

PSC Miscellaneous Main Exam – Practice Set

Paper – III (General Studies & Arithmetic) Answers with Explanation

Group – A

Humanity

অ্যাচিভার্স

1.

Man is social being. Being, a human being we to be human must possess all the divine features which takes the worldly human beings to something divine. Therefore, possessing such qualities in one's life as a human being which uplifts a person's stature to such a level where his immediate society in general considers him/her as someone to imitate. In this regard divine qualities like compassion and a sense of fellow feeling to one and all as well as qualities like humility, kindness and thereby always following the path of truth may also be considered as one among the many qualities of life which uplifts the personality of a person from human to humane.

অ্যাচিভার্স

In the present-day globalised world human beings of this globe are becoming more and more materialistic. In such a scenario following the path of worldly characteristics which uplifts him to divine creatures is becoming like searching water in a desert. In this regard, it may be said that, human beings desires have elongated at the present times but not his/her means of achieving them as is the case with most of the human beings. Thus, in terms of need versus greed conundrum the world has shrink a lot. We have as human beings have a long list of desires in life at the same time the required hard work to achieve them is lacking in most of the human beings.

অ্যাচিভার্স

Humanity means three different things: a species; a behaviour, and a global identity. The historical relationship between these different dimensions of humanity has been elegantly discussed by the late Bruce Mazlish in his 2009 book *The Idea of Humanity in a Global Era* and it is important to distinguish between these three aspects of being human as we prepare to meet as a global humanitarian movement once again. The definition of humanity has never been exhaustive. What separates humanity from a beach or a reptile is his rational trait as possessed by him. Rationality in we human beings helps him to distinguish the various shades that comes to his life. These shades include joyousness versus sorrow, panic versus courage, happiness versus sadness to name a few in this regard. Humanity since time immemorial

has been a victim of all these shades of life. Human life is not like a uniform and straight line.

The first meaning of humanity describes a particular kind of animal that biologists encouragingly call homo sapiens – or wise human – and which seems distinct from all other animals because of its powers of language, reasoning, imagination and technology. This biological and evolutionary use of the term has the same meaning as “humankind” and marks us out as a particular life form that is different to other kinds of animal and vegetative life. The power of the human species is considerable over the non-human world. This is mainly because our intelligence has consistently invented and deployed tools and technology which means we have come to dominate the earth, and our imagination has shaped religious and political meanings around which we form competing interests and social movements.

অ্যাচিভার্স

We now come to the second meaning of humanity which is used to describe a certain moral value that we can see operating across humankind as kindness and compassion for one another. We can therefore understand this second meaning as the kindness of humans. This humanity is our first Fundamental Principle and primary purpose in the Red Cross and Red Crescent Movement and has been summarized as follows since 1965:

Humanity in this sense is human behaviour that cares for other humans because of a profound and universally held conviction that life is better than death, and that to live well means being treated humanely in relationships of mutual respect. This commitment is a driving principle in the rules of behaviour in the Geneva Conventions, whose 70th anniversary falls this year, and in the Disaster Laws recommended by the Movement to ensure better disaster prevention, preparedness and response around the world.

অ্যাচিভার্স

And what of humanity's behaviour towards non-human life? In our era of climate crisis, environmental degradation and multiple species extinction, the moral principle of humanity is looking increasingly self-referential and incomplete as a primary ethic for the human species. Quite simply, it is not enough for humans only to be kind to humans.

The recent Corona virus crisis is a glittering

example in this regard. In this impending crisis, humanity seems to lose its way before the virus. There has been a race against time for humanity to contain the virus by inventing a vaccine. Yes, it is true that the scientists of the world have made a little bit of headway in this regard. But at the same time, the magnanimity of the crisis at the present time is in its full swing. Most of the time, at the present time, humanity feels itself helpless before Corona virus as well as in helping those who are in dire need of help. Hence, without respecting nature as well as having faith on the omnipotent god life for we the humanity is quite futile as far as crisis prevention is concerned in such a scenario. Therefore, what defines humanity is the fact that, how humanity overcomes the negative shades of life in its journey towards eternity and thereby upholds the positivity and the positive elements in its journey in this world. Therefore, the gist of the definition of humanity is that, humanity is that facet of the world which always looks towards or faces the brighter side of being or in other words, the definition of humanity is in overcoming the negative elements of the world. In the whole process, humanity will certainly herald in an era where there is positivity among them in the form of overall happiness and joy.

অ্যাডভান্স

2.

Online Schooling

As education is one of the most important key to open the ways of prosperous life and achieve ones goal. It helps us to build our own opinion and have own point of views on different things in life. It makes us a good and respected person and a good citizen. Not only this it also helps us to contribute our effort in the development of our economy and nation as well. In ancient time education was not to get the marks or only achieve any goal in life. It was based on the idea to develop ones moral, intellectual and physical qualities, so that one can become an organic member of family and society. Physical education was very important in that days in comparison to mental education. children were sent to their gurus. They used to stay there for a long time and comes after completing their education. Presently technology has become an integral part of our education system with the introduction of new-age digital platforms enhancing the academic landscape in India. Among these technology advancements, the online education has gain

momentum with the availability of a number of companies and various government initiatives making inroads into our education system. Technology must be accessible to all the students, regardless of special needs, different learning styles, or demographics. The most successful strategy for creating an equitable tech experience is to use a platform that employs an accessible design in the earliest content development stages. To make the online education in India more impactful, UGC has permitted higher educational institutions in the country to offer Certificate, Diploma, and Degree Programmes in online mode to the students under the University Grants Commission (Online Courses) Regulations, 2018.

অ্যাডভান্স

The online learning has gained prominence as the world fights Covid-19 pandemic. As most of the nations have adopted for online learning, many Indian edtech companies are also offering free online classes while some are doing it on subsidized rates. The pandemic has led to the indefinite closure of schools, colleges, universities and all extracurricular activities suspended, millions of students have been told to go online to study across the globe

In this way of education, a teacher acts as an intellectual midwife who facilitates a child's thought process and creativity through engagement in critical dialogue, and a diverse and inclusive classroom act as a laboratory for hands-on testing of ideas, interpretations, and counterarguments. It also helps in overcoming fear of anxiety, discrimination, and stage fear. Taking a higher education online is just like taking up a sport like a cricket or a football online. One can learn it when one is actually engaged with it in one's gully or field. According to a survey, it has been seen that as high as 95% of the students drop out of the virtual learning programs. The reasons behind it are solitary learning, lack of social elements, and lack of personal attention that one gets from traditional classrooms lead to demoralization and hence give up.

অ্যাডভান্স

There are other challenges as well. When committed to following a university calendar forces the students to complete the course in time rather than postponing it. Anything done online deviates attention as children check emails, chat with friends, or surf web while attending online lectures. Last but not least is the hardware and software issue that must be addressed before online

learning takes off. There are large sections of the population who don't have access to technology which is a huge concern.

Although e-learning is advancing, it's not flawless. Hence the best solution will be integration rather than a complete replacement for traditional classrooms. Without physical education mental education is nothing. Active body can only create active mind but we are helpless. we have to proceed with online education until and unless we don't have any vaccine. Till then parents have to keep their children busy in activities so that they can be creative during this concerning situation too. Perhaps we cannot go back to pre-pandemic ways of living so easily. But we have to adopt some other ways, as online schooling cannot be the future of education.

ଆପଣ

3. Women' Contribution of the Sports Industry in India

The world of sports is vast enough and for some reasons, it has been fascinated more by men only, but in recent years with the change in era women have come forth and shown the same charisma and stamina as men. It is not regarding women empowerment nor regarding equality, it is only and only about one thing, display of one's ability as a being. Although today Serena Williams, Saina Nehwal and Mary Kom are household names but 120 years ago, when first modern Olympics were held girls were not allowed even as spectators. They have proved time and again that they are not weaker section of the society and they too can put up with the physical stress of competitive sports. Title IX and the Amateur Sports Act of 1972 opened the doors for women to participate in the male-dominated institution of American sports as it prohibits discrimination on the basis of gender, race, and physical disability in open, amateur sports.

ଆପଣ

In India a country where there is general lethargic attitude towards sports, lack of encouragement toward sports-oriented mindset up from family because of traditional way of living and despite the limited support from the government both in infrastructure and morale boost up, we observe the role of women in sports has been quite appreciable and we celebrate it as well. They have combated all odds and conquered challenges to play for the nation. There are women who have taken firmed pathways, struggled hard and stood for the country internationally. Women in sports

industry have helped change the mindset of people in many ways - Karnam Malleswari, P T Usha, Geeta Phogat, P.V.Sindhu, Mary Kom, Sakshi Malik, Saina Nehwal, Sania Mirza, Deepika Pallikal, Mithali Raj, Deepika Kumari, K Kansha Singh, Tanya Sachdeva, Chhanda Gayen, Sharmila Nicollet, Kunjarani Devi are a few to name amongst many female sportsperson who helps you realize the change in area of sports. Ishita Malviya, 1st Indian woman surfer, Mira Erda, the first Indian female formula racer, Archana Sardana, India's 1st, woman BASE (Building Aerial Span Earth) jumper, Koneru Humpy, the World Women Chess Champion, are a few, who are chasing their dreams with vigor and passion and hooked on to their quest of achieving excellence

Despite divisional hierarchy, the role and status of Indian women in sports is not only drawing parallels with men but rather outshining them. The Olympic 2019 results are proof to the commanding presence exhibited by women and glory brought to the country.

4. (a) **RADAR** - Radio Detection And Ranging
(b) **ASSOCHAM**: Associated Chambers of Commerce and Industry
(c) **SLR**: Statutory Liquidity Ratio
(d) **OPEC**: Organisation of Petroleum Exporting Countries
(e) **NITI** : (National Institution for Transforming India) Aayog
5. (a) Yoshihide Suga is the present prime minister of Japan. He was the chief cabinet secretary under Prime Minister Shinzo Abe from 2012 to 2020 and minister for internal affairs and communications from 2006 to 2007.
(b) Prime Minister Narendra Modi on 28 August 2014 launched Pradhan Mantri Jan Dhan Yojana. The Yojana is a mega financial inclusion plan. The primary aim of the Jan Dhan Yojana is to bring poor financially excluded people into the banking system by providing them bank accounts and debit cards. The slogan for the Pradhan Mantri Jan Dhan mission is **Mera Khata – Bhagya Vidhaata**.
(c) Pradhan Mantri Jeevan Jyoti Bima Yojana is basically a term insurance policy which was introduced by the government of India. It was first launched in Kolkata Prime Minister Narendra Modi. The aim of the plan is to provide financial security to the needy section and underprivileged on the loss of a family

member especially the sole earn. 18 years is the minium age for joining the Pradhan mantri Jeevan Jyoti Bima Yojana. অ্যাডভান্স

- (d) Pablo Picasso was a Spanish painter, sculptor, printmaker, ceramicist and theatre designer who spent most of his adult life in France. Regarded as one of the most influential artists of the 20th century, he is known for co-founding the Cubist movement.
- (e) Fiscal policy in India is formulated by The Securities and Exchange board of India (SEBI).
6. (a) Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (launched 2018) is a scheme of the Government of India to provide free access to healthcare for 40% of people in the country.^[1] People using the program access their own primary care services from a family doctor. When anyone needs additional care, then AB-PM JAY provides free secondary health care for those needing specialist treatment and tertiary health care for those requiring hospitalization.
- (b) Pradhan Mantri Ujjwala Yojana launched 1 may, 2016. It launched to provide free LPG connections to women from below poverty line families.
- (c) **Kanyashree** is an initiative taken by the Government of West Bengal to improve the life and the status of the girls by helping economically backward families with cash so that families do not arrange the marriage of their girl child before eighteen years because of economic problem. অ্যাডভান্স
- (d) Matir Katha' is an agriculture based portal involving 5 Departments which are Agriculture, Agricultural marketing, Animal Husbandry, Fisheries and Horticulture. It was **launched** on 5th December 2012 by the Agriculture Department, Government of West Bengal for extending financial support as subsidy to the small and marginal farmers of the State for purchase of farm equipment/machinery
- (e) Pradhan Mantri Kaushal Vikas Yojana launched July 15, 2015. This is a skill development initiative scheme of the Government of India for recognition and standardisation of skills.
7. (a) Ganesh Vasudev Mavalankar (27 November 1888 – 27 February 1956) popularly known as Dadasaheb was an independence activist. He was the first Speaker of the Lok Sabha, the lower house of the Parliament of India.
- (b) Venus “overtakes” the Earth every 584 days as it orbits the Sun. As it does so, it changes from the “Evening Star”, visible after sunset, to the “Morning Star”, visible before sunrise.
- (c) The Grand Canyon is a steep-sided canyon carved by the Colorado River in the United States in the state of Arizona. It is contained within and managed by Grand Canyon National Park, the Hualapai Tribal Nation, and the Havasupai Tribe. অ্যাডভান্স
- (d) colour of light related to- Amplitude. Colour or colour is the visual perceptual property corresponding in humans to the categories called red, green, blue, and others. Colour derives from the spectrum of light (distribution of light power versus wavelength) interacting in the eye with the spectral sensitivities of the light receptors. Colour categories and physical specifications of colour are also associated with objects, materials, light sources, etc. based on their physical properties such as light absorption, reflection, or emission spectra. By defining a colour space, colours can be identified numerically by their coordinates.
- (e) Life of Pi is a fantasy adventure novel by Yann Martel published in 2001. The protagonist, Piscine Molitor “Pi” Patel, an Indian boy from Pondicherry, explores issues of spirituality and practicality from an early age. He survives 227 days after a shipwreck while stranded on a boat in the Pacific Ocean with a Bengal tiger named Richard Parker.
8. (a) Radar is an object detection system which uses radio waves to determine the range, altitude, direction, or speed of objects. It can be used to detect aircraft, ships, spacecraft, guided missiles, motor vehicles, weather formations, and terrain. The radar dish or antenna transmits pulses of radio waves or microwaves which bounce off any object in their path. In 1922 A. Hoyt Taylor and Leo C. Young, researchers working with the U.S. Navy invented Radar. অ্যাডভান্স
- (b) Euclid, also known as Euclid of Alexandria, was a Greek mathematician, often referred to as the “Father of Geometry”. He was active in Alexandria during the reign of Ptolemy I (323–283 BC). Euclid deduced the principles of what is now called Euclidean geometry from a small set of axioms. Euclid also wrote works on perspective, conic sections, spherical geometry, number theory and rigor.
- (c) An optical fiber (or optical fibre) is a flexible,

transparent fiber made of glass (silica) or plastic, slightly thicker than a human hair. It functions as a waveguide, or “light pipe”, to transmit light between the two ends of the fiber. The field of applied science and engineering concerned with the design and application of optical fibers is known as fiber optics. Optical fibers are widely used in fiber-optic communications, which permits transmission over longer distances and at higher bandwidths (data rates) than other forms of communication. Narinder Singh Kapany is an Indian born American physicist invented optical fibre. অ্যাডভান্স

- (d) The discovery of penicillin is attributed to Scottish scientist and Nobel laureate Alexander Fleming in 1928. Penicillin is a secondary metabolite of certain species of *Penicillium* and is produced when growth of the fungus is inhibited by stress. It is not produced during active growth.
- (e) Antoine Henri Becquerel, a French physicist, was the discoverer of radioactivity along with Marie Skłodowska-Curie and Pierre Curie, for which All three won the 1903 Nobel Prize in Physics. Radioactivity refers to the particles Which are emitted from nuclei as a result of nuclear instability.

Group – B

1. (d) Let us assume a sum to be 56, অ্যাডভান্স
 difference = $\frac{56}{7} = 8$
 numbers are $\frac{56+8}{2}, \frac{56-8}{2}$ i.e. 32, 24
 $\Rightarrow \text{HCF} = 8$
 $\therefore \text{HCF} = \frac{\text{sum}}{7} = \frac{\text{pq}}{7}$
2. (d) In small bracket $\left(2 + \frac{2}{4}\right) = \frac{5}{2}$. In middle bracket
 $= \left(2 + 2 \div \frac{5}{2}\right) = 2 + 2 \times \frac{2}{5} = \frac{14}{5}$ অ্যাডভান্স
 In large bracket, $\left[2 + 2 \div \frac{14}{5}\right] = 2 + 2 \times \frac{5}{14} = \frac{19}{7}$
 $\text{LHS} = 2 \div \frac{19}{7} = \frac{14}{19} = \frac{x}{19}$ (given) $\Rightarrow x = 14$
3. (b) Assume total students = 100, then workout as
 $12 + \frac{3}{4} \times 100 + 10 \times 100 = 97$, remaining = 100
 $- 97 = 3$

but actual remaining = 15, total students = 5
 $\times 100 = 500$

4. (c) Let x% is second discount, then
 $45 \times 450 \times \frac{90}{100} \times \frac{100-x}{100} = 344.25$ অ্যাডভান্স
 $\Rightarrow 405 \left(\frac{100-x}{100}\right) = 344.25$
 $\Rightarrow 100 - x = 85$
 $\therefore x = 15$
5. (d) Using the sum concept, sum of ages of 11 players = 23×11
 Sum of 9 players = $3(21 + 24 + 26)$
 $= 71 \times 3 = 213$
 Age of captain + youngest player = $253 - 213$
 $= 40$ yrs.
 Age of captain = $40 - 2 \times 8 = 24$ yrs.
6. (a) Assume, numbers are 5x, 4x অ্যাডভান্স
 40% of 5x = 12
 $\Rightarrow x = 6$
 50% of 4x = $\frac{1}{2} \times 4x = 12$
7. (b) A's 2% increase = ₹400,
 A's Profit = $\frac{400}{2\%} = ₹20000$
 Now, $\frac{2}{3}$ Profit = ₹20000,
 $\Rightarrow \text{Total Profit} = ₹30000$
 B's Profit = $\frac{1}{2} \times \frac{1}{3} \times 30000 = ₹5000$
8. (d) Here, simply find the amount of water first, as
 amount of water অ্যাডভান্স
 $= 12\% \text{ of } 2 + 7\% \text{ of } 3 + \frac{1}{2} = 0.95$
 Total quantity of mixture = $2 + 3 + \frac{1}{2} = 5.5$
 Required percentage = $\frac{.95}{5.5} \times 100 = 17\frac{3}{11}\%$
9. (d) Men : Women : boys = 15 : 24 : 36 = 5 : 8 : 12
 8 Women = 12 boys
 $\Rightarrow 12 \text{ women} = \frac{12}{8} \times 12 = \frac{15}{2} \text{ men}$ } all converted to men.
 12 boys = 5 men $\Rightarrow 6 \text{ boys} = \frac{5}{2} \text{ men}$.

$$\therefore 12 \text{ women} + 6 \text{ boys} = \frac{15}{2} + \frac{5}{2} = 10 \text{ men.}$$

Let no. of men = x

অ্যাডভান্স

Using chain rule, $(x + 10) \times 30 \times 6$

$$= 15 \times 12 \times 8 \times 2.25 \Rightarrow x = 8$$

10. (c) Area $A = 240 \text{ cm}^2$, Perimeter $P = 68 \text{ cm}$

In a rectangle, refer table 26.1 using

$$x^2 - \left(\frac{P}{2}\right)x + A = 0;$$

$$\text{or } x^2 - 34x + 240 = 0$$

$$\text{or } x^2 - 24x + 240 = 0;$$

$$\text{or, } (x - 24)(x - 10) = 0;$$

$$\therefore x = 24 \text{ or } 10$$

$$\therefore l = 24 \text{ (and) } b = 10. \quad (\text{Since } l > b)$$

$$\text{length} = 24 \text{ cms; breadth} = 10 \text{ cm}$$

