AG : AGRICULTURAL ENGINEERING

Duration: Three Hours *Maximum Ma*

Read the following instructions carefully.

1. This question paper contains 16 pages including blank pages for rough work. Please check all pages and report discrepancy, if any.

2. Write your registration number, your name and name of the examination centre at the specified locations on the right half of the **Optical Response Sheet (ORS)**.

3. Using HB pencil, darken the appropriate bubble under each digit of your registration number and the letters corresponding to your paper code.

4. All questions in this paper are of objective type.

5. Questions must be answered on the **ORS** by darkening the appropriate bubble (marked A, B, C, D) using HB pencil against the question number on the left hand side of the ORS. **For each question darken the bubble of the correct answer.** In case you wish to change an answer, erase the old answer completely. More than one answer bubbled against a question will be treated as an incorrect response.

6. There are a total of 65 questions carrying 100 marks.

7. Questions Q.1 – Q.25 will carry 1-mark each, and questions Q.26 – Q.55 will carry 2-marks each.

8. Questions Q.48 – Q.51 (2 pairs) are common data questions and question pairs (Q.52, Q.53) and (Q.54, Q.55) are linked answer questions. The answer to the second question of the linked answer questions depends on the answer to the first question of the pair. If the first question in the linked pair is wrongly answered or is un-attempted, then the answer to the second question in the pair will not be evaluated.

9. Questions Q.56 – Q.65 belong to General Aptitude (GA). Questions Q.56 – Q.60 will carry 1-mark each, and questions Q.61 – Q.65 will carry 2-marks each. The GA questions will begin on a fresh page starting from page **10**.

10. Un-attempted questions will carry zero marks.

11. Wrong answers will carry **NEGATIVE** marks. For Q.1 – Q.25 and Q.56 – Q.60, ⅓ mark will be deducted for each wrong answer. For Q.26 – Q.51 and Q.61 – Q.65, ⅔ mark will be deducted for each wrong answer. The question pairs (Q.52, Q.53), and (Q.54, Q.55) are questions with linked answers. There will be negative marks only for wrong answer to the first question of the linked answer question pair i.e. for Q.52 and Q.54, ⅔ mark will be deducted for each wrong answer. There is no negative marking for Q.53 and Q.55.

12. Calculator (without data connectivity) is allowed in the examination hall.

13. Charts, graph sheets or tables are NOT allowed in the examination hall.

14. Rough work can be done on the question paper itself. Additionally, blank pages are provided at the end of the question paper for rough work.

Q.1 – Q.25 carry one mark each.

Q.1 A particular solution of $\frac{d^2y}{dx^2} + 5\frac{dy}{dx} - 3y = 6$ is

(A) 2.0 (B) 0.5 (C) –0.5 (D) –2.0

Q.2 The partial differential equation $\frac{\partial^2 u}{\partial x^2} - 7\frac{\partial^2 u}{\partial x \partial y} + 2\frac{\partial^2 u}{\partial y^2} = 0$ is said to be

(A) parabolic (B) hyperbolic (C) elliptic (D) eccentric

Q.3 While carrying out tillage operations, negative slip is sometimes experienced with

(A) front wheels of two-wheel drive tractor
(B) front wheels of four-wheel drive tractor
(C) front wheels of front wheel assisted tractor
(D) wheels of power tiller pulling a mould board plough

Q.4 A two-wheel drive tractor has a PTO speed of 540 rpm and it produces 35 kW net engine power. Corresponding torque available at PTO in N m will be

(A) 435 – 457
(B) 465 – 485
(C) 495 – 505
(D) 535 – 558

Q.5 Raising the hitch on the implement frame of a pull type offset disk harrow without gauge wheel helps in

(A) increasing the depth of penetration for the rear gang
(B) increasing the depth of penetration for the front gang
(C) decreasing the depth of penetration for the front gang
(D) maintaining the same depth of penetration for both the gangs

Q.6 While deriving the Chezy formula for uniform flow, it is assumed that there is a balance between

(A) gravity and inertial forces
(B) inertial and viscous forces
(C) frictional and gravity forces
(D) frictional and inertial forces

Q.7 A cross regulator is usually provided

(A) at the head of the off-taking channel
(B) in the main channel upstream of the off-taking channel
(C) in the main channel downstream of the off-taking channel
(D) in the watercourse to regulate the outlets

Q.8 An effective rainfall of 20 mm h^{-1} occurs for 2 hours in a catchment. The time of concentration of the catchment is 1.5 hour. The peak of the resulting direct runoff hydrograph, in mm h^{-1}, is

(A) 10 (B) 20
(C) 30 (D) 40

Q.9 The dimensionless number in heat transfer corresponding to Sherwood Number in mas

(A) Biot Number (B) Schmidt Number
(C) Nusselt Number (D) Graetz Number

Q.10 The interrelationship between thermal conductivity, dynamic viscosity and temperature of gas can be described as

(A) dynamic viscosity and thermal conductivity decrease as temperature increases
(B) dynamic viscosity decreases and thermal conductivity increases as temperature increases
(C) dynamic viscosity and thermal conductivity decrease as temperature decreases
(D) dynamic viscosity and thermal conductivity increase as temperature decreases

Q.11 A system of equations represented as

$$\begin{bmatrix} 1 & -1 & 2 \\ 2 & 1 & -4 \\ 1 & 3 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 4 \\ 1 \\ 3 \end{bmatrix} \text{ is}$$

(A) consistent and has unique solution (B) inconsistent and has no solution
(C) consistent and has infinite solutions (D) inconsistent and has unique solution

Q.12 There is a significant difference between scores from two groups if

(A) the means are large compared to the standard error
(B) the difference between the means is large compared to the standard error
(C) the means are small compared to the standard error
(D) the difference between the standard deviation is large compared to the means

Q.13 The error in using trapezoidal rule for finding the value of

$$\int_0^1 \frac{dx}{1+x} \text{ is}$$

(A) 0.0368 (B) 0.0468 (C) 0.0568 (D) 0.0668

Q.14 A farmer constructed a 2 m^3 40 days HRT (hydraulic retention time) Deenbandhu model biogas plant. The gas will be solely used for cooking in a stove with a burner efficiency of 45%. If the density of biogas is 0.94 kg m^{-3} with a heating value of 21 MJ kg^{-1}, the total effective energy available per day in MJ will be

(A) 17.77 (B) 18.91 (C) 24.47 (D) 39.48

Q.15 A 2 x 0.3 m tractor drawn mould board plough while operating at a depth of 0.15 m has a draft of 2.5 kN at a forward speed of 3 km h^{-1} with a field efficiency of 75%. When the speed of operation is increased by 20%, draft increased by 10%. Assuming field efficiency, soil pulverization and soil inversion to be the same at both the speeds, the performance index of the plough increases by

(A) 0% (B) 9% (C) 20% (D) 30%

Q.16 While evaluating a stationary power thresher for threshing wheat having a grain to straw ratio of 45% and at a moisture content (dry basis) of 14%, the following observations were recorded for a duration of 5 min:
Quantity of grain (clean and broken) collected at main grain outlet = 16 kg, quantity of clean grain collected at bhusa outlet = 0.3 kg, quantity of clean grain obtained at sieve underflow and overflow = 0.2 kg and quantity of unthreshed grain from all outlets = 0.5 kg.

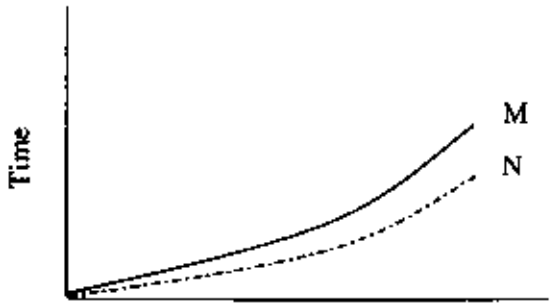
Percentage of blown and spilled grain are

(A) 1.18, 3.03 (B) 1.25, 1.82 (C) 1.76, 1.18 (D) 1.88, 1.25

Q.17 The Local Apparent Time (LAT) corresponding to 14 h 30' Indian Standard Time (IST) in India (19° 07'N, 72° 51'E) in the month of April with a time correction of zero min will

(A) 13 h 51' 24"
(B) 14 h 9' 39"
(C) 14 h 30'
(D) 15 h 8' 36"

Q.18 The following figure shows two advance curves for surface irrigation.



The advance represented by curve M is slower than N. This could be attributed to

P. the inflow rate to the field is lower
Q. the intake rate of the soil is lower
R. the field slope is flatter
S. the hydraulic roughness is greater for curve N than for curve M

(A) P, Q
(B) P, R
(C) Q, S
(D) R, S

Q.19 A land survey is conducted on 40 m × 40 m grids and the elevations of grids in m from mean sea level are as follows.

	A	B	C
1	102.3	103.0	103.7
2	101.5	102.4	102.3
3	101.2	103.5	102.6

Assuming that cut is equal to fill, the volume of earthwork required to level the area in m^3 is

(A) 4480 (B) 4840 (C) 5480 (D) 6480

Q.20 For hydrologic design, the entire runoff hydrograph should be known in case of

(A) Drop spillway
(B) Chute spillway
(C) Drop inlet spillway
(D) Ogee spillway

Q.21 For a given watershed, the rainfall erosivity index is 1000 MJ mm ha^{-1} h^{-1} $year^{-1}$, soil erodibility index is 0.25 Mg ha h ha^{-1} MJ^{-1} mm^{-1}, crop management factor is 0.75, conservation practice factor is 1.0 and slope length factor is 0.2. If by certain conservation practices, the conservation practice factor is reduced to 0.7, then the reduction in soil loss, in Mg ha^{-1} $year^{-1}$ is

(A) 9.75 (B) 11.25 (C) 11.75 (D) 12.25

Q.22 Eight log cycle reduction of *Clostridium botulinum* having z-value of 9 °C needs a pro... 1.5 minute at 121°C temperature. The same degree of reduction at 130°C temperature wi... a process time of

(A) 72 s (B) 54 s (C) 18 s (D) 9 s

Q.23 Let m, n and p be the numbers of carbon, hydrogen and fluorine atoms in a refrigerant. The identification number of the refrigerant is

(A) R(m+1)(n–1)p (B) R(m–1)(n+1)p (C) R(m–1)(n–1)p (D) R(m+1)(n+1)p

Q.24 A household refrigerator of 1 TR capacity operates half the time during 13-hour long days and 30% time during the nights. If coefficient of performance is 4.7 then at Rs. 3 per kWh, monthly (30 days) electricity bill in Rupees for the refrigerator is

(A) 110 (B) 220 (C) 440 (D) 660

Q.25 Air at 40°C temperature has partial vapour pressure of 2.4 kPa. If universal gas constant is 8.314 kJ kg mole^{-1} K^{-1} and total pressure is 101.325 kPa then humid volume of air in m^3 (kg dry air)$^{-1}$ is

(A) 0.809 (B) 0.908 (C) 1.089 (D) 1.098

Q.26 – Q.55 carry two marks each.

Q.26 The curl of the vector $\mathbf{A} = xy\mathbf{i} + yz\mathbf{j} + zx\mathbf{k}$ ($\mathbf{i}$, $\mathbf{j}$ and $\mathbf{k}$ represent unit vectors along the three orthogonal axes) is

(A) $x\mathbf{i} + y\mathbf{j} + z\mathbf{k}$ (B) $-x\mathbf{i} - y\mathbf{j} - z\mathbf{k}$ (C) $y\mathbf{i} + z\mathbf{j} + x\mathbf{k}$ (D) $-y\mathbf{i} - z\mathbf{j} - x\mathbf{k}$

Q.27 The angle of intersection between the planes $x - 3y + 2z = 10$ and $2x + 4y + 5z = 0$ is

(A) 30° (B) 60° (C) 75° (D) 90°

Q.28 The Laplace transformation of t^3e^{4t} is

(A) $\frac{4!}{(s-3)^4}$ (B) $\frac{3!}{(s-4)^4}$ (C) $\frac{3!}{(s-4)^3}$ (D) $\frac{4!}{(s-4)^3}$

Q.29 The derivative of

$y = \sqrt{x + \sqrt{x + \sqrt{x + \ldots}}}$ with respect to x at $y = 0$ is

(A) –1 (B) 0 (C) 1 (D) 2

Q.30 The value of $\int_0^2 \int_0^y xy\, dx\, dy$ is

(A) 0.5 (B) 1.0 (C) 2.0 (D) 4.0

Q.31 A thresher requires a torque of $(5000 + 500 \sin \alpha)$ N m to drive, where α is the angle of rotation of shaft measured from certain datum. The thresher is directly coupled to an engine which produces a torque of $(5000 + 600 \sin 2\alpha)$ N m. The fly wheel and the rotary parts attached to the engine have a mass of 500 kg at a radius of gyration 0.4 m. The maximum angular acceleration of the flywheel in rad sec^{-2} will be

(A) 3.46 (B) 5.46 (C) 7.46 (D) 9.46

Q.32 The tractor seat vibrates with a frequency of 1 Hz when there is no damping. When d provided, the frequency of damped vibration is reduced by 10%. The damping factor is

(A) 0.21 (B) 0.39 (C) 0.44 (D) 0.93

Q.33 A disk type mower, operated by a tractor PTO, has six discs with a swath of 0.4 m per disk. The specific energy required for cutting is 2.1 kJ m^{-2} and specific power losses due to air, stubble and gear train friction are 2 kW m^{-1} of cutting width. If the mower with tractor requires a propelling force of 2 kN, the total power requirement for carrying out mowing in kW at a forward speed of 3 km h^{-1} is

(A) 6.47 (B) 7.57 (C) 8.33 (D) 10.67

Q.34 In a tractor differential, the pinion on the propeller shaft has 12 teeth and the crown gear has 60 teeth. The propeller shaft rotates at 1000 rpm and the right rear axle rotates at 210 rpm while taking a left turn. The rotation of the left rear axle in rpm will be

(A) 170 (B) 180 (C) 190 (D) 200

Q.35 Match all items in **Group I** with correct options from those in **Group II**

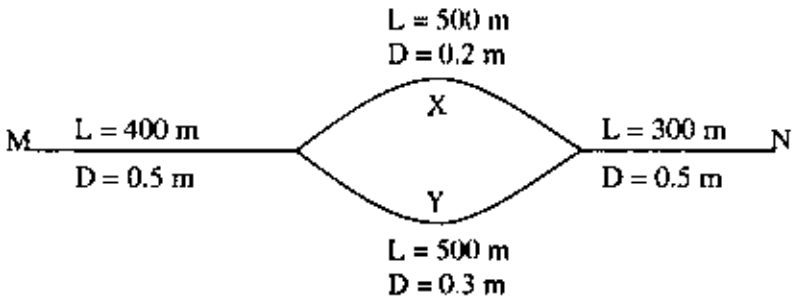
Group I	**Group II**
i. Slider crank mechanism	a. Tractor steering
ii. Four bar linkage mechanism	b. Attachment of pitman to knife head
iii. Ball and socket joint	c. Planting unit of rice transplanter
iv. Worm and roller type unit	d. Vertical conveyor reaper

(A) i – d , ii – c, iii – b, iv – a (B) i – b , ii – c, iii – a, iv – d
(C) i – d , ii – c, iii – a, iv – b (D) i – b , ii – d, iii – a, iv – c

Q.36 The mass of a 3.0 mm crumbled soil thread is 17.5×10^{-3} kg. On oven-drying, the mass of the soil thread reduces to 14.9×10^{-3} kg. The liquid limit of the soil sample is 35.4%. The plasticity index of the soil sample is

(A) 14.9 (B) 18.0 (C) 32.8 (D) 35.4

Q.37 A pipeline carrying a discharge of 500 litres per minute branches into two parallel pipes, X and Y, as shown in the following figure. The length and diameter of pipes X and Y are shown in the figure.



The friction factor, f, for all pipes is 0.030. The ratio of flow in pipes X and Y is

(A) 0.36 (B) 0.44 (C) 0.67 (D) 1.00

Q.38 A pump installed in an existing irrigation system delivers 3200 litres per minute flow at a total head of 60.0 m. The impeller diameter is 0.26 m and it is rotated at 1800 rpm. A motor with an output shaft power of 54 kW is required to drive the pump. The existing irrigation system, however, is modified in such a way that the discharge pressure requirement is reduced to 52.0 m while keeping the flow rate unchanged. If the existing pump is to be utilized, then to meet the new system requirement, the impeller diameter in m will be

(A) 0.24 (B) 0.25 (C) 0.26 (D) 0.27

Q.39 In order to evaluate irrigation distribution, an irrigator estimates the depth of infiltrat around a field as given below.

42	36	32	38
40	32	35	34
25	28	29	31
36	30	32	28
40	38	34	44

The distribution uniformity for the irrigation is

(A) 80.4 (B) 81.9 (C) 87.9 (D) 88.1

Q.40 A parabolic shaped grassed waterway has a top width of 4 m, a maximum depth of 0.40 m, and a slope of 2.5%. The Manning's 'n' value is 0.035 and there is no provision of freeboard. The discharge carrying capacity of the waterway in $m^3 s^{-1}$ is

(A) 1.38 (B) 1.52 (C) 1.76 (D) 1.96

Q.41 In an irrigation command area, the irrigation interval, gross application in an irrigation and the application efficiency are 20 days, 75 mm and 60%, respectively. The soil is homogeneous with $K = 0.9$ m day^{-1}. The impermeable layer is at a depth of 7 m from the ground surface. The area is to be tile drained with tiles at a depth of 2 m below the ground surface. The maximum permissible steady state water table height mid-way between the drains, from the plane of the drain, is 1.2 m. Using the steady state approach of Hooghoudt, assuming an equivalent depth of 4.12 m, the drain spacing in m will be

(A) 115.25 (B) 131.75
(C) 146.25 (D) 186.35

Q.42 A tubewell in a confined aquifer has a diameter of 0.30 m. For a certain yield, the radius of influence is 400 m. All conditions remaining the same, if the diameter of the well is doubled, then the percentage increase in the yield is

(A) 9.28 (B) 9.63 (C) 10.00 (D) 10.23

Q.43 The heating surface of an oven has an emissivity of 0.7 with 0.1 m^2 surface area and is maintained at 280°C. The view factor of this surface with respect to a piece of bread of 0.01 m^2 surface area is 0.05. If bread has emissivity of 0.3 and receives 10 W of energy through radiation from the heating surface with Stephan – Boltzman constant of 5.67×10^{-8} W m^{-2} K^{-4}, the steady state bread surface temperature in °C is

(A) 137.2 (B) 118.5 (C) 97.3 (D) 84.5

Q.44 In parboiling operation water to paddy ratio is 1.2. Water of specific heat capacity of 4.2 kJ kg^{-1} K^{-1} is heated from 25°C to 85°C by condensation of steam supplying 2114 kJ kg^{-1} latent heat across a tubular heat exchanger. When 1 ton paddy at 30 °C is poured into the hot water the mixture temperature stabilizes at 75°C. Assuming no heat loss to the surrounding this implies:

P. steam supplied is 431 kg.
Q. specific heat capacity of paddy is 1.12 kJ kg^{-1} K^{-1}.
R. steam supplied is 143 kg.
S. specific heat capacity of paddy is 2.11 kJ kg^{-1} K^{-1}.

(A) P, Q (B) Q, R (C) R, S (D) P, S

Q.45 Density, specific heat capacity and thermal conductivity of air are 0.99 kg m^{-3}, 1 kJ [illegible] 0.03 W m^{-1} K^{-1}, respectively. Convective heat transfer coefficient of air medium and e[illegible] counter-diffusion mass transfer coefficient of water vapour into air are 35 W m^{-2} K[illegible] 0.32 m s^{-1}, respectively. The mass diffusivity of water vapour into the air in m^2 s^{-1} is

(A) 2.46×10^{-5} (B) 4.62×10^{-5} (C) 8.25×10^{-4} (D) 2.85×10^{-3}

Q.46 20% sucrose solution is boiled and frozen separately. If latent heat of vapourization at 100°C and the latent heat of crystallization at 0°C are 2257 and 334 kJ kg^{-1}, respectively, then the ratio of freezing point depression to boiling point elevation is

(A) 6.3 (B) 4.2 (C) 3.6 (D) 2.4

Q.47 Carrot slices of 2 mm thickness are freeze dried from initial free moisture content of 80% (wet basis) to a final free moisture content of 2% (wet basis). Mass density of fresh carrot is 1100 kg m^{-3}. Thermal conductivity of dried layer is 0.005 W m^{-1} K^{-1}. Latent heat of sublimation at −35°C is 2840 kJ kg^{-1} and product surface temperature is −5°C. The total drying time in hour is

(A) 1.2 (B) 2.3 (C) 3.2 (D) 5.4

Common Data Questions

Common Data for Questions 48 and 49:

A field sprayer having 16 fan type spray nozzles spaced 0.5 m apart is moving at a forward speed of 3.5 km h^{-1} with an application rate of 1 m^3 ha^{-1}. At a deposition level 430 mm below the tip of the nozzle, the discharge rate across a 0.2 m width at the centre of the sprayed tip is essentially constant at 15 ml min^{-1} per 10 mm of lateral distance. On each side of this 0.2 m centre strip, the discharge rate per mm of width decreases uniformly to zero at a lateral distance of 0.36 m from the nozzle centre line.

Q.48 The discharge rate per nozzle in m^3 h^{-1} will be

(A) 0.175 (B) 0.215 (C) 0.350 (D) 0.430

Q.49 The nozzle tip height in mm above the deposition level that would give uniform coverage will be

(A) 602 (B) 546 (C) 501 (D) 477

Common Data for Questions 50 and 51:

In a drying experiment on potato slices of 5 mm thickness the initial moisture content of 4.2 kg water (kg dry matter)$^{-1}$ got reduced to 0.03 kg water (kg dry matter)$^{-1}$ by the application of hot air at 65°C having absolute humidity of 0.02 kg water vapour (kg dry air)$^{-1}$ with saturation water vapour pressure of 6 kPa. Critical moisture content of 2.5 kg water (kg dry matter)$^{-1}$ was reached after 3 hour of drying time. The dry matter concentration in the drying chamber was 5 kg per m^2 of surface area.

Q.50 The mass transfer coefficient in kg mole m^{-2} s^{-1} during drying is

(A) 1.43×10^{-3} (B) 3.14×10^{-3} (C) 4.31×10^{-3} (D) 7.87×10^{-3}

Q.51 Mass diffusivity of water vapour in m^2 s^{-1} during the falling rate phase of drying is

(A) 7.01×10^{-4} (B) 5.07×10^{-4} (C) 3.71×10^{-5} (D) 1.07×10^{-5}

Linked Answer Questions

Statement for Linked Answer Questions 52 and 53:

A 37 kW two-wheel drive tractor weighing 20 kN with a wheel base of 2.1 m is having the option to be fitted with either 12.4 – 28 12PR or 13.6 – 28 12 PR at the rear axle. The ratio of section height and section width for all tyres is 0.75. On a level ground, the weight distribution on the front and rear axles is 35 and 65% of the total tractor weight, respectively. Cone index of soil is 1200 kPa.

Q.52 The motion resistance ratio of each of the rear wheels when fitted with the above-mentioned tyres at normal tyre inflation pressure while moving on a level ground will be

(A) 0.04, 0.04 (B) 0.047, 0.055 (C) 0.051, 0.049 (D) 0.057, 0.055

Q.53 Net traction developed in kN by the rear wheels when fitted with 13.6 – 28 12 PR tyre at normal inflation pressure on a level ground with 15% wheel slip will be

(A) 8.79 (B) 9.18 (C) 9.78 (D) 10.32

Statement for Linked Answer Questions 54 and 55:

The peak of a flood hydrograph due to a 1 – h duration isolated storm in a catchment of area 13.5 km^2 is 135 $m^3 s^{-1}$. The total depth of rainfall is 54 mm. Assume a constant base flow of 10 $m^3 s^{-1}$ and phi – index equal to 4 $mm\ h^{-1}$.

Q.54 The peak of 1 – h unit hydrograph for the catchment in $m^3 s^{-1}$ is

(A) 15 (B) 20 (C) 25 (D) 30

Q.55 Assuming the above 1 – h unit hydrograph to be triangular in shape with the time to peak as 1 hour, the peak of the 2 – h unit hydrograph for the catchment in $m^3 s^{-1}$ is

(A) 13.25 (B) 18.75 (C) 21.25 (D) 26.75

General Aptitude (GA) Questions

Q.56 – Q.60 carry one mark each.

Q.56 *Choose the most appropriate word from the options given below to complete the following sentence:*
His rather casual remarks on politics _____ his lack of seriousness about the subject.

(A) masked
(B) belied
(C) betrayed
(D) suppressed

Q.57 *Which of the following options is the closest in meaning to the word below:*
Circuitous

(A) cyclic
(B) indirect
(C) confusing
(D) crooked

Q.58 *Choose the most appropriate word from the options given below to complete the following sentence:*
If we manage to _____ our natural resources, we would leave a better planet for our children.

(A) uphold
(B) restrain
(C) cherish
(D) conserve

Q.59 25 persons are in a room. 15 of them play hockey, 17 of them play football and 10 of them play both hockey and football. Then the number of persons playing neither hockey nor football is:

(A) 2 (B) 17 (C) 13 (D) 3

Q.60 *The question below consists of a pair of related words followed by four pairs of words. Select the pair that best expresses the relation in the original pair.*
Unemployed : Worker

(A) fallow : land
(B) unaware : sleeper
(C) wit : jester
(D) renovated : house

Q.61 – Q.65 carry two marks each.

Q.61 If 137 + 276 = 435 how much is 731 + 672?

(A) 534 (B) 1403 (C) 1623 (D) 1513

Q.62 Hari (H), Gita (G), Irfan (I) and Saira (S) are siblings (i.e. brothers and sisters). All w
1st January. The age difference between any two successive siblings (that is born one afte
is less than 3 years. Given the following facts:

i. Hari's age + Gita's age > Irfan's age + Saira's age.
ii. The age difference between Gita and Saira is 1 year. However, Gita is not the oldest and Saira is not the youngest.
iii. There are no twins.

In what order were they born (oldest first)?

(A) HSIG (B) SGHI (C) IGSH (D) IHSG

Q.63 **Modern warfare has changed from large scale clashes of armies to suppression of civilian populations. Chemical agents that do their work silently appear to be suited to such warfare; and regretfully, there exist people in military establishments who think that chemical agents are useful tools for their cause.**

Which of the following statements best sums up the meaning of the above passage:

(A) Modern warfare has resulted in civil strife.
(B) Chemical agents are useful in modern warfare.
(C) Use of chemical agents in warfare would be undesirable.
(D) People in military establishments like to use chemical agents in war.

Q.64 5 skilled workers can build a wall in 20 days; 8 semi-skilled workers can build a wall in 25 days; 10 unskilled workers can build a wall in 30 days. If a team has 2 skilled, 6 semi-skilled and 5 unskilled workers, how long will it take to build the wall?

(A) 20 days (B) 18 days (C) 16 days (D) 15 days

Q.65 Given digits 2, 2, 3, 3, 3, 4, 4, 4, 4 how many distinct 4 digit numbers greater than 3000 can be formed?

(A) 50 (B) 51 (C) 52 (D) 54

END OF THE QUESTION PAPER

Space for Rough Work

Space for Rough Work

Space for Rough Work

Space for Rough Work

Space for Rough Work