

Q.1	Bituminous coal burns with a) Long smoky flame b) Smoky yellow flame c) Short non- smoky blue d) None of the above	b
Q. 2	Anthracite has % C of a) 55-65% b) 60-75% c) 78-90% d) 92-96%	d
Q. 3	Proximate analysis involves a) % Ash + % VM + % moisture b) % C + %H + % O of coal c) % C of coal d) % VM + % moisture + %FC of coal	a
Q. 4	A good fuel is..... a) Moderate ignition temperature b) Cheap and readily available c) High calorific value d) All of the above	d
Q. 5	Unit of Calorific value of a solid fuel in MKS system is..... a) Cal/g b) Kcal/Kg c) J/Kg d) Cal/lit	b
Q. 6	Calorific value of a good fuel is..... a) High b) low c) Mild d) None of the above	a
Q. 7	Full form of GCV is..... a) Gross Calorific value b) Grace calorific value c) Ground calorific value d) Gram calorific Value	a
Q. 8	Relation between GCV & NCV is a) $GCV + NCV = \text{Latent heat of water vapour}$ b) $GCV = NCV + \text{Latent heat of water vapour}$ c) $\text{Latent heat of water vapour} = NCV - GCV$ d) None of the above	b
Q. 9	SI unit of calorific value is..... a) Cal/gm b) Lit/gm c) J/lit	d

	d) J/kg	
Q. 10	Moisture, ash content, volatile matter and fixed carbon are measured for coal as a part of _____. a) Proximate analysis b) Proximate analysis & Ultimate Analysis c) Ultimate Analysis d) None of the above	a
Q. 11	What is the percentage of oxygen by volume in the atmosphere? a) 14 b) 23 c) 21 d) 79	c
Q. 12	LPG is predominantly _____. a) Methane b) Hydrogen c) A mixture of butane + propane d) Ethane	a
Q. 13	Biogas is produced by anaerobic fermentation of biological materials. The main constituent of biogas is _____. a) Methane b) Ethane c) Butane d) Propane	a
Q. 14	Which of the following is a nonrenewable energy resource? a) Solar energy b) Wind energy c) hydroelectric d) Coal	d
Q. 15	Bomb calorimeter is used for finding calorific value of _____ Fuels. a) Nonvolatile liquid fuel b) Gas fuel c) Solid fuel d) Both a and c above	d
Q. 16	Boy's calorimeter gives the calorific value of _____. a) Volatile liquid Fuel b) Gaseous fuel c) Both a and b d) None of the above	c
Q. 17	Wood when converted into coal has Calorific value a) high b) low c) medium d) none of the above	a
Q. 18	The texture of anthracite coal is _____. a) Brown fibrous b) Lustrous black c) Lustrous green d) Dull grey	b

Q. 19	A coal contains C= 92 % is a) Peat b) Lignite c) Bituminous d) Anthracite	d
Q. 20	For determination of % VM, coal sample is kept in muffle furnace for . a) 500° C, 5 min b) 725 °C,5 min c) 800 °C, 8 min d) 925° C ,7 min	d
Q. 21	Ignition temperature decreases progressively from anthracite to lignite, because a) volatile matter content increases b) carbon content decreases c) moisture content decreases d) ash content decreases	a
Q. 22	Which of the following constituents of a fuel does not contribute to its calorific value on combustion? a) Hydrogen b) Sulphur c) Carbon d) Nitrogen	d
Q. 23	Calorific value of a typical dry anthracite coal may be around Kcal/kg. a) 1000 b) 4000 c) 8000 d) 15000	c
Q. 24	Principle of Bomb calorimeter is . a) Total heat liberated by complete combustion of known amount of fuel is absorbed by known mass of water in calorimeter b) Total heat liberated by complete combustion of known amount of fuel is 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	a
Q. 25	In Boy's gas calorimeter burner is surrounded by chimney called as _ a) Combustion chamber b) Upper chamber c) Burnibng chamber d) None of the above	a
Q. 26	Biodiesel is obtained from a) mineral oil b) crude oil c) vegetable oil d) none of these	c

Q. 27	Biodiesel is a) nonrenewable b) a toxic fuel c) biodegradable d) none of these	c
Q. 28	Which of the following is a true statement? a) Higher is the volatile matter higher is ignition temperature b) Higher is the volatile matter lower is ignition temperature c) Lower is the volatile matter higher is ignition temperature d) Lower is the volatile matter lower is ignition temperature	b
Q. 29	Which of the following gas has highest calorific value? a) Sulphur b) Nitrogen c) oxygen d) Hydrogen	d
Q. 30	What is knocking? a) Wear and tear of machine b) Sharp metallic rattling noise c) Warming up of machine d) Increase in working temperature	b
Q. 31	Octane no. of petrol is percentage of . a) Pentane and isopentane b) Butane and isobutane c) n heptane and iso-octane d) none of the above	c
Q. 32	In petrol engine, knocking is due to . a) slow combustion b) Moderate combustion c) spontaneous combustion d) None of the above	c
Q. 33	2 methylnaphthalene have Cetane no. . a) 0 b) 100 c) 90 d) 28	a
Q. 34	Octane no. of iso-octane is . a) 20 b) 90 c) 0 d) 100	d
Q. 35	when mixed with petrol in proper proportion is called as power alcohol. a) Propanol b) Butanol c) Ethanol d) Iso Propyl alcohol	c
Q. 36	CNG is . a) Compressed natural gas about 1000 atm. b) Substitute of gasoline c) 88% CH ₄ + 10-11 % C ₂ -C ₄ + CO = 0.5-1% d) all of the above	d

Q. 37	Biodiesel is produced via . a) Neutralisation process b) Transesterification process. c) Etherification Process. d) None of the above	b
Q. 38	Ethyl alcohol is manufactured commercially by _ a) reaction of ethylene with water b) hydrolysis of C ₂ H ₅ Cl c) hydrolysis of ethyl acetate d) fermentation of sucrose, starch	d
Q. 39 *	1.4 of coal sample in Kjeldahl's experiment liberate ammonia absorbed in 50ml 0.1N H ₂ SO ₄ the resultant solution required 14 ml of 0.1 N NaOH for complete neutralization Blank titration reading in 25ml Find %N in coal . a) 0.11 b) 0.011 c) 1.1 d) 1.01	c
Q. 40 *	Theoretical oxygen required for a solid fuel has composition C-86%, H-11.75%, O-2.25 %, is 2.995 kg. Calculate theoretical air supplied per kg of fuel. a) 130.02 b) 13.02 c) 1.302 d) None of the above	b
Q. 41	Value of L latent heat of condensation of water vapour in cal/gm is a) 578 b) 875 c) 857 d) 587	d
Q. 42	% S estimation in a mass of coal is given by . a) %S= 16/233X weight of BaSO ₄ / weight of coal X 100 b) %S= 12/233X weight of BaSO ₄ / weight of coal X100 c) %S= 32/233X weight of BaSO ₄ / weight of coal X 100 d) None of the above	c
Q. 43	% O is given by a) % O = 100 – (% C +% H +% S +% N +% Ash) b) % O = 100– (% C +% H) c) % O = 100– (% C +% S +% N) d) % O = 100– (%H)	a
Q. 44	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%	c
Q.45	Air contains 21% of by volume a) nitrogen b) sulphur dioxide c) hydrogen d) oxygen	d

Q. 46	Air contains % oxygen by mass a) 23 b) 21 c) 22 d) 20	a
Q. 47	Combustion of methane is given by the following reaction a) $\text{CH}_4(\text{s}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g}) + \Delta\text{H}$ b) $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g}) + \Delta\text{H}$ c) $\text{CH}_4(\text{g}) + 2\text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2(\text{l}) + \Delta\text{H}$ d) $\text{CH}_4(\text{g}) \rightarrow \text{CO}_2(\text{g}) + 2\text{H}_2\text{O}(\text{g}) + \Delta\text{H}$	b
Q. 48	Higher efficiency in the combustion of solid fuel cannot be achieved by . a) Proper fuel preparation b) Keeping the flue gas exhaust temperature very high. c) adopting efficient-fuel firing technique & equipment d) Supplying correct quantity of combustion air.	b
Q. 49	During combustion of gaseous fuels, deficiency of air . a) lengthens the flame b) Tends to shorten the flame. c) does not affect the flame length d) increases the flame temperature	a
Q. 50	Gross and Net calorific value of a fuel will be the same . a) if its ash content is zero. b) If its carbon content is very low c) If its hydrogen/hydrogen compound content is zero. d) Under no circumstances.	c
Q. 51	The reactions in fuel cells are particularly. a) neutralization reactions b) exothermic reactions c) endothermic reactions d) redox reactions	d
Q. 52	Presence of in a dry gaseous fuel does contribute to its calorific value. a) nitrogen b) hydrogen c) both a and b d) none of the above	b
Q. 53	Air/gas ratio for complete combustion will be the highest for . a) LPG b) gobar gas c) hydrogen d) none of the above	a
Q. 54	Bituminous coal is heated in the absence of air at 900-1200° C to get high carbonized coal of a) Low Aromatic Hydrocarbons b) High Aromatic Hydrocarbons c) Both a and b d) None of the above	b

Q. 55	Anthracite coal ____. a) contains more volatile matter than bituminous coal. b) ignites more easily than bituminous coal. c) is essentially a coking coal. d) burns with short, bluish, yellow-tipped flame producing very little smoke.	d
Q. 56	Fossil fuels mean ____. a) solid fuels b) liquid fuels c) Those fuels which are found in earth's crust. d) Premature fuels with low calorific value.	c
Q. 57 *	Straight chain hydrocarbons give knocking in petrol engine and knocking in diesel engine. a) maximum, maximum b) minimum, minimum c) maximum, minimum d) minimum,maximum	c
Q. 58	Analysis of coal is necessary for a) commercial classification b) price fixation c) industrial utilization d) all of these	d
Q. 59	A good fuel is the one which burns completely on supply of a) calculated air quantity b) excess air c) moist air d) polluted air	a
Q. 60	Main constituent of natural gas is. a) CH ₄ (up to 90%) b) C ₂ H ₆ c) C ₃ H ₈ d) H ₂	a
Q. 61	The Chemical name of cetane is a) n hexadecane b) n heptane c) Octane d) Decane	a
Q. 62	Addition of Ethyl Alcohol to petrol is a) Increases the octane no. b) Decreases the octane no. c) Makes the combustion fast d) Knocks badly	a
Q. 63	Which of the following has the highest-octane no.? a) Iso-octane b) Cyclohexane c) Toulene d) n- Heptane	a
Q. 64	Which of the fuels has highest heat of combustion? a) Petrol b) Diesel c) Kerosene d) Hydrogen	d

Q. 65	The electrode used in hydrogen oxygen fuel cell is a) Platinum b) Palladium c) Zirconium d) Zinc	a
Q. 66	The quality of diesel is expressed in terms of a) Octane-number b) Cetane number c) Index number d) Viscosity	b
Q. 67	In order to calculate LCV of a fuel a) Percentage of hydrogen should be known b) Moisture content is required c) High calorific value of fuel is required d) Amount of Air required for combustion is required.	c
Q. 68	Which of them has lowest calorific value ? a) Solid Fuel b) Liquid fuel c) Gaseous fuel d) Petroleum	a
Q. 69	Which of the following petroleum fractions has lowest boiling point? a) Diesel b) Kerosene c) Petroleum ether d) Petrol	c
Q. 70	The addition of TEL to gasoline a) Decreases the octane no. b) Increases the octane no. c) Makes the combustion fast d) None of the above	b
Q. 71	Phosphoric acid fuel cell operates at a) 200 °C b) 100°C c) 350°C d) 175°C	a
Q. 72	The of oxygen is the rate determining factor for the performance of the fuel cell. a) Reduction b) Oxidation c) Redox d) None of the above	a
Q. 73	The fuel used in Phosphoric acid fuel cell (PAFC) is a) Methanol b) Ethanol c) Propanol d) Hexanol	a
Q. 74	The fuel cell was first used in . a) Commercial Aircraft b) Submarine c) Apollo project d) Ship	a

Q. 75	1 Calorie = Joules a) 4.88 b) 4.18 c) 4.81 d) 4.118	b
Q.76	In fractional distillation of crude oil, hydrocarbons are separated according to their boiling point range by stepwise cooling in such a way that a) vapours of lower boiling point condense first b) vapours of lower boiling point condense last c) vapours of higher boiling point condense first d) vapours of higher boiling point remain in vapour state	c
Q.77	Cetane number of is higher than a) branched alkanes, aromatics b) alkenes, cycloalkanes c) aromatics, alkenes d) straight chain alkanes, cycloalkanes	a
Q. 78	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	a
Q.79	Octane number of _ is higher than a) branched alkanes, aromatics b) cycloalkanes, alkanes c) aromatics, alkenes d) straight chain alkanes, cycloalkanes	d
Q.80	The progressive transformation of wood to anthracite results in a) increase in carbon content b) increase in hardness c) increase in calorific value d) all of these	d
Q.81	Quality of coal is said to be good if a) % of carbon is high b) % of moisture is high c) % of volatile matter is high d) % of ash is high	a
Q.82	Molar ratio of alcohol to triglyceride required to complete transesterification reaction is _____ a) 1: 3 b) 3: 1 c) 1: 1 d) 1 : 5	b
Q.83	The major advantage of fuel cell is a) It uses large weight and volume of gas-fuel storage b) It uses platinum as a catalyst c) It saves fossil fuel d) Its performance is dependent on power plant size	c

Q. 84	In Boy's gas Calorimeter, spiral tube enclosed in a fully insulated jacket is made up of a) Brass b) Zn c) Cu d) Alloy	c
Q. 85	Dry alcohol is d) absolute alcohol e) 100% alcohol f) 50% water + 50% alcohol g) Both a and b above	d
Q. 86	Analysis of %S in ultimate analysis is also known as a) Kjeldahls Method b) Eschka Method c) Dumas Method d) None of the above	b
Q.87 *	If 2.02 g of coal is combusted in combustion tube On 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) 77.39 d) 79.39	d
Q.88 *	A coal has GCV = 7800 cal/gm and 4% hydrogen, its net calorific value is a) 8875 cal/gm b) 7588 cal/gm c) 5788 cal/gm d) 3005.8 cal/gm	b
Q.89 *	A coal has NCV = 7000 cal/gm and 5 % hydrogen, its gross calorific value is a) 7400 cal/gm b) 6736 cal/gm c) 7936 cal/gm d) 7264 cal/gm	d
Q.90 *	A coal sample weighing 1 gm, loses 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) 91	b
Q.91 *	The weight of oxygen for combustion of 1 kg of coal containing 95 % carbon and remaining Sulphur will be a) 2.62 kg b) 2.00 kg c) 3.52 kg d) 4.1 kg	a
Q.92 *	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	a

Q.93 *	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 will be a) 3600 cal/gm b) 7200 gm c) 4800 cal/gm d) none of these	b
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