

NASRDA Promotion Exam: Cheat Sheet

Exam: Thursday 15 October 2026. Source: last year's past questions and the exam preparation notes. PSR facts verified against the PSR 2021 text (rule numbers given). 🚩 = trap or disputed key.

1. Public Service Rules (PSR 2021)

Topic	Rule / fact	PSR ref
Application	PSR applies to all officers EXCEPT where it conflicts with specific terms approved by FG and written into the contract or letter of appointment. PSR is subject to the Constitution.	010101
Entry age	Applicant must be not less than 18 and not more than 50 years old.	020206
Who appoints	GL.07-17: Federal Civil Service Commission (FCSC). GL.06 and below: Junior Staff Committee of the Ministry/Office.	020102-3
Probation	First pensionable appointment = probation for 2 years (can be reduced, but never below 6 months, by counting prior service).	020205/020301
Progress reports	Rendered at 6-month intervals from the date of first appointment; they record conduct and capability.	050101-2
Confirmation needs	Complete probation + pass the prescribed exam + satisfactory conduct/performance + medical fitness. NOT 'attaining GL.08'.	020303
COMPRO	May sit after 6 months in service. Group B: PSR, Financial Regulations, Computer Appreciation & Literacy, General Paper.	020306/0301
Fail 3 times	Fail 3 consecutive attempts = must resign or withdraw (deemed to have exited the service).	030104/020906
Promotion: years in post	GL.06 and below: 2 yrs. GL.07-14: 3 yrs. GL.15-17: 4 yrs.	020802(c)
Promotion basis	Competitive merit + performance + seniority. Officers under disciplinary action are excluded.	020802
Promotion authority	≤GL.06: MDA. GL.07-14: MDA/pool + HCSF approval, confirmed by FCSC. GL.15-17: FCSC (through OHCSF).	020802(e)
Posting	Pool officers posted every 4 years (mandatory). Posting outside your cadre is prohibited. Refusing a posting = misconduct.	020602
Secondment	Temporary release to another Service/organisation; maximum 2 years in the first instance.	0205
Interdiction 🚩	Removed from duty while dismissal proceedings are under way, on HALF salary.	Ch.1 defs
Suspension 🚩	Removed from duty where a serious prima facie case is established, with NO salary.	Ch.1 defs
Retirement	60 years of age or 35 years of pensionable service, whichever comes first.	020908
Resignation	May have to refund training costs (governed by the training bond).	0209
Increment	Effective 1 January, if at least 6 months on the grade. Withholding is a more serious penalty than deferment; deferment lasts 3-6 months.	040203-5
Chapters	Ch.4 = Emoluments & Increments. Ch.5 = Performance Management (progress reports, APER/PMS).	
PMS cycle	January to December.	050301
Pension	Mandatory contribution to the Contributory Pension Scheme (Pension Reform Act).	Ch.2 s.10

2. NASRDA and Nigerian satellites

Item	Fact
Established	5 May 1999 (official, under President Obasanjo). ► The 2025 exam document says 2001; if 1999 isn't an option, pick 2001.
Act	NASRDA Act No. 9 of 2010.
Ministry	Federal Ministry of (Innovation,) Science and Technology.
First Minister	Prof. Turner T. Isoun (the notes spell it 'Isowu').
DG now	Prof./Dr. Matthew Olumide Adepoku, appointed May 2024. His vision: a sustainable space ecosystem driven by the private sector, commercialisation of research, a spaceport and an astronaut programme.
Mandate	Pursue space capability for socio-economic development and a better quality of life (research, education, engineering, hardware and software).
DMC	Disaster Monitoring Constellation. 5 countries: China, Algeria, Nigeria, Turkey, UK. Nigeria contributed NigeriaSat-1.

Satellite	Launch	Key facts
NigeriaSat-1	27 Sep 2003 (Russia)	First Nigerian satellite. DMC member. LEO SSO about 686 km, 100 kg. 32 m multispectral, 600 km swath, Green/Red/NIR bands. Decommissioned 2014.
NigComSat-1	13 May 2007 (China)	Communications satellite, GEO 42.5°E, 5,150 kg, DFH-4 bus (4 C, 14 Ku, 8 Ka, 2 L transponders). Failed 11 Nov 2008 (solar array anomaly) after about 18 months.
NigeriaSat-2	17 Aug 2011 (Russia)	High-res EO, about 300 kg. 2.5 m pan, 5 m MS, 32 m MS (VHRI + MRI). 7-year design life.
NigeriaSat-X	17 Aug 2011 (with Sat-2)	Built by Nigerian engineers at SSTL (UK) for training. 32 m, 300 km swath.
NigComSat-1R	19 Dec 2011 (China)	Replacement for NigComSat-1 at no cost (insurance). GEO 42.5°E, improved DFH-4.
Nigeria EduSat-1	3 Jun 2017 to ISS; deployed 7 Jul 2017	1U CubeSat, about 1 kg, built by FUTA + Japan's Birds-1/Kyutech. Deorbited May 2019.
DELSAT-1	Unveiled 2022	First military satellite, operated by the Defence Space Administration (DSA). Used for geospatial intelligence.
Operators		EO satellites = NASRDA. Communications = NIGCOMSAT Ltd. Military = DSA. New in 2026: FEC approved NIGCOMSAT-2A/2B (Thales Alenia).

3. Remote sensing fundamentals

Concept	Fact to remember
Definition	Observation from a distance using sensors ('look-look, no touch'). Uses electromagnetic radiation. Answers 'how much of what is where?'
Active vs passive	Passive = natural energy (optical sensors, sunlight). Active = provides its own energy (RADAR = microwave; LiDAR = laser).
Microwave/RADAR	Works day and night and in all weather.
EM grouping (notes)	Medical = X-ray and gamma. Environmental = visible, IR (near/mid/thermal/far), microwave. Communication = radio and TV.
Scattering	Rayleigh: particles much smaller than λ (gas), causes blue sky. Mie: particles about the same size as λ (smoke, dust, pollen). Non-selective: particles much larger than λ (cloud droplets), makes clouds white, so optical sensors cannot see through cloud.
Attitude	Pitch, Roll, Yaw cause geometric distortion.
4 resolutions	Spatial (ground area per pixel), Spectral (number and width of bands), Temporal (revisit time), Radiometric (bits: 8-bit = 256 levels, 0-255).
Spatial classes	VHR under 1 m. High 1-5 m. Medium 5-60 m. Low over 100 m.
Composites	True colour, False colour, Pseudo colour.
Indices	NDVI = $(\text{NIR} - \text{Red})/(\text{NIR} + \text{Red})$, for vegetation health. NDWI = water bodies.
Platforms	Satellite, aircraft, drone (best for small local areas). A microscope is NOT a platform. Aerial photography = airborne remote sensing.
GNSS	Global Navigation Satellite System. GPS (USA, 24 satellites), GLONASS (Russia), Galileo (EU), BeiDou/Compass (China), IRNSS/NavIC (India).
Trivia	1 cm drone imagery of 1 km ² = about 180 GB raw data. Multidisciplinary = optics + electronics + computers.

4. Digital image processing

Concept	Fact to remember
3 stages	Pre-processing (atmospheric, radiometric and geometric correction, georeferencing, done 'to enhance the image') → Processing proper (classification, NDVI) → Post-processing (filtering, accuracy assessment, layout); the output is a map.
Phase order	Acquisition → Enhancement → Analysis.
Georeferencing	Aligning an image to real-world coordinates using GCPs. This is a geometric correction. Rectification corrects distortions.
Resampling	Nearest neighbour, bilinear interpolation, cubic convolution. Not 'Fourier correction'.
Atmospheric correction	Adjusts radiometric distortions.
Classification	Supervised: the analyst guides it with training areas → signatures → classify. Unsupervised: clusters first, then the analyst labels them. Types: supervised, unsupervised, visual (NOT 'symbolic').
Accuracy	Overall, user's and producer's accuracy, plus the Kappa statistic.
Change detection	Comparing images over time, using time-series data.
Image basics	Pixel = smallest unit. DN = recorded intensity. Binary image = black and white only. Digital images have a finite number of elements; their advantage is no noise accumulation.

5. GIS concepts

Concept	Fact to remember
5 components	Hardware, Software, Data, People, Methods.
3 sub-systems	Data acquisition (remote sensing, photogrammetry, survey, digitising), Data management (capture, storage, distribution), Data presentation/visualisation (maps, charts).
GIS question	'What is where, when, how ... and what if'. The ultimate goal is decision making.
Data structures	Vector (points, lines, polygons; for boundaries and roads) vs raster (grid cells with DN; for continuous phenomena; overlay is raster analysis). 'Spherical' is NOT a structure.
DB design	Conceptual ('what') → Logical ('how of the details') → Physical ('how of implementation', e.g. Oracle, ArcCatalog).
DB models	Hierarchical (oldest, one-to-many) · Network (many-to-many) · Relational/Object-relational (tables) · Object-Oriented (most recent). Raster is NOT a database model.
Measurement scales	Nominal (land use, land cover) · Ordinal (rank) · Interval (°C, no true zero) · Ratio (distance, area, elevation; true zero). 'Intermediate' is NOT a scale.
Metadata	Dataset scale and source are recorded in the metadata.

6. Cartography

Concept	Fact to remember
Definition	The art, science and technology of map making. Communication works by encoding and decoding.
Earth shape	Geoid. Projection = turning the curved Earth into a flat surface. GCS (lat/long) vs PCS (projected).
Projections	Cylindrical (best for equatorial areas) · Conic (mid-latitudes) · Planar/Azimuthal (polar). Distortion affects shape, area, distance and direction.
Preserve	Conformal = shape. Equal-area = area. Equidistant = distance. Azimuthal = direction.
Scale ►	Large scale (1:250) = small area, more detail. Small scale (1:1,000,000) = large area, less detail. ► Last year's key called 1:50,000 small-scale. Reducing scale requires generalisation (meaningful reduction of detail).
Map elements	Title, legend (explains symbols), scale bar, north arrow (direction), date, source (data origin and producer), producer's name, spatial reference. ► In last year's MCQ, 'producer's name' was the answer for 'NOT basic to map design'.
Visual variables	Shape, size, pattern, texture, value, colour (hue/saturation/intensity). Secondary: shadow, association. Size and value suit quantities; shape and hue suit categories.
Map types	Topographic vs thematic. Choropleth = graduated colours by region. Chorochromatic = categories by colour. Isoline = continuous data. Dot = individual quantities. Flowline = direction and volume of movement. 'Gridline map' is NOT a method. Atlas = a collection of maps. Image map = an enhanced satellite or aerial photo. Mental map = personal perception. Rivers are blue.

► Disputed keys from last year: RS-13 (astronomical satellites exist; key C), RS-38 (producer's name), RS-74 (IRNSS = NavIC), RS-76 (1:50,000). Give last year's key unless the options make it clearly wrong.