its viscosity
D	Increase its pour point
Answer	
Marks	1.5
Unit	I

Id	
Question	The main reaction in reforming is the
A	Dehydrogenation of naphthenes
B	Hydrogenation of naphthenes
C	Hydrocracking of paraffins
D	Saturation of olefins
Answer	
Marks	1.5
Unit	I

Id	
Question	Aniline point is a property of the
A	Diesel
B	LPG
C	Naphtha
D	Gasoline
Answer	
Marks	1.5
Unit	II

Id	
Question	Polymerisation
A	Produces i-octane from cracked gases containing i-butane and butene
B	Causes olefins to combine with each other
C	Causes aromatics to combine with each other
D	Is aimed at producing lubricating oil
Answer	
Marks	1.5
Unit	I

Id	
Question	In sweetening process, solutizer agent used with caustic alkali is
A	Potassium isobutyrate
B	Sodium plumbite
C	Methanol
D	Phenol
Answer	
Marks	1.5
Unit	III

Id	
Question	Catalyst used in the isomerisation is
A	Aluminium chloride
B	Alumina
C	Nickel
D	Phosphoric acid
Answer	
Marks	1.5
Unit	I

Id	
Question	Which of the following hydrocarbons of same carbon atoms has minimum smoking tendency?
A	Paraffins
B	Naphthenes
C	Aromatics
D	Iso-paraffins
Answer	
Marks	1.5
Unit	I

Id	
Question	Aniline point of the diesel is a measure of its _____ content
A	Aromatic
B	Paraffin
C	Olefin
D	Naphthene
Answer	
Marks	1.5
Unit	II

Id	
Question	Which of the following has the maximum °API gravity of all?
A	Diesel
B	Kerosene
C	Petrol
D	Furnace oil
Answer	
Marks	1.5
Unit	II

Id	
Question	Specific gravity of a petroleum product gives an indication of its
A	Degree of refinement
B	Hydrocarbon content type (aromatic or paraffinic)
C	Ease of atomisation
D	Sulphur content
Answer	
Marks	1.5
Unit	II

Id	
Question	Presence of sulphur in gasoline
A	Leads to corrosion
B	Increases lead susceptibility
C	Decreases gum formation
D	Helps during stabilisation
Answer	
Marks	1.5
Unit	I

Id	
Question	_____ converts n-paraffins to i-paraffins.
A	Alkylation
B	Polymerisation
C	Isomerisation
D	None of these
Answer	
Marks	1.5
Unit	I

Id	
Question	Higher viscosity of lubricating oil usually signifies
A	Lower Reid vapour pressure
B	Higher acid number
C	Higher flash point and fire point
D	Lower flash point and fire point
Answer	
Marks	1.5
Unit	II

Id	
Question	Viscosity index of a lubricating oil
A	Is the measure of its flash point
B	Is the measure of variation of viscosity with temperature
C	Should be low
D	None of these
Answer	
Marks	1.5
Unit	II

Id	
Question	Diesel index (an alternative index for expressing the quality of diesel) is
A	Determined by using a test engine
B	Not related to aniline point
C	Equal to cetane number plus 3
D	All (A), (B) & (C)
Answer	
Marks	1.5
Unit	II

Id	
Question	Catalyst used in the catalytic cracking is
A	Silica-alumina
B	Silica gel
C	Vanadium pentoxide
D	Nickel
Answer	
Marks	1.5
Unit	I

Id	
Question	High aniline point of diesel indicates that, it
A	Is highly aromatic
B	Has a large ignition delay
C	Is highly paraffinic
D	Has a low diesel index
Answer	
Marks	1.5
Unit	II

Id	
Question	Main constituent of natural gas is
A	CH ₄
B	C ₂ H ₂
C	C ₂ H ₄
D	C ₂ H ₆
Answer	
Marks	1.5
Unit	III

Id	
Question	Which of the following additives improves the cetane number of diesel?
A	Amyl nitrate
B	Ethyl mercaptan
C	Naphthenic acid
D	Tetra ethyl lead
Answer	
Marks	1.5
Unit	I

Id	
Question	Alkylation
A	Causes olefins to combine with each other
B	Causes olefins to combine with iso-paraffins
C	Converts iso-paraffin into olefin
D	Converts olefin into paraffin
Answer	
Marks	1.5
Unit	I

Id	
Question	Octane number of gasoline is a measure of its
A	Resistance to knock
B	Ignition delay
C	Ignition temperature
D	Smoke point
Answer	
Marks	1.5
Unit	I

Id	
Question	Diesel index is defined as
A	$(\text{°API}) \times (\text{Aniline Point, °F})/100$
B	$(\text{°API}) \times (\text{Aniline Point, °C})/100$
C	$(\text{°API}) \times (100)/\text{Aniline Point, °F}$
D	$(\text{°API}) \times (100)/\text{Aniline Point, °C}$
Answer	
Marks	1.5
Unit	II

Id	
Question	Liquefied petroleum Gas (LPG) used for the household cooking comprises mainly of
A	Propane & butane
B	Butane & ethane
C	Methane & ethane
D	Methane & carbon monoxide
Answer	
Marks	1.5
Unit	I

Id	
Question	The catalytic cracking of heavier petroleum fraction is done to produce mainly
A	Gasoline
B	Asphalt
C	Diesel oil
D	Tar
Answer	
Marks	1.5
Unit	I

Id	
Question	Performance number of a liquid fuel is related to its
A	Wax content
B	Spontaneous ignition temperature
C	Knocking tendency
D	Sulphur content
Answer	
Marks	1.5
Unit	I

Id	
Question	The ethene is produced from petroleum by ...
A	Reforming
B	Polymerisation
C	steam cracking.
D	boiling
Answer	
Marks	1.5
Unit	I

Id	
Question	E85 means
A	Gasoline 85% and ethanol 15%
B	Gasoline 15% and ethanol 85%
C	Natural gas 85% and ethanol 15%
D	Gasoline 85% and 15% methane
Answer	
Marks	1.5
Unit	I

Id	
Question	For producing the same power level ethanol needs to as compared to gasoline
A	2 times
B	1.5 times
C	3 times
D	2.5 times
Answer	
Marks	1.5
Unit	III

Id	
Question	For producing the same power level methanol needs to as compared to gasoline
A	2 times
B	1.5 times
C	3 times
D	2.5 times
Answer	
Marks	1.5
Unit	III

Id	
Question	Ignition temperature of ethanol is ----- than gasoline
A	higher
B	lower
C	equal
D	None of these
Answer	
Marks	1.5
Unit	III

Id	
Question	Burning visibility of methanol as compared to ethanol in day light
A	Invisible
B	Visible
C	Both are invisible
D	Both are visible
Answer	
Marks	1.5
Unit	III

Id	
Question	Latent heat of vaporization of ethanol is
A	923
B	990
C	1000
D	800
Answer	
Marks	1.5
Unit	III

Id	
Question	Latent heat of vaporization of Methanol as compared to gasoline
A	1.5 times
B	1.3 times
C	1.8 times
D	2 times
Answer	
Marks	1.5
Unit	III